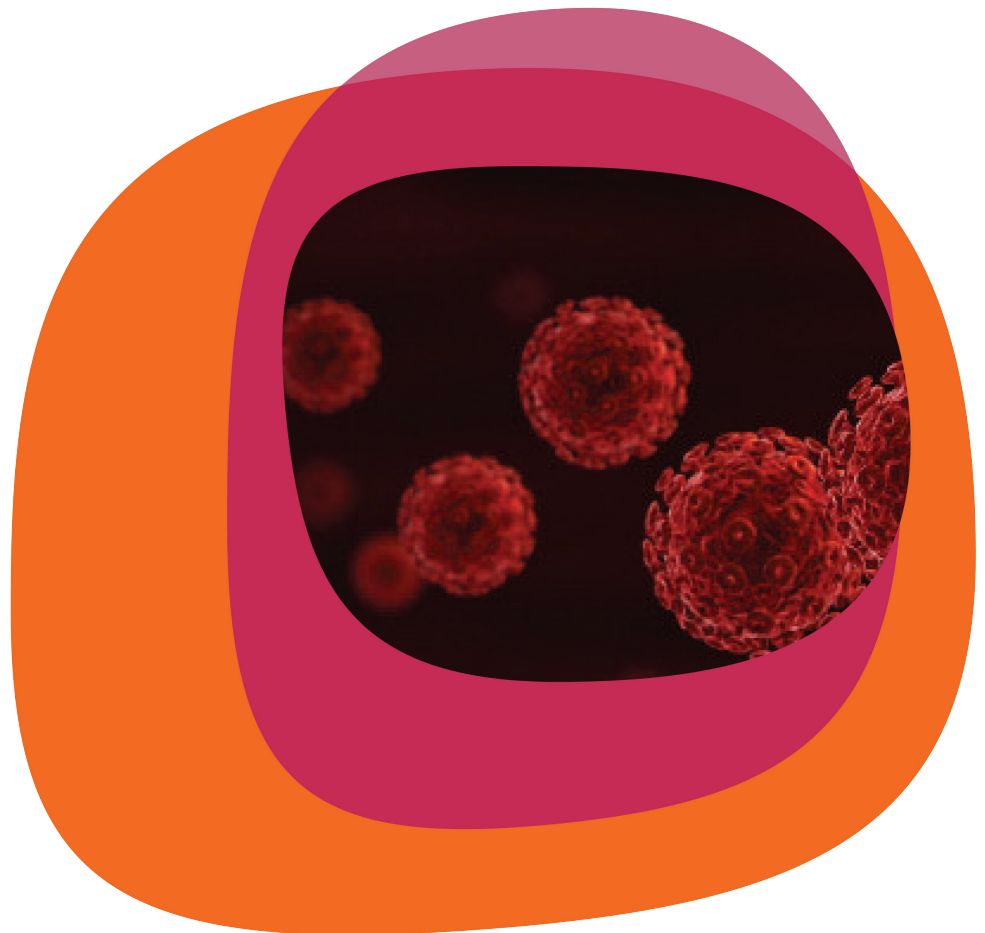


SEXUALLY TRANSMITTED INFECTIONS

Abstracts for the STI &
HIV World Congress [Joint
Meeting of the 23rd
ISSTD and 20th IUSTI]
July 14–17, 2019
Vancouver, Canada

Guest Editors:
David Lewis,
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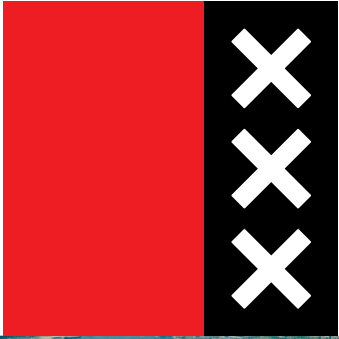
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sexual diversity and the city

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get out of our
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and involve
communities
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Henry de Vries,
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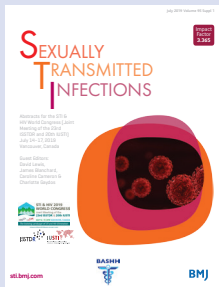
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We recommend independent verification of diagnosis and drug dosages.



An official journal of the British Association of Sexual Health and HIV



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Keynote Presentations

K01 – OPENING KEYNOTE LECTURE – 2019 ISSTD PRESTIGIOUS LECTURE: BACTERIAL STI VACCINES – ETERNAL DREAM OR FUTURE REALITY?

Sunday, July 14, 2019 6:30 PM – 7:30 PM

K01.1 BACTERIAL STI VACCINES – ETERNAL DREAM OR FUTURE REALITY?Rino Rappuoli*. *GSK Vaccines, Siena, Italy*

10.1136/sextrans-2019-sti.1

Vaccination has been the most effective medical intervention in the history of mankind. Infectious diseases that used to kill or cause disability in millions of people annually such as diphtheria, tetanus, smallpox, polio, measles, mumps, and rubella were conquered during the last century with the first wave of vaccines. The second wave of vaccination started during the 1980s and consisted of vaccines that were made possible by the new technologies such as recombinant DNA, conjugation, genomics, that allowed the development of vaccines against Hepatitis B, papillomavirus, *Haemophilus influenzae*, pneumococcus, and meningococcus. Thanks to the advances in understanding of the structure of the antigens and their epitopes and how they interact with the human immune system we are now entering the third wave of vaccine development, characterized by optimal design antigens, adjuvants and delivery systems. This new phase is expected to tackle diseases such as tuberculosis, malaria, and HIV and STIs that have, so far, been refractory to vaccine development.

K02 – CLOSING KEYNOTE LECTURE – MAKING SCIENCE WORK TO DELIVER EFFECTIVE PROGRAMMES AT SCALE

Wednesday, July 17, 2019 3:45 PM – 4:45 PM

K02.1 MAKING SCIENCE WORK TO DELIVER EFFECTIVE PROGRAMMES AT SCALECharlotte Watts*. ¹London School of Hygiene and Tropical Medicine, London, UK; ²UK Department of International Development (DFID), London, UK

Plenary Presentations

D01 – DEBATE – AMONG MEN WHO HAVE SEX WITH MEN, PHARYNGEAL INFECTION CONTRIBUTES MORE TO POPULATION LEVELS OF GONORRHEA TRANSMISSION THAN URETHRAL INFECTION, RECTAL INFECTION, OR BOTH?Wednesday, July 17, 2019
9:25 AM – 10:15 AM**D01.1 AMONG MEN WHO HAVE SEX WITH MEN, PHARYNGEAL INFECTION CONTRIBUTES MORE TO POPULATION LEVELS OF GONORRHEA TRANSMISSION THAN URETHRAL INFECTION, RECTAL INFECTION, OR BOTH (FOR THE MOTION)**Christopher Fairley*. *Alfred Health, Melbourne Sexual Health Centre, Carlton, Australia*

10.1136/sextrans-2019-sti.2

At first glance, it seems entirely reasonable that the penis is the key transmitting organ- it secretes large organism load and is inserted into mouth and anus. But ask yourself- how many men who one has sex with have gonorrhoea in their penis at the time? Is it enough to generate an incidence of about 20% in the throat and anus per year? The penis develops symptoms within days, has an incidence of only 5–10% per year so only 1 in 200 men at any one time are infectious. To generate a throat incidence of 20% would require about 100 partners a year assuming a high per partner transmission efficiency of 50%. However at any point in time about 5–10% of men have throat gonorrhoea; most kiss and exchange saliva. To generate a 20% incidence in the throat would require 2 partners per year (50% transmission). So why have not considered this route of transmission seriously before? Some suggestions; culture was very insensitive at the throat and suggested infection was rare, kissing is highly correlated with other risks, some countries have longer duration urethral gonorrhoea from poor access to treatment and in these situations the penis does play a major role, and kissing has not been measured virtually at all until now. So what then is the evidence for kissing (and saliva) playing a role in transmission? Saliva is often culture positive when a throat is positive, people kiss often, kissing independently predicts the presence of throat gonorrhoea, saliva use during anal sex predicts anal gonorrhoea, positivity in partner studies don't fit just penile transmission, and recently outbreak of throat gonorrhoea could only be explained by kissing. You make your minds up. Is it time to re think gonorrhoea transmission with an open mind(or mouth).

Disclosure No significant relationships.

D01.2 AMONG MEN WHO HAVE SEX WITH MEN, PHARYNGEAL INFECTION CONTRIBUTES MORE TO POPULATION LEVELS OF GONORRHEA TRANSMISSION THAN URETHRAL INFECTION, RECTAL INFECTION, OR BOTH (AGAINST THE MOTION)

H Hunter Handsfield*. *University of Washington, Seattle, USA*

10.1136/sextrans-2019-sti.3

Under the renowned transmission paradigm $R_0 = \beta cD$, the reproductive rate of an infection (R_0) may be ≥ 1.0 – sufficient to sustain or raise prevalence in a defined population – despite a short duration of infectivity (D), if transmission efficiency (β) or the rate of transmission events (c) is sufficiently high. β is substantial for urethral to pharyngeal transmission, and probably modest for pharynx to urethra. But is β for anilingus – for pharyngeal to rectal infection or rectal to pharyngeal – sufficient to sustain prevalent infections at either anatomic site? Is β for kissing high enough to contribute substantially to pharyngeal gonorrhoea? Overall, is β for pharyngeal gonococcal infection sufficient to account, directly or indirectly, for half or more of all gonorrhoea in men who have sex with men (MSM)? This proposition flies in the face of a century of historical opinion and clinical observation, the anatomy of sex, and available data. As observed by Marcello Truzzi and famously popularized by Carl Sagan, extraordinary claims require extraordinary evidence, a standard not met by observations in a single clinic or metropolitan area or by mathematical models that may not account for confounding factors. While bidirectional transmission by fellatio is well documented and contributes to ongoing transmission in MSM, the transmission efficiency of gonorrhoea by kissing, or by anilingus for either rectal or pharyngeal infection (or by cunnilingus, in either direction) probably is insufficient to sustain prevalence. Indeed, if anal and vaginal sex magically disappeared as sexual practices, gonorrhoea might disappear entirely in exclusively heterosexual men and women and would become uncommon in MSM, including those with high rates of partner change. Reject the proposition!

PL01 – THE ROLE OF GENOMICS IN THE DIAGNOSIS AND MANAGEMENT OF STIs

Monday, July 15, 2019 8:15 AM – 8:50 AM

PL01.1 THE ROLE OF GENOMICS IN THE DIAGNOSIS AND MANAGEMENT OF STIS

Helena Seth-Smith*. *University Hospital Basel, Department of Clinical Bacteriology/ Mycology, Basel, Switzerland*

10.1136/sextrans-2019-sti.4

The diagnosis of sexually transmitted infections (STIs) is a prequel to treatment. The more accurate the diagnosis, the better the treatment that can be offered. From syndromic diagnosis, through species diagnosis, to data on antimicrobial resistance (AMR) mechanisms carried by the infectious agent, higher resolution means improved treatment. The speed at which this information can be gathered is also critical to the successful administration of appropriate treatment and patient compliance. With the continuing global rise in STI diagnoses, the observed danger of diagnostic escape, and the imminence of untreatable

gonorrhoea, we need to understand the evolution of STIs and the selection pressures that they are under. Whole genome sequencing can contribute a great deal towards this. Genomics has given us many insights into the lifestyles and evolution of bacterial STIs, over long and short term. Genomic surveillance will always be necessary to decipher population dynamics and to characterise novel strains. Work on genital microbiota and metagenomics can provide information on mixed infections. The pressing question is whether genomics can be used to rapidly develop point of care diagnostic tests, enabling practitioners to provide the most appropriate care for their patients.

Disclosure No significant relationships.

PL02 – IDENTIFICATION AND MANAGEMENT OF COMPLICATED SYPHILIS

Monday, July 15, 2019 8:50 AM – 9:25 AM

PL02.1 IDENTIFICATION AND MANAGEMENT OF COMPLICATED SYPHILIS

Christina Marra*. *University of Washington, Seattle, USA*

10.1136/sextrans-2019-sti.5

While the course of syphilis can be complicated by involvement of virtually all organ systems, arguably the most difficult forms of complicated syphilis to identify and manage are those that involve the nervous system. In the pre-antibiotic era, all patients with syphilis, regardless of symptoms, underwent a lumbar puncture (LP), and those with cerebrospinal fluid abnormalities received augmented therapy in an effort to prevent subsequent symptomatic neurosyphilis. When penicillin became available, this practice seemed unnecessary. Subsequent reports of symptomatic neurosyphilis after appropriate treatment for early syphilis in persons living with HIV revived LP in neurologically asymptomatic individuals. However, its benefit in terms of morbidity averted is unknown, and recommendations have varied despite lack of data. In this presentation, complicated syphilis is defined as neurosyphilis, ocular syphilis, or otosyphilis. Topics to be discussed include epidemiology, host and bacterial risk factors, screening, the role of LP in management, and treatment.

Disclosure No significant relationships.

PL03 – ENGAGING INDIGENOUS COMMUNITIES IN HEALTH PROGRAMS

Monday, July 15, 2019 9:25 AM – 10:00 AM

PL03.1 ENGAGING INDIGENOUS COMMUNITIES IN HEALTH PROGRAMS

Charlotte Loppie*. *University of Victoria, Victoria, Canada*

10.1136/sextrans-2019-sti.6

Indigenous peoples and communities experience a disproportionate burden of STBIs within specific historical, socio-

political and cultural contexts. To better understand these contexts and promote wellness, it is useful to apply a social determinants of health model, which derives its concepts from Indigenous worldviews, philosophies and values. This model utilizes the tree as a natural metaphor of dynamic and interrelated structures and systems, to explore Indigenous peoples' experience of STBBIs, which are influenced by *stem*, *core* and *root determinants*. *Stem* determinants are proximal conditions that directly influence the acquisition and amelioration of STBBIs, while *core* determinants (e.g. systems, infrastructure, cultural continuity) influence the development of stem determinants. Deeply entrenched *root* determinants represent socio-political, economic and cultural contexts, including racist ideologies, attempted cultural genocide, and political domination, which have the most profound influence on health because they shape core and stem determinants. In order to address the current challenge of STBBIs among Indigenous peoples, we must explore the relationship between the stem, core and root determinants of Indigenous wellness.

Disclosure No significant relationships.

PL04 – 2019 IUSTI PRESTIGIOUS LECTURE – REVISING STI TREATMENT GUIDELINES IN TIMES OF RAPIDLY EVOLVING ANTIMICROBIAL RESISTANT STIs

Monday, July 15, 2019 1:45 PM – 2:20 PM

PL04.1 REVISING STI TREATMENT GUIDELINES IN TIMES OF RAPIDLY EVOLVING ANTIMICROBIAL RESISTANT STIs

Jørgen Jensen*. *Statens Serum Institut, Research Unit For Reproductive Microbiology, Copenhagen, Denmark*

10.1136/sextrans-2019-sti.7

Clinical guidelines should be evidence based and prepared after a systematic review of preferably randomised controlled clinical trials. They should include clear grading of the recommendations according to the level of evidence and provide an assessment of the benefits and harms of alternative care options. However, many guideline recommendations are not supported by clinical trials, but rely on expert opinion simply because trials are not available. Even when clinical trials are available, they do not always provide relevant answers. This is particularly the situation when rapidly changing antimicrobial susceptibility make even recent clinical trials outdated and invalid.

The emergence of cephalosporin resistant *Neisseria gonorrhoeae* resulted in recommendations for dual therapy without clinical trials to document superior cure rates. Such trials would be nearly impossible to conduct, as ceftriaxone alone is still highly efficacious, and thus, treatment failure would be a

very rare event. The recommendation for the choice of combination therapy and dosing was based mainly on expert opinion and varied significantly between guidelines. Most recently, the UK BASHH gonorrhoea guideline even moved back to ceftriaxone monotherapy reflecting this uncertainty.

For *Mycoplasma genitalium*, resistance to first-line azithromycin is well above 50% in many populations and resistance to second-line moxifloxacin is rapidly increasing, leaving very few available treatment options. This has resulted in expert opinion recommendation that testing for this pathogen should be done only in symptomatic patients, and it has been discussed if the recommendation for test of cure should be limited to patients with persisting symptoms. Such changes in recommendations without real clinical evidence will most likely become more common in the future.

Disclosure JSJ received speaker's fee from Hologic, BD, SpeeDx, and Cepheid and serves scientific advisory board of Roche Molecular Systems, Abbott Molecular, and Cepheid

PL05 – PRIORITIES FOR RESEARCH AND PROGRAMMES FOR TRANS COMMUNITIES

Monday, July 15, 2019 2:20 PM – 2:55 PM

PL05.1 PRIORITIES FOR RESEARCH AND PROGRAMMES FOR TRANS COMMUNITIES

Tonia Poteat*. *University of North Carolina Chapel Hill, Department of Social Medicine, Chapel Hill, USA*

10.1136/sextrans-2019-sti.8

Trans communities across the world are disproportionately burdened by HIV and STIs. Structural, institutional, social, and individual factors have been implicated as drivers of HIV/STI vulnerability. This plenary presentation will summarize the global epidemiology of HIV/STIs and their multi-level drivers among trans populations. Relationships between stigma, sex work, and co-occurring syndemics of substance use, violence, HIV/STIs will be described. Data on effective behavioral and biomedical interventions to prevent HIV/STI acquisition among transgender adolescents and adult will be reviewed. The impact of gender-affirming medical interventions on HIV/STI acquisition risk will be discussed as well as the latest data on pre-exposure prophylaxis uptake, adherence, and drug-drug interactions. More research is needed on HIV/STI epidemiology among trans masculine and gender non-binary individuals, and gaps remain in basic data from trans communities in sub-Saharan Africa and Eastern Europe/Central Asia. Where epidemiologic data exist, implementation science studies are needed to inform how best to implement and scale up multi-component, high impact, prevention care and treatment interventions that address multilevel barriers to HIV/STI prevention and treatment.

Disclosure No significant relationships.

PL06 – MATHEMATICAL MODELLING, A LUXURY OR A NECESSITY IN STD CONTROL?

Monday, July 15, 2019 2:55 PM – 3:30 PM

PL06.1 MATHEMATICAL MODELLING, A LUXURY OR A NECESSITY IN STD CONTROL?

Geoff Garnett*. *Bill and Melinda Gates Foundation, Seattle, USA*

10.1136/sextrans-2019-sti.9

Mathematical models of sexually transmitted disease (STD) aim to represent sexual contact networks, pathogen characteristics, and intervention activities, helping understand and quantify STD epidemics and their control. Models are, unfortunately, necessary because non-linear infectious disease dynamics combined with many interacting variables undermines intuitive understanding. It is hoped that rational decision makers will include a range of evidence, including the finding of models, in funding, planning, implementing, and evaluating STD interventions and programs. The level of detailed required for informative models that can lead to better decisions, and how models can best be included in the international, national, and local public health ecosystem are areas for attention. Questions to consider are: 1) The pros and cons of focusing resources on sub-groups within a population. This is influenced by the biology and behavior associated with the STD, along with structural context. 2) How to ensure successful implementation of interventions? Here simple cascades are being used to identify gaps in treatment and prevention. 3) What is the relative value of developing, introducing and scaling the use of specific testing, treatment and prevention products in STD programs? The epidemiological context and coverage of other interventions have profound implications here. 4) How do we design a surveillance system that provides timely and actionable data on STD epidemiology? Here again the epidemiological context matters. The history of modeling STDs provides many examples that address such questions, and models are currently influencing policy, particularly in HIV programs. However, the development and validation of models in STD epidemiology has been hampered by our inability to directly measure the sexual network via which STDs spread. Recent efforts to evaluate model performance, and advances in pathogen sequencing and phylogenetic analysis, provide avenues to improve the validity and utility of STD models as their use becomes more systematic.

Disclosure No significant relationships.

PL07 – GLOBAL TRENDS IN HIV IN THE ERA OF COMBINATION PREVENTION – WHAT PROGRESS HAVE WE MADE TOWARDS ELIMINATION?

Tuesday, July 16, 2019 8:15 AM – 8:50 AM

PL07.1 GLOBAL TRENDS IN HIV IN THE ERA OF COMBINATION PREVENTION – WHAT PROGRESS HAVE WE MADE TOWARDS ELIMINATION?

Wafaa El-Sadr*. *Columbia University, New York, USA*

10.1136/sextrans-2019-sti.10

The global HIV response has had notable effects on the trajectory of the epidemic. Dramatic declines in morbidity and mortality have been noted in association with the scale-up of effective antiretroviral therapy (ART). Additionally, the number of new HIV infections has decreased to historical lows. However, only about half of the persons living with HIV have accessed ART and more than one million new HIV infections were reported in 2017. Evidence indicates that there is unlikely to be a single magic bullet for prevention of HIV transmission. Rather, combination HIV prevention strategies have been posited as the way to achieve the goal of decreasing the number of new infections to 500,000 by 2020, with a focus on both HIV negative and HIV positive individuals. A mix of behavioral, biomedical and structural HIV prevention interventions are likely to be needed. Several large studies have been completed examining the effect of combination prevention strategies on HIV with mixed results at a community level. At the same time, the findings from recently conducted Population-based HIV Impact Assessment (PHIA) surveys in several sub Saharan African countries have demonstrated some impressive, but variable progress in controlling the epidemic. Both of these efforts have shed light on the gaps in the HIV response. This plenary talk will provide background information on the status of the global HIV epidemic, progress to date, gaps in the response, and ways in which combination prevention approaches can show the path towards epidemic control.

PL08 – #METOO MOVEMENT, SYSTEMS OF POWER AND SEXUAL HEALTH AND WELLBEING: THE WIDENING OF THE #METOO MOVEMENT

Tuesday, July 16, 2019 8:50 AM – 10:00 AM

PL08.1 #METOO MOVEMENT, SYSTEMS OF POWER AND SEXUAL HEALTH AND WELLBEING: THE WIDENING OF THE #METOO MOVEMENT

¹Irin Carmon*, ²Rebecca Thurston*. ¹*New York Magazine and CNN Contributor, New York, USA*; ²*University of Pittsburgh, Pittsburgh, USA*

10.1136/sextrans-2019-sti.11

The Plenary Panel '#MeToo Movement, Systems of Power and Sexual Health and Wellbeing: The Widening of the

#MeToo Movement' will bring together expert speakers to discuss the impact and implications of the #MeToo movement for sexual health, social justice and equity.

Presentation: The MeToo Movement's 2019 PSA Campaign

This panel will show the new campaign from the #MeToo Movement from creative agency Deutsch and #MeToo movement creator Tarana Burke. The videos focus on the dignity, humanity and healing of survivors of sexual violence. They feature firsthand accounts and reflections from four survivors of sexual violence and abuse, including Terry Crews. 'In the year that's gone by, I've learned that silence is violence,' says the 'Brooklyn Nine-Nine' star in the video. 'I will not be shamed. I did nothing wrong.'

PL09 – UNDERSTANDING CHLAMYDIA PATHOGENESIS

Tuesday, July 16, 2019 1:45 PM – 2:20 PM

PL09.1 UNDERSTANDING CHLAMYDIA PATHOGENESIS

Kevin Hybiske*. *University of Washington, Seattle, USA*

10.1136/sextrans-2019-sti.12

Chlamydia trachomatis is the leading cause of bacterial sexually transmitted infection, and is responsible for a range of chronic and severe reproductive outcomes. The ability of *Chlamydia* to cause chronic infection is linked to unique mechanisms associated with chlamydial pathogenesis: *Chlamydia*'s obligate intracellular nature, its ability to evade host immune responses, and its reversible conversion into 'persistent' developmental forms. The past decade of *Chlamydia* research is marked by groundbreaking advances in genetic manipulation of *Chlamydia*, which in turn has catalyzed our mechanistic insight into *C. trachomatis* host adaptation and pathogenesis. Our recent progress will be discussed, along with the resulting new understanding obtained in the areas of chlamydial virulence factors, immune evasion strategies, persistence, and dissemination. Finally, I will discuss emerging areas of research in *C. trachomatis* infections, including the role of the microbiome, rectal infections, tissue resident memory T cells, drug treatment failures, and the short- and long-term prospects for treating *Chlamydia* infections.

Disclosure No significant relationships.

PL10 – THE GLOBAL HIV RESPONSE AT 40

Tuesday, July 16, 2019 2:20 PM – 2:55 PM

PL10.1 THE GLOBAL HIV RESPONSE AT 40

David Wilson*. *World Bank, Washington, USA*

10.1136/sextrans-2019-sti.13

As the global HIV response approaches 40, we can trace 3 phases in its evolution. The first phase, from the early 1980s to the late 1990s, is characterized as an era of despair, as the virus raged unchecked through communities and political

commitment and resources were scarce. The second phase from the early 2000s to about 2012 represents one of hope, with effective treatments developed and political commitment and international resources surging. HIV financing grew 30% annually a decade, an unprecedented increase. After 2012, the HIV response entered a period of uncertainty. Development assistance for HIV fell for the first time. International financing for HIV has grown perilously reliant on one funder - the US. Political commitment has fallen globally and nationally. In the epicenter of HIV, Eastern and Southern Africa, concerted international support has underpinned a sustained response, but domestic resource mobilization is uneven and inadequate. Outside Eastern and Southern Africa, the response is faltering in great swathes of the world. Stigma against key populations remains widespread. Advocacy-based claims that we can end the HIV epidemic are premature and have contributed to a perception that the crisis is largely over. Competing disease priorities - including TB, malaria and hepatitis - are pressing their claims for a share of a pie that isn't growing. The HIV movement has an equivocal relationship with the Universal Health Coverage (UHC) movement - concerned that its profile and financing may be diluted by integration. This presentation discusses these challenges and presents 2 scenarios - a high road to success and a low road to failure - based on choices we are making today.

Disclosure No significant relationships.

PL11 – GLOBAL HEALTH LEGACIES, SUSTAINABLE DEVELOPMENT GOALS, AND IMPLICATIONS FOR SEXUAL & REPRODUCTIVE HEALTH

Tuesday, July 16, 2019 2:55 PM – 3:30 PM

PL11.1 GLOBAL HEALTH LEGACIES, SUSTAINABLE DEVELOPMENT GOALS, AND IMPLICATIONS FOR SEXUAL & REPRODUCTIVE HEALTH

David Peters*. *Johns Hopkins University Bloomberg School of Public Health, International Health, Baltimore, USA*

10.1136/sextrans-2019-sti.14

In exploring the historical origins of global health – conceived as interventions in the health of other populations – this presentation identifies key themes that shape our thinking and action, including those related to sexual and reproductive health (SRH). The adoption of the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs) offers a paradigm shift from the past. Using examples related to inequity, climate change, and migrant populations, the presentation examines the connections to and implications for SRH, identifying new opportunities and imperatives for action. Despite massive increases in the scale and complexity of global health efforts, the rationale and approaches for intervention have changed little, creating a legacy of:

1. Primacy of science. Advances in science in low resource settings have saved millions of lives around the world, yet has privileged biomedical and technological applications to addressing one health problem at a time, but with significant opportunity cost to building local capabilities and institutions

2. Short-termism. Interventions are designed in crisis or as simple 'quick wins', to the detriment of long-term, sustainable approaches that address coherent sets of issues facing populations or health systems

3. Neglect of underlying social, structural and commercial determinants of the health of populations The SDGs shift the focus towards tackling inter-dependent and often intractable problems that are both local and global, and demand a change in the approaches to global health and SRH interventions. Simply placing Universal Health Coverage as the center-piece of the SDGs is inadequate. Instead, emphasis is needed on greater participation by those most affected, and promoting coherence and integration beyond SRH programs or the health sector. Practical approaches would address linkages with economic opportunity, gender discrimination, education, water & sanitation, food security, environment and resource management, public safety, conflict management, disaster preparedness and other areas of development.

Disclosure No significant relationships.

PL12 – OVERVIEW ON THE DEVELOPMENT OF POINT-OF-CARE TESTS FOR DETECTION OF ANTIMICROBIAL RESISTANCE – CHALLENGES AND OPPORTUNITIES

Wednesday, July 17, 2019
8:15 AM – 8:50 AM

PL12.1 OVERVIEW ON THE DEVELOPMENT OF POINT-OF-CARE TESTS FOR DETECTION OF ANTIMICROBIAL RESISTANCE – CHALLENGES AND OPPORTUNITIES

Johan Melendez*. *Johns Hopkins University, Medicine – Infectious Diseases, Baltimore, USA*

10.1136/sextrans-2019-sti.15

The increasing rates of gonorrhea infections worldwide and the evolving profile of antimicrobial resistance has prompted global public health concerns regarding the successful management of gonorrhea. In the absence of new antimicrobials, the use of point-of-care (POC) tests for identifying infected individuals and guiding precision treatment has been proposed as a strategy to mitigate the effects of antimicrobial resistant (AMR) gonorrhea. However, despite advancements in nucleic acid amplification technologies, there is no commercially available test for antimicrobial susceptibility testing (AST) that we can be implemented at the POC. Genotyping assays for prediction of antimicrobial susceptibility have been developed and are beginning to be implemented in the clinical setting for precision treatment. However, these assays are not at the POC and cannot reliably be used to predict susceptibility to all antimicrobials. While still in the early stages of development, novel phenotypic approaches targeting antimicrobial-reactive markers have shown promise as an approach on which to build rapid AST assays. Due to their speed, diagnostic performance, and portability, microfluidic-based technologies meet several of the diagnostic criteria for the development of rapid

AST assays which could be implemented at the POC. Implementation in the clinical setting of these AST POC tests is another major challenge which should be evaluated and implementation strategies developed concurrently to test development.

Disclosure No significant relationships.

PL13 – THE ROLE OF KEY POPULATION-LED HEALTH SERVICES IN ADDRESSING THE CHALLENGE OF STI AND HIV

Wednesday, July 17, 2019
8:50 AM – 9:25 AM

PL13.1 THE ROLE OF KEY POPULATION-LED HEALTH SERVICES IN ADDRESSING THE CHALLENGE OF STI AND HIV

Rena Janamnuaysook*. *The Thai Red Cross AIDS Research Center, Bangkok, Thailand*

10.1136/sextrans-2019-sti.16

Community engagement are essential in HIV responses. Key population (KP) play important roles on task sharing as one of methods of strengthening and expanding health workforce to rapidly increase access to HIV and STI services. Certain tasks are shared, where appropriate, from qualified health professionals to trained KP lay providers with certified trainings and particular practices in order to make more efficient use of human resources for health among members of KP.

Key populations in Thailand - men have sex with men (MSM), transgender women (TGW) and sex workers - established community health clinics as a key population-led health service (KPLHS) model to provide HIV and STI services, including peer outreach, HIV counseling, finger prick blood and specimen sample collections for HIV testing and STI screening, and dispensing of pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) as well as linkage to care and treatment.

It was demonstrated that KPLHS successfully increased access to STI and HIV prevention, care and treatment services among KP. Tangerine Community Health Center, the first transgender-led clinic in Bangkok, provides comprehensive health services and gender-affirming hormone treatment to transgender women with high HIV and syphilis prevalence. In addition, SWING Foundation, led by sex worker communities, caters HIV and STI services to male sex workers located in Bangkok and Pattaya. Trained KP lay providers from Rainbow Sky Association of Thailand (RSAT) offers HIV testing, syphilis screening, PrEP and PEP to young MSM and those who engage in sex work. The impact of KPLHS contributed to 42% of HIV testing and 52% of PrEP uptake among KP nationally.

KPLHS as a promising model to accelerate an end to the AIDS epidemic must be expanded. Laws and regulations should be amended to allow implementation at scale. The government should be committed to community health financing to sustain KPLHS.

Disclosure No significant relationships.

Symposia Presentations

S01 – PROGRAM SCIENCE/ IMPLEMENTATION SCIENCE METHODS: MOVING BEYOND THE TRADITIONAL RCT

Monday, July 15, 2019
10:45 AM – 12:15 PM

S01.1 MUST THE EVALUATION OF COMPLEX INTERVENTIONS BE COMPLEX? LEARNING FROM THE IMPACT EVALUATION OF DREAMS

Isolde Birdthistle*. *London School of Hygiene and Tropical Medicine, London, UK*

10.1136/sextrans-2019-sti.17

By nature, complex interventions – with their multiple interacting components, lengthy causal pathways and feedback loops, and ‘real-world’ implementation with frequent heterogeneity – are not conducive to evaluation by elegant trial design. This is particularly true in the absence of randomisation, control groups, and standardisation (‘different forms in different contexts’). Are we right then, to attempt to emulate a target trial in our impact evaluation of ‘DREAMS’ – a large investment by PEPFAR and private sector partners in a (very) complex intervention for HIV prevention? DREAMS promotes an extensive package of interventions to address the multi-dimensional nature of HIV risk. It is being scaled across purposively chosen places and populations; it targets the most vulnerable adolescent girls and young women in priority districts of sub-Saharan Africa. To evaluate DREAMS’ impact on HIV risk and other outcomes, we are analysing longitudinal observational data in ways that aim to mimic a randomised trial, by controlling for ‘confounding by indication’, so as to achieve more reliable causal inference. We will share the challenges, risks and rewards of this approach. As we grapple with an evolving intervention, revolving-door participation, time-varying confounders, and alternative causal contrasts, we face burgeoning complexity. This grows further as we seek to understand the intervention itself (what does it mean to be a DREAMS beneficiary?) and how the intervention package works; for this, we draw on process and qualitative data to elucidate the roles of mediators, mechanisms and context. There is much to learn from this large complex intervention, and we are employing emerging methods to maximise learning opportunities. There is no single or simple approach, but as complexity of the evaluation mounts, we strive to resist ‘The fascination of what’s difficult’* and maintain a pursuit of elegance and clarity. That too is work in progress. *WB Yeats, 1916

Disclosure No significant relationships.

S01.2 HPTN 071 (POPART): FINDINGS AND LESSONS FROM A NON-TRADITIONAL RCT

Richard Hayes*. *London School of Hygiene and Tropical Medicine, London, UK*

10.1136/sextrans-2019-sti.18

The HPTN 071 (PopART) study was one of four large community-randomized trials carried out in sub-Saharan Africa to determine the impact of universal testing and treatment (UTT) on HIV incidence at population level. At a time when HIV incidence globally is falling too slowly to meet UNAIDS targets, UTT has been promoted as a potential key strategy to achieve steep reductions in HIV incidence.

All four of the UTT trials have now reported their primary results. This talk will summarize the results of the HPTN 071 (PopART) study, the largest of the four trials and the last to be completed. It will explore possible explanations for the findings, and also discuss the conclusions of the study alongside the results from the other three UTT trials.

Finally, we will discuss some of the key challenges in designing and implementing a community-randomized trial of this ambition and scale, and review some of the main lessons learned during the study.

S01.3 USING MULTIPLE DATA SOURCES FOR PROGRAMME EVALUATION: INTEGRATION OF PROGRAM MONITORING DATA WITH OTHER RESEARCH STUDIES

BM Ramesh*. *University of Manitoba, Department of Community Health Sciences, Winnipeg, Canada*

10.1136/sextrans-2019-sti.19

Background Integration of program monitoring data with focused research studies can be a powerful approach to program evaluation and outcome assessment. This paper draws on examples from a large HIV prevention program in Karnataka, India implemented by the University of Manitoba, and funded by the Bill & Melinda Gates Foundation.

Methods Data sources included (1) routine program data to monitor coverage (2) semi-annual assessment of behavioural outcomes using rapid, unlinked anonymous methods called Polling Booth Surveys (PBS) (3) Integrated Behavioural and Biological Surveys (IBBS) and (4) mathematical modeling of HIV transmission dynamics.

Results The program monitoring data indicated that the monthly coverage of the estimated female sex workers (FSWs) increased from 68% to 76% and the monthly clinical attendance increased from 19% to 27% over a one year period. PBS demonstrated that the condom use among FSWs in last sex with any client increased from 64% to 73% over four years. IBBS indicated that HIV prevalence among the FSWs declined from 25% at baseline to 13% at end line. The mathematical modeling which used parameters from these data sources suggested that a total of over 80,000 infections were averted by the Karnataka program. The monitoring and evaluation teams were embedded within the program, independently carrying out the design, data collection, analysis and feedback.

Discussion The embeddedness of program monitoring and evaluation enabled regular feedback to program implementation in terms of which geographies to focus, which sub-groups to prioritize etc. Special intervention packages were implemented for the young and high-volume FSWs.

Conclusion The examples presented here used interactive processes of data use throughout the program cycle through regular feedback to program implementation on geographies/sub-populations that are lagging behind in terms of both coverage and quality.

Disclosure No significant relationships.

S01.4 EVALUATING COMPLEX PUBLIC HEALTH ISSUE VIOLENCE: UNDERSTANDING AND MEASURING VIOLENCE AND EVALUATING VIOLENCE INTERVENTIONS – LESSONS FROM STRIVE

Sinead Delany-Moretlwe*. *Wits Reproductive Health and HIV Institute, South Africa*

S02 – HIV AND SYPHILIS SELF-TESTING AND SELF-COLLECTION: EMPOWERMENT, AGENCY AND IMPLEMENTATION

Monday, July 15, 2019
10:45 AM – 12:15 PM

S02.1 HIV SELF-TESTING IN EASTERN AND SOUTHERN AFRICA: THE STAR PROJECT

Maryam Shahmanesh*. *University College London, Institute for Global Health, London, UK*

10.1136/sextrans-2019-sti.20

Background HIV testing is the first step to access both HIV treatment and prevention. While there have been tremendous efforts to close the HIV testing gap, 2.7 million people in east and southern Africa still do not know their status. Men and adolescents remain a challenge to reach. The Unitaid funded and Population Services International (PSI) led HIV Self-Testing Africa (STAR) is a five-year Initiative to catalyse the scale up of HIV self-testing (HIVST). It began with establishing the evidence base and product introduction (formation), moved to inclusion of HIVST in national plans and guidelines (early scale-up), and now optimisation of service delivery for scale-up. The results have informed WHO guidance and the development of national-level policy on HIVST. In addition, the evidence generated has transformed the testing landscape, informed estimates of the market size, and encouraged market entry among potential HIVST kit manufacturers.

Discussion In this symposium we will discuss key developments toward HIVST scale-up and the evidence generated from the STAR Initiative in six African countries. We will summarise the evidence for how HIVST has supported adolescents and men to gain knowledge of their HIV status and linked them into HIV care. We will describe the consortium plans to understand the use of this person-centred technology to link young men and women to HIV prevention, and in particular voluntary male medical circumcision and HIV Pre-Exposure Prophylaxis. Finally, we will discuss the value that our large consortium with close relationships to national and international health policy makers brought to shaping the market and building the public health evidence. Specifically, the involvement of policy and market developments supported by

WHO; country-led research teams, supported by the London School of Hygiene and Tropical Medicine; using randomised controlled trials to evaluate rigorous interventions independently implemented by experienced country-based implementation teams (PSI).

Disclosure No significant relationships.

S02.2 SYPHILIS SELF-TESTING: A NATIONWIDE PRAGMATIC STUDY AMONG MEN WHO HAVE SEX WITH MEN IN CHINA

Cheng Wang*. *Dermatology Hospital of Southern Medical University, Guangdong Center for STD Control and Prevention, Guangzhou, China*

10.1136/sextrans-2019-sti.21

Background Syphilis self-testing may help expand syphilis testing among men who have sex with men (MSM). China has had rapid scale up of HIV self-testing pilots, creating an opportunity for integrating syphilis self-testing. However, there is a limited literature on optimizing implementation of syphilis self-testing. We organized an online survey of MSM in China to examine syphilis self-testing experience and its determinants among MSM in China

Methods A cross-sectional online survey was conducted in 2018. Participants completed a survey instrument including socio-demographic characteristics, sexual behaviors, syphilis self-testing, and HIV self-testing history. Eligible participants were born biologically male, aged 16 or over, and engaged in anal or oral sex with a man at least once during their lifetime. Multivariable logistic regression was conducted to identify correlates of syphilis self-testing.

Results Six hundred ninety-nine MSM from 89 cities in 21 provinces in China completed the study. 361 (51.7%) had ever tested for syphilis, of whom 174 (48.2%) had ever used syphilis self-testing. Among 174 who had self-tested, 90 (51.7%) reported that the self-test was their first syphilis test, 161 (92.5%) reported that they undertook syphilis self-testing together with HIV self-testing. After adjusting for covariates, syphilis self-testing was correlated with disclosure of sexual orientation (aOR: 1.90, 95%CI: 1.32–2.73), reporting two to five male sexual partners (aOR: 1.81, 95%CI: 1.04–3.16), HIV self-testing (aOR: 39.90, 95%CI: 17.00–93.61), and never tested for syphilis in the hospital (aOR: 2.96, 95%CI: 1.86–4.72). Self-reported harms associated with syphilis self-testing were minimal.

Conclusions Scaling up syphilis self-testing could complement facility-based testing in China among MSM. Self-testing may increase first-time testing and has limited harms. Our findings suggest that syphilis self-testing could be integrated into HIV self-testing services.

Disclosure No significant relationships.

S02.3 HPV SELF-COLLECTION IN PERU: PROJECT HOPE

Patricia Garcia*. *Cayetano Heredia University, Unit of Epidemiology, STIs and HIV, Lima, Peru*

10.1136/sextrans-2019-sti.22

In Peru, cervical cancer is the leading cancer among women, killing one woman every 5 hours. The human papillomavirus

(HPV) has been identified as the causal agent of cervical cancer. Project 'HOPE Peru: Women helping women fight cervical cancer' aims to create the first Peruvian public health social enterprise aiming to improve access to healthcare technologies for communities with the involvement of community women. HOPE's first project will be to seek to market the HPV self-testing (CareHPV[®]) to get commitment and promote a culture of cervical cancer prevention. The tests will be sold to high income women to create a sustainable platform to offer free testing to women with less resources, involving training of community women ('HOPE ladies'). The project is based in four key pillars: (1) the use of molecular HPV tests for screening, with better sensitivity than PAP tests and at a relatively low cost; (2) the use of self-collected vaginal samples, which offers an opportunity to increase screening coverage; (3) community women teaching other women about cervical cancer and how to apply the HPV test; and (4) use of technology with the development of an informatics platform for the follow up of the distribution of molecular HPV screening tests, results, follow-up of women screened and the transmission of reminders through text messages (SMS) for clinic visits to women and an internet information platform and hot-line. The HPV test can be self-administered by women in the comfort and privacy of their own homes. Depending on the case the test could be pick-up from their houses or could be deposited in collection boxes located in commercial places (pharmacies, stores) opened 24/7. The samples are tested at a central lab and the results of the test are received within a week via SMS, with appropriate referrals for treatment as needed.

Disclosure No significant relationships.

S02.4 EMPOWERMENT AND APPROACHES FOR STIGMA REDUCTION: IMPLEMENTATION OF HIV SELF-TESTING AMONG FEMALE SEX WORKERS

Catherine Oldenburg*. *University of California, San Francisco, USA*

10.1136/sextrans-2019-sti.23

HIV self-testing (HIVST) may play a role in addressing gaps in HIV testing coverage and as an entry point for HIV prevention services by empowering individuals to test themselves and reducing stigma-related barriers to HIV testing. We evaluated two health systems delivery approaches for HIVST distribution compared to referral to standard testing among female sex workers in Zambia. Trained peer educators in Kapiri, Chirundu, and Livingstone, Zambia each recruited 6 FSW participants. Peer educator-FSW groups were randomized to one of three arms: 1) delivery (direct distribution of an oral HIVST from the peer educator), 2) coupon (a coupon for collection of an oral HIVST from a health clinic/pharmacy), or 3) standard-of-care HIV testing. Participants in the two HIVST arms received two kits: one at baseline and one at three months. The primary outcome was any self-reported HIV testing in the past month at the one- and four-month visits, as HIV self-testing can replace other parts of HIV testing. Secondary endpoints included linkage to care, HIVST use in the intervention arms, adverse events, empowerment, sexual behaviors, and measures of stigma. Participants completed questionnaires at one and four months following peer educator interventions. 965 participants were enrolled (delivery: N=322, coupon, N=323, standard, N=320); 20% had never

tested for HIV. Overall HIV testing at one month was 94.9% in the delivery arm, 84.4% coupon, and 88.5% standard-of-care. Four month rates were 84.1% delivery, 79.8% coupon and 75.1% standard. HIV self-test use was higher in the delivery arm compared to the coupon arm (RR=1.14, 95% CI 1.05–1.23, $P=0.001$) at one month but there was no difference in at four months. Among participants reporting a positive HIV test at one (N=144) and four months (N=235), linkage to care was non-significantly lower in the two HIVST arms compared to the standard-of-care arms. At four months, participants reported significantly fewer clients per night in the delivery arm (mean difference -0.78 clients, 95% CI -1.28 to -0.28, $P=0.002$) and the coupon arm (-0.71, 95% CI -1.21 to -0.21, $P=0.005$) compared to standard-of-care. HIV self-testing coverage was high in all arms, suggesting that HIV self-testing is able to overcome stigma-related barriers to HIV testing in this population.

Disclosure No significant relationships.

S03 – EPIDEMIOLOGICAL ASPECTS OF STI TRANSMISSION IN MSM

Monday, July 15, 2019

10:45 AM – 12:15 PM

S03.1 IMPACT OF HIV PREP ON RISK COMPENSATION AND STI EPIDEMIOLOGY – WHAT DOES THE EVIDENCE SHOW?

Helen Ward*. *Imperial College London, London, UK*

10.1136/sextrans-2019-sti.24

Introduction From the earliest days of the HIV epidemic there has been a close relationship with other sexually transmitted infections (STI). The shared transmission routes and determinants were reflected in high levels of synergy in the epidemics. Early preventive interventions for HIV – including changes in partner numbers and selection, use of barriers and changes in sexual practices towards safer sex – were 'infection agnostic', and had a dramatic impact on bacterial STI, with levels of syphilis and gonorrhoea falling to historic lows in some high-income settings. In contrast, many newer technologies for HIV prevention are 'infection specific', leading to the potential for divergent epidemics of HIV and other STI

Method and results We review evidence to date of the impact of PrEP on (a) risk compensation, and (b) STI rates in a range of populations and settings. We synthesize data from earlier systematic reviews, and review the association between PrEP use and bacterial STIs in cis-gender women. Detailed results will be presented; briefly, early randomised control trials reported no increase in STIs or changes in sexual practices; more recent studies in less controlled environments such as open-label or demonstration projects have often reported increased STI incidence and risk compensation. The majority of evidence is from studies in men who have sex with men and transgender women

Discussion An increase in condomless sex is not an unintended consequence of PrEP. For decades HIV prevention was limited because many people prefer sex without condoms. Now we have the technology to do this without the fear of HIV, just

as the oral contraceptive pill (OCP) removed the fear of pregnancy for many women. While that may contribute to an increase in STI, as the OCP did, we should use this as an opportunity to argue for renewed investment in STI control programmes and research.

Disclosure No significant relationships.

S03.2 THE ROLE OF ORAL-ANAL TRANSMISSION IN PERSISTENCE OF CHLAMYDIAL INFECTION

Henry De Vries*. *Amsterdam University Medical Centres, Dermatology, Amsterdam, Netherlands*

10.1136/sextrans-2019-sti.25

In virtually every mammal, chlamydiae strains persist in the gastro-intestinal tract for long periods of time in the absence of apparent inflammation and pathology. Although anorectal *Chlamydia trachomatis* (CT) infections are diagnosed frequently in women and men who have sex with men, their detection often remains unexplained as anal sex is not always reported. Oropharyngeal infections and the gastro-intestinal tract may contribute to the explanation. Both symptomatic and asymptomatic chlamydial pharyngitis has been described. Consequentially, the pathogen may pass through the gastro-intestinal tract to the large intestine and rectum, inducing chlamydia proctitis, and ongoing transmission. Oro-anal transmission might also explain the asymmetric distribution of diagnosed anorectal and urogenital lymphogranuloma venereum infections among men who have sex with men as found in the current epidemic. Recently the use of saliva as lubricant for anal sex has been proposed as alternative (oro-anal) route for gonorrhoea transmission in MSM. It can be deduced that this mode of transmission further contributes to the exceeding numbers of anorectal LGV infections as opposed to genital infections.

Disclosure No significant relationships.

S03.3 SEXUAL TRANSMISSION OF *N. MENINGITIDIS* IN MSM AND IMPLICATIONS FOR PUBLIC HEALTH

Anna McNulty*. *Sydney Sexual Health Centre, Sydney, Australia*

10.1136/sextrans-2019-sti.26

Over the last 5 years we have seen outbreaks of *N. meningitidis* urethritis and invasive meningococcal disease (IMD) in gay and bisexual men in various centres around the world with speculation as to what has driven these outbreaks. As a result there has been a significant focus on the genomics of the isolates associated with the recent outbreaks and in particular horizontal gene transfer from *N. gonorrhoeae* and the impact on the virulence of *N. meningitidis*. Vaccination against meningococcus has impacted the epidemiology of this infection broadly however the impact in MSM is less clear. There is relatively little recent data about the prevalence of

asymptomatic carriage in MSM particularly in the era of PrEP. Commonly, STI management guidelines do not include sexually transmitted *N. meningitidis* and there are varying laboratory practices with regard to notification of isolates and public health guidance is variable as well. In this presentation the epidemiology of *N. meningitidis* in MSM around the world will be explored. The potential drivers of these outbreaks will be examined and in particular the genomic investigations into clonal complex 11. The public health responses to date and the implications for public health as well as STI clinicians will be examined.

Disclosure No significant relationships.

S03.4 HEPATITIS C IN HIV-NEGATIVE MSM – A GROWING CONCERN?

Axel Schmidt*. *London School of Hygiene and Tropical Medicine/SIGMA Research, London, UK*

10.1136/sextrans-2019-sti.27

In post-industrialised countries, since the turn of the millennium we have witnessed outbreaks of hepatitis C among HIV-diagnosed gay men, and cohort studies of HIV-diagnosed men-who-have-sex-with-men (MSM) have shown high incidence of HCV infection, or re-infection after clearance. Clinicians and health promotion specialists have repeatedly expressed concerns that the HCV epidemic will jump to HIV-negative MSM. For the last two decades there has been a widespread perception that HCV will inevitably affect the whole population of MSM. For many years, studies of HIV-negative MSM have provided no strong evidence for an HCV sero-prevalence higher than among other adult men, and no outbreaks had been observed among HIV-negative MSM. It has hence been conceptualised that HIV infection itself might be a major risk factor for HCV acquisition, due to alterations of cellular immunity, but the risk attributable to immune dysfunction is still unclear. Some have argued that sero-adaptive sexual networks might better explain the observed differences between HIV-diagnosed and other MSM. As for behavioural factors, while the role of condomless anal sex for HCV transmission is controversial, there is consensus that mucosal disruption and sexual exposure to blood are major risk factors. With the recent advent of oral HIV pre-exposure prophylaxis, shifts in sexual networks have been observed as well as rising HCV incidence in PrEP-using HIV-negative MSM. This reignites previous fears about the imminence of an HCV epidemic among HIV-negative MSM. While intravenous drug use with shared equipment has been known for decades to be a leading risk factor for HCV transmission –regardless of HIV infection or sexual orientation– its impact on HCV transmission in MSM is understudied. This talk aims at (1) summarising the available literature on HCV transmission, focussing on HIV-negative MSM, and (2) providing a conceptual framework of sexual and sex-associated HCV transmission in gay men.

Disclosure No significant relationships.

S04 – THE IMPACT OF ADVANCES IN DIAGNOSTIC TECHNOLOGY ON POLICY, PROGRAM AND PRACTICE (ISSTD SPECIAL SYMPOSIUM)

Monday, July 15, 2019
10:45 AM – 12:15 PM

S04.1 RESISTANCE-GUIDED THERAPY FOR *M. GENITALIUM*: IMPACT OF DIAGNOSTIC RESISTANCE ASSAYS ON PRACTICE AND POLICY

Catriona Bradshaw*. *Central Clinical School, Monash University, Melbourne, Australia*

10.1136/sextrans-2019-sti.28

Mycoplasma genitalium (MG) has developed resistance to macrolides that currently exceeds 50% in most nations and quinolone-resistance, particularly in the Western Pacific region is increasingly being reported. Widespread use of azithromycin in the management of STI syndromes, chlamydia and gonorrhoea has contributed to the emergence and spread of macrolide-resistant MG globally. Diagnostic assays that incorporate macrolide resistance markers have recently been developed and provide an opportunity to reduce the use of azithromycin and individualise therapy. This talk will focus on the impact of the first generation of diagnostic resistance assays for MG on microbial cure and de novo resistance. It will review their utility in clinical algorithms in an STI setting and their impact on practice and policy. Macrolide resistance mutations are well described and result in high level resistance and failure of azithromycin making them highly suitable candidates for resistance assays. However markers of quinolone resistance, needed for the development of the next generation of resistance assays, have been harder to define and correlate with treatment outcomes.

Disclosure No significant relationships.

S04.2 POINT OF CARE AND HOME TESTING OPPORTUNITIES: IMPLICATIONS FOR QUALITY PUBLIC HEALTH PRACTICE

Patricia Dittus*. *Centers for Disease Control and Prevention, Division of STD Prevention, Atlanta, USA*

10.1136/sextrans-2019-sti.29

Chlamydia (CT) and gonorrhoea (GC) are the two most commonly reported notifiable diseases in the United States and case reports have been increasing in recent years. New technology may soon allow individuals to test themselves for CT and GC, either at home, or in a clinic or physician's office. This presents both challenges and opportunities for public health practice. This presentation will cover a range of implications of point of care and home testing, including for testing, for treatment of index patients and partners, for surveillance, and for reaching priority populations. Data on acceptability of such tests among priority populations, including men who have sex with men and young adults, as well as among physicians from a variety of disciplines, will also be presented.

Disclosure No significant relationships.

S04.3 HOME BASED TESTING: UNINTENDED CONSEQUENCES AND IMPLICATIONS FOR ANTIMICROBIAL STEWARDSHIP – SHOULD WE BE CONCERNED?

Paddy Horner*. *University of Bristol, Population Health Sciences, Bristol, UK*

10.1136/sextrans-2019-sti.30

The ability to increase access to STI and HIV diagnoses and treatment through home testing has been demonstrated to be both acceptable and popular and should herald a bright future. But the lack of appropriate regulation and the financial imperative for commercial organisations of profitability is having a number of unintended consequences. 1) How is the data being shared with public health, which produces population STI and HIV statistics? Failure to integrate all sources will result in an incomplete picture affecting public health priorities. 2) In the United Kingdom a number of on-line providers are offering premium multi-plex testing and in some cases individual NAAT testing for *Ureaplasma urealyticum*, *Mycoplasma hominis*, *Mycoplasma genitalium* and *Gardnerella vaginalis* for which there is a) no evidence that detecting and treating them in asymptomatic individuals does more good than harm and/or b) no association with disease at low load. Companies may refer patients to Wikipedia for information or develop their own with misleading statements such as 'If *Ureaplasma* infection is left untreated, there is an increased risk of getting other STIs, including HIV... In women there is also an increased likelihood of infertility if there is a prolonged *Ureaplasma* infection.' This results in over-diagnosis, unnecessary patient anxiety and inappropriate antimicrobial therapy increasing the risk of antimicrobial resistance to tetracycline, macrolides and metronidazole. 3) The performance of these multi-plex assays is also unclear. Which is of relevance in the diagnosis and treatment of chlamydia, gonorrhoea, trichomonas and *M. genitalium* which has implications for patients and public health STI control programmes. Should we be concerned and if so what needs to be done? We need regulation fit for purpose with mandatory sharing of anonymised data and governance from national/international expert bodies on STIs and HIV – but who will take ownership of this and fund it?

Disclosure No significant relationships.

S04.4 IMPLEMENTING MOLECULAR TESTING TO PREDICT *NEISSERIA GONORRHOEAE* SUSCEPTIBILITY IN CLINICAL PRACTICE

Jeffrey D Klausner*. *UCLA David Geffen School of Medicine, Los Angeles, USA*

10.1136/sextrans-2019-sti.31

Neisseria gonorrhoeae is the second most common reported sexually transmitted infection in the United States. Globally there have been increasing reports of antimicrobial resistant infections. In order to reduce the direct selection pressure of a single treatment regimen on *Neisseria gonorrhoeae*, it might be beneficial to use different treatments. Recent advances in molecular biology allow for the prediction of antimicrobial susceptibility in bacteria based on short DNA sequence patterns in certain genes associated with resistance. In 2015, we introduced the routine use of a molecular GyrA assay to predict ciprofloxacin susceptibility in *Neisseria gonorrhoeae*

infections at UCLA Health. We found that use of the assay was associated with a significant decrease in ceftriaxone use, significant increase in ciprofloxacin use and in a small group of ciprofloxacin-treated cases (N=25), 100% cure. Additional clinical trials are underway. Similar molecular assays to predict ciprofloxacin susceptibility in gonorrhoea have been approved for marketing in Europe and Australia. Commercial *Neisseria gonorrhoeae* GyrA testing is also available in the United States.

S05 – COMMUNITY ENGAGEMENT, MOBILIZATION AND EMPOWERMENT

Monday, July 15, 2019 4:15 PM – 5:45 PM

S05.1 WORKING WITH COMMUNITY TO CONTROL HIV/STI: A U.S. LOCAL HEALTH DEPARTMENT PERSPECTIVE

Matthew Golden*. *University of Washington, Seattle, USA*

10.1136/sextrans-2019-sti.32

Community partners play a central role in planning and implementing HIV/STD control programs in the United States. Because the health care system in the United States is highly decentralized and fragmented, from a local health department perspective, community partners have to be broadly defined to include not only the populations affected by HIV/STD and organizations that represent those populations, but also health care providers and health care organizations. Health departments often have to balance roles that involve collaboration and shared decision-making with roles as funders who monitor contracts and the performance of funded community-based organizations. This presentation will describe how health departments and community collaborators work together in the U.S., examples of how these collaborations have been successful, and some of the challenges local health departments face as they work with diverse community stakeholders to prevent and treat HIV/STD.

S05.2 MOBILISING FOR HEALTH AND RIGHTS: A HISTORY OF SEX WORKER ACTIVISM IN INDIA

Smarajit Jana*. *Sonagachi Research and Training Institute, Kolkata, India*

10.1136/sextrans-2019-sti.33

The implementers of a peer-based HIV prevention program among brothel based female sex workers in Kolkata, India sooner realized [1993] that sex workers' inability to enforce safer sex is linked to her social and legal position. To address sex workers' vulnerability they adopted a strategy to empower sex workers at individual, community and at societal level. The 'collective bargaining power' of the sex worker could tilt the power balance with other stakeholders including their clients thereby ensuring safer sex as a norm which brings success in prevention program. Condom use rate gone up from 3% to 95% and RPR sero positivity was brought down from 25% to below one% within three years of time. The implementers of a peer based HIV prevention program among brothel based female sex workers in Kolkata, India sooner realized [1993] that sex workers' inability to enforce safer sex is linked to

her social and legal position. To address sex workers' vulnerability they adopted a strategy to empower sex workers at individual, community and at societal level. The 'collective bargaining power' of the sex worker could tilt the power balance with other stakeholders including their clients thereby ensuring safer sex as a norm which brings success in prevention program. Condom use rate gone up from 3% to 95% and RPR sero positivity was brought down from 25% to below one% within three years of time. National AIDS control organization of India took the lessons and incorporated collectivization and capacity building of the sex workers as an integral and budgeted component of HIV intervention program. Major donors like BMGF, DFID followed the suit. The policy did help sex workers' community to regain dignity and confidence and build their collectives in different parts of the country who later took over the management of HIV intervention program. Development of sex workers' Union at the National level further strengthened their demand to get recognized as a service sector worker who posits STIs and HIV as occupational disease. The union expanded program including other development activities like education for their children, building their financial co-operative, and program to stop violence and trafficking. The Indian National program made success in adopting community led interventions. HIV prevalence among sex workers in major cities came down from 50% to 70% [in 1995] to 3.5% [in 2014] in addition to producing social goods. Collectivization and ownership of the affected community over the process and product of health interventions is critical to success

Disclosure No significant relationships.

S05.3 MOBILIZATION AND EMPOWERMENT OF SEX WORKERS: CAN SELF-HELP GROUPS BRING ABOUT SUSTAINED CHANGE?

Primrose Matambanadzo*. *CSHHAR Zimbabwe, Key Populations, Harare, Zimbabwe*

10.1136/sextrans-2019-sti.34

Description of the problem

Female sex workers (FSW) in southern Africa bear the brunt of the HIV epidemic. In Zimbabwe HIV prevalence among FSW is 55%. They have high rates of sexually transmitted infections and face societal stigma and violence related to their work. Research evidence suggests that interventions to mobilise and empower FSW can mitigate their risks of HIV and STI incidence and violence by building social cohesion as well as strengthening engagement with services, critical if programme coverage is to be optimised and UNAIDS targets are to be reached.

Study objectives To explore the impact of microplanning and self-help groups among female sex workers on uptake of and engagement with HIV, SRH and other health services, confidence and self-efficacy, financial literacy and security and psychological resilience.

Methods The Sisters programme in Zimbabwe provides nationally scaled services for female sex workers. We piloted an intervention to build resilience and social cohesion of sex workers and strengthen their link to clinical services using self-help groups and microplanning (data guided, peer-led, risk differentiated outreach).

Results Self-help groups were feasible to run and acceptable to FSW although in some sex work hotspots took time and more

intensive support to fully establish. FSW engaged in self-help groups and supported each other by arranging child care, encouraging each other to go to get clinical care, establish savings and lending schemes and in some cases to return to educational or vocational training.

Conclusion Sex workers were empowered and able to make better life decisions. Priorities for the groups changed over time and as trust increased. Self-help-groups can become autonomous of programme support over time. Microplanning allowed us to regularly reach women not previously engaged in the programme. We plan to test the cost effectiveness of this intervention in a cluster randomised trial.

Disclosure No significant relationships.

S05.4 #SAVESEXY: A GAMIFIED APPROACH TO HARNESSING THE POWER OF COMMUNITY ACTIVISM FOR HIV TESTING PROMOTION

Benedict Bernabe*. *The Red Whistle, Makati, Philippines*

10.1136/sextrans-2019-sti.35

As a response to the rising trend of new HIV infections among men who have sex with men (MSM), a group of volunteers in Manila, Philippines, formed a nonprofit organization called The Red Whistle (TRW). MSM in the Philippines suffer not just from HIV-related stigma but also from gender-based discrimination. In order to circumvent this environment, TRW devised '#SaveSexy' a gamified approach to HIV awareness communication and HIV testing promotion that is not explicitly targeted to MSM but used visual imagery and messaging that would attract an MSM crowd. Using well-designed merchandise and branding, celebrity volunteers, and themed activities, '#SaveSexy' encouraged its target audience to rethink the concept of 'sexy' as being confidently aware of their sexual health. The campaign takes its cue from market research done by TRW and partner ad agencies on what works for its target audience and applies this research to sexual health promotion. In this format, TRW partners with local government units and community-based organizations to organize 'races' where three teams of volunteers compete to encourage the most number of individuals to get tested in a single day. Elements of the strategy include teaming up with a celebrity volunteer and using social media to boost the reach and engagement of the information drive online. It also includes partnering with the local government's health office who will provide volunteers and materials for HIV testing. Aside from being well received, the intervention is also cost-effective. Designed to cost at around Php 250,000 (USD 5,000) per event targeting 350 individuals tested, the average cost per is Php 715 (USD 14) per individual tested. In February 2019, it reached the most number of individuals tested in one day at 1,006, also for the lowest amount invested at Php 170,000 or USD 3,400. Average cost per individual tested was Php 169 (USD 3.38).

Disclosure No significant relationships.

S06 – IMPROVED MODELS AND TOOLS FOR STI INFECTIONS

Monday, July 15, 2019 4:15 PM – 5:45 PM

S06.1 USE OF CERVICAL EXPLANTS TO STUDY GONOCOCCAL PATHOGENESIS

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10.1136/sextrans-2019-sti.36

Gonococcal infections remain a challenging public health issue due, in part, to a lack of a vaccine. A major obstacle in vaccine development and for understanding gonococcal infections in women is the lack of tractable models mimicking *in vivo* infection in the female reproductive tract. We used human tissue-explants and isogenic gonococci (GC) to examine by quantitative imaging analysis the impact of the heterogeneity of cervical and bacterial surfaces on infection. We found that GC preferentially colonize the ectocervix and squamocolumnar junction (transformation-zone, TZ) but only penetrate into TZ and endocervical epithelia. Colonization of any region required the expression of pili. GC expressing Opacity-associated proteins (Opas) that bind the host carcinoembryonic antigen-related cell adhesion molecule (CEACAMs) (Opa_{CEA}) increase ecto/endocervical colonization and reduce endocervical penetration. GC expressing Opas that bind heparan sulfate proteoglycans (HSPGs) (Opa_{HSPG}) did not promote colonization or tissue penetration in any region of the cervix. Opa_{CEA} inhibited GC-induced disruption of epithelial-epithelial adhesions and epithelial exfoliation, enhancing GC colonization and reducing penetration, through engaging CEACAMs. We propose the following model to explain GC pathogenesis of the female reproductive tract (FRT). GC establish colonization through pili-mediated adhesion. Opa_{CEA} expression promotes colonization, leading to asymptomatic local infections. Low expression of Opa_{CEA} allows GC to effectively penetrate into the endocervical epithelium, causing symptomatic infection. Because GC with low levels of Opa_{CEA} expression are rare, as most 11 Opa proteins are Opa_{CEA}, this model provides an explanation as to why most infections of the FRT are asymptomatic and why invasive disease is rare.

Disclosure No significant relationships.

S06.2 T. PALLIDUM IN VITRO GROWTH

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10.1136/sextrans-2019-sti.37

For over a century, investigation of *Treponema pallidum* subsp. *pallidum*, the spiral-shaped bacterium that causes syphilis, was hindered by an inability to culture the organism *in vitro*. Recently, we reported long-term cultivation of this enigmatic

organism using modifications of previously described mammalian cell co-culture. In vitro cultures of *T. pallidum* have now been maintained continuously for over 500 days, with full retention of multiplication rate, motility, structural integrity, and infectivity in a rabbit model. Genome sequencing of long-term in vitro cultured *T. pallidum* has revealed remarkable genetic stability, in that organisms from long-term in vitro culture had identical genome sequences and the same intrastain heterogeneity observed in the original organisms used for inoculation. We have verified that replacement of Eagle's MEM with CMRL 1066 as the basal medium was key to achieving long-term growth. Surprisingly, the reducing agent dithiothreitol (DTT) was not required for long-term multiplication in the tissue culture system. We have also examined the effects of the scale of culture, medium composition, and axenic vs. mammalian cell co-culture. Finally, we have utilized limiting dilution to generate clonal isolates of *T. pallidum*, an important first step in developing a system to genetically manipulate the bacterium. Further development of the *T. pallidum* in vitro culture system is likely to have far-reaching effects on many aspects of *T. pallidum* research, including studies of physiology, structure, genetics, gene regulation, antimicrobial susceptibility, pathogenesis, immune reactivity, and epidemiology.

Disclosure No significant relationships.

S06.3 PIGTAILED MACAQUE MODEL OF STIS

Dorothy Patton*. *University of Washington, Seattle, USA*

10.1136/sextrans-2019-sti.38

The Public Health Problem: Sexually transmitted infections (STIs) and their sequelae disproportionately affect young women, with cervical infections frequently ascending to the upper genital tract, leading to reproductive, pregnancy-related and newborn morbidity. Attributes of this Nonhuman Primate (NHP) as a Model: The pigtailed macaque (*Macaca nemestrina*) has several advantages over small animals for evaluating STIs, treatment and prevention. This nonhuman primate undergoes a regular menstrual cycle of 28–30 days and shows hormonal and genital tract changes similar to human females. Her microflora and reproductive tract tissues are similar in constituents and function to those of women. Use of the Model: The female pigtailed macaque model was initially developed in the early 1980's to simulate human *Chlamydia trachomatis* infection (cervicitis, salpingitis, pelvic inflammatory disease), pathogenesis and disease outcome, which has been key to our understanding of human chlamydial pathogenesis and treatment. The immune responses and histopathological characteristics of infection in this model closely resemble those seen in humans. This NHP model has been expanded to include lower genital tract infections with *Trichomonas vaginalis*, *Mycoplasma genitalium* and simian/human immunodeficiency virus (SHIV). Consequently, this model lends itself to co-infection studies using multiple STIs. Summary and Future Direction: *M. nemestrina* is naturally susceptible to multiple

human sexually transmitted infections including *C. trachomatis*, *T. vaginalis* and *M. genitalium*. Pretreatment with exogenous hormones are not required to initiate or sustain these infections. Current model refinement efforts focus on modeling *Neisseria gonorrhoeae* infection. These STI pathogens are unique in that the majority of infections in women are asymptomatic, vaccines are currently unavailable, and concerns about antimicrobial resistance are on the rise. Supported by NIH and CONRAD HHSN2701700015I, N01 AI 95388, HHSN272201400016C, HHSN27220100006I, R21 AI 074898, P01 AI 39061, P51 OD010425 and MSA-02–315

Disclosure No significant relationships.

S06.4 CHLAMYDIA, TRICHOMONAS AND SYPHILIS INFECTIONS IN MACAQUES: EFFECTS ON SIMIAN HIV ACQUISITION

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10.1136/sextrans-2019-sti.39

Epidemiologic studies have linked sexually transmitted infections (STIs) to an increased risk of HIV acquisition. Although the precise mechanism of this association is unclear, it is likely to be a combination of STI-induced local inflammation, disruption of mucosal surfaces, and recruitment of HIV target cells. Given that some experiments are logistically difficult or impossible to conduct in humans, nonhuman primates (NHP) as STI models of enhanced HIV susceptibility are invaluable in understanding mechanisms, magnitude of risk, and evaluating effectiveness of biomedical interventions. Advantages of using NHPs over other animal models include their relatedness to humans and availability of better immunological reagents. We have successfully developed NHP models of both vaginal and rectal STIs, and studied them in the context of simian HIV (SHIV) acquisition and coinfection, and pre-exposure prophylaxis (PrEP) efficacy. We demonstrated that vaginal *Chlamydia trachomatis* (CT) and *Trichomonas vaginalis* (TV) infections increase SHIV acquisition risk while rectal CT infections do not. Also, to study efficacy of Truvada® (the only anti-HIV medication FDA-approved for PrEP), we used a validated STI-NHP model of repeated SHIV exposures to mimic populations at high risk for HIV infection, and demonstrated that oral Truvada® maintained efficacy despite CT-TV infections, albeit with a modest loss of PrEP activity. We showed that another promising anti-HIV injectable, long-acting cabotegravir, maintained complete efficacy against vaginal SHIV acquisition in NHPs infected with CT and TV. However, these are non-ulcerative infections, which led us to develop the first NHP models for rectally and vaginally acquired syphilis, an ulcerative STI. More NHP studies are ongoing to assess risk of vaginal SHIV acquisition and PrEP efficacy in macaques coinfecting with syphilis, CT, and TV. These STI-NHP models are also powerful tools to study interactions between STIs, concomitant alterations in clinical manifestations and host responses, and to evaluate specific STI-related interventions, including vaccines.

Disclosure No significant relationships.

S07 – SEXUAL HEALTH AT THE INTERSECTION OF SUBSTANCE USE AND SOCIAL INEQUALITY

Monday, July 15, 2019 4:15 PM – 5:45 PM

S07.1 THE NORTH AMERICAN OVERDOSE CRISIS: HOW STRUCTURAL VIOLENCE, PROHIBITION AND STIGMA HAVE PARALYZED OUR RESPONSE

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10.1136/sextrans-2019-sti.40

North America is now into year five of an unprecedented increase in overdose deaths. While the genesis and drivers of the overdose epidemic have regional variations, structural violence, drug prohibition and stigma play a central and consistent role. The criminalization of drug users has led directly to marginalization and isolation, violence and incarceration, entrenched poverty, and a vicious cycle of trauma. This has created an environment where any initiatives to prevent and reverse overdoses have been severely limited. The overdose crisis is not unlike the HIV and HCV epidemics that have had such a devastating and disproportionate impact among people who inject drugs. The same structural and social environments continue to disrupt access to testing, treatment and care. What makes the overdose crisis different is the profound impact of drug prohibition that has pushed the illegal market into more concentrated and dangerous compounds and increased the population of vulnerable people who now rely on this unregulated market. Harm reduction programs that have proven effective for HIV and HCV prevention have not had the same impact on overdose prevention. While the research and medical communities have long recognized the major role of social determinants in disease transmission, especially as it relates to infectious diseases, the call to address these determinants has largely fallen to the communities most impacted. The massive loss of life directly related to overdose along with the limitations of harm reduction and other evidence-based interventions calls for a reassessment of our advocacy efforts.

Disclosure No significant relationships.

S07.2 CHEMSEX AND STI/HIV DIAGNOSES AMONG GAY, BISEXUAL AND OTHER MEN WHO HAVE SEX WITH MEN ATTENDING SEXUAL HEALTH CLINICS

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10.1136/sextrans-2019-sti.41

Chemsex refers to the sexualised use of psychoactive substances in particular by gay, bisexual and other men who have sex with men (GBMSM). A socially constructed phenomenon, there is no agreed case definition for chemsex with substance use and social settings varying widely between settings. Substances commonly used for chemsex include methamphetamine, GHB/GBL (Gamma hydroxybutyrate/Gamma

butyrolactone), mephedrone and other cathinones, cocaine, ketamine, and other amphetamines. The presentation will review published data on chemsex and in particular explore the relationship between chemsex and sexually transmitted infections including HIV. The talk will also highlight implications for wider health policy and current knowledge and research gaps.

Disclosure No significant relationships.

S07.3 CHALLENGES IN DEFINING CHEMSEX. ANSWERS FOR SURVEILLANCE FROM EMIS-2017

Axel J Schmidt*. *Sigma Research, London School of Hygiene and Tropical Medicine, UK*

10.1136/sextrans-2019-sti.42

Sexualised drug use (SDU), the use of drugs in a sexual context, has emerged as a marker of sexual activity with high risk for transmission of HIV and other STIs, and for poor sexual health, particularly among men who have sex with men (MSM). However, there are no robust estimates of the prevalence of SDU. Using data from the 2010 European MSM Internet Survey (EMIS-2010) we have compared illicit drug use from 44 cities and found substantial variance across Europe. In a repeat of EMIS in 2017, we replicated the questions on illicit drug use, and added questions on injecting drugs and combining sex and drugs.

EMIS-2017 was online and collecting data in 33 languages across 50 countries from 10/2017 to 01/2018.

In this talk, I will give an overview on the prevalence of sexualised drug use in Europe and Canada, based on data collected in EMIS-2017. I will compare the four different ways EMIS-2017 queried SDU, and demonstrate how SDU differs across 15 selected cities: Amsterdam, Barcelona, Berlin, Brussels, Istanbul, London, Moscow, Paris, Prague, Stockholm, Tel Aviv, Toronto, Vancouver, Warsaw, and Zurich.

S07.4 REVIEW OF SEXUALIZED DRUG USE ASSOCIATED WITH SEXUALLY TRANSMITTED INFECTIONS (STI) IN MEN WHO HAVE SEX WITH MEN (MSM)

Fiona Guerra*, Sarah Buchan, Travis Salway, Robyn Beckett, Lindsay Friedman

10.1136/sextrans-2019-sti.43

Background Sexualized drug use (SDU) refers to drug use before or during sex, and includes the 'party and play' and 'chemsex' phenomena described amongst MSM. Previous studies have reviewed associations between SDU and sexual risk behaviour, finding evidence for consistently positive associations for methamphetamines. We sought to summarize and quantify person-level associations between SDU and STBBI diagnoses in MSM.

Methods We searched MEDLINE, Embase, and CINAHL up to May 2018. We included primary English language studies that quantified the association between STBBI and SDU among MSM in high-income countries. Only studies where SDU overlapped with or preceded STBBI diagnoses were included. We used the Meta Quality Appraisal Tool to assess study quality. We used a random-effects model to meta-analyze

the data and estimate the association between SDU and STBBIs.

Results Of 2,671 unique citations, 17 met our inclusion criteria, and referred predominantly to methamphetamine, poppers, GHB/GBL, ketamine, and cocaine. Ten studies reported SDU associated with bacterial STIs, three reported human immunodeficiency virus (HIV), and five reported hepatitis C virus (HCV). The pooled crude ORs were: for bacterial STIs 2.81 (1.85, 4.26; n=6), for HIV 3.93 (2.37, 6.51; n=2), and for HCV 5.25 (3.08, 8.94; n=5). The pooled adjusted ORs were: for bacterial STIs 2.17 (1.51, 3.14; n=8), for HIV 2.90 (0.97, 8.64; n=2), and for HCV 6.08 (2.46, 14.99; n=3).

Conclusion Associations between SDU and bacterial STIs and HCV remained after adjustment, suggesting that SDU itself is a cause of or contributor to STBBIs or a proxy indicator for other risk factors (e.g., particular sexual networks). However, given the attenuation of ORs after adjustment for sociodemographic characteristics, an alternative hypothesis that SDU is part of a syndemic with social causes of ill health (e.g., stigma, discrimination) merits further study.

S08 - 'ELDERS TEACH AND YOUTH REACH': INDIGENOUS CONVERSATIONS ON SEXUAL HEALTH

Tuesday, July 16, 2019
10:45 AM - 12:15 PM

S08.1 'ELDERS TEACH AND YOUTH REACH': INDIGENOUS CONVERSATIONS ON SEXUAL HEALTH

VCH Aboriginal Health Elder Advisory Council and Yúusnewas, YouthCO HIV & Hep C Society.

10.1136/sextrans-2019-sti.44

Sexual health has been a part of Indigenous communities since time immemorial. Prior to colonization, Indigenous peoples used teachings, traditions and ceremony to pass knowledge about sexuality, including sexual health, from Elders to youth for generations. People were revered for who they were, be it woman, man, child, Two-Spirit, or Elder. These traditions and ways of knowing were disrupted with the arrival of settlers in what is now called Canada, who used deliberate strategies including residential schools to separate Indigenous peoples from family and culture. As a result, generations of Indigenous peoples have lost these opportunities to learn about sexuality and sexual health within Indigenous contexts, and have instead been subjected to sexual health messages from dominant White settler culture. The impacts of this historic and ongoing colonization include Indigenous peoples developing shame regarding sexuality, and a loss of the respected role of Two-Spirit peoples. Today, Indigenous communities, organizations and programs are creating new opportunities for Indigenous youth to access traditional knowledge around sexuality. In doing so, Indigenous peoples are resisting these impacts of colonization to improve sexual health and wellness for the Indigenous peoples in what is now called Canada. This symposium aims to continue the process of restoring traditional Indigenous teachings and ceremony about sexual health,

through an interactive dialogue between Indigenous Elders and youth.

S09 – PREVENTION AND CARE CASCADES

Tuesday, July 16, 2019
10:45 AM – 12:15 PM

S09.1 THE RELATIONSHIP BETWEEN DEMOGRAPHICS, HEALTH NEEDS AND THE HIV CARE CASCADE OUTCOMES: FROM INFECTION TO VIRAL SUPPRESSION

Abigail Kroch. Ontario HIV Treatment Network (OHTN), Toronto, Canada

10.1136/sextrans-2019-sti.45

The HIV epidemic persists in the province of Ontario, but the demographics of those affected have shifted over time. Over the past decade, the rate of new diagnoses among White Ontarians has decreased, while the rates among certain racialized populations has increased. These increases may be partially due to migration patterns, but a disproportionate burden of HIV transmission may be shifting to specific sub-populations. In a cohort of people living with HIV, a relationship exists between HIV care outcomes and race/ethnicity. In particular, African, Caribbean and Black individuals show lower engagement across the care cascade. Additionally, we find that social factors, such as poverty, and mental health and substance abuse impact engagement in the care cascade and achievement of viral suppression. To prevent HIV transmission and achieve optimal health for people living with HIV, the structural drivers of health inequity must be addressed and people living with HIV must have access to a variety of social, mental health and medical services.

S09.2 CASCADE OF HIV PREVENTION: A POWERFUL TOOL TO IMPROVE THE IMPLEMENTATION OF DREAMS COMBINATION PREVENTION IN RURAL SOUTH AFRICA

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10.1136/sextrans-2019-sti.46

Study objectives Adolescent girls and young women (AGYW) in South Africa are at high-risk of HIV-infection due to factors, acting at multiple levels: Societal, familial, intimate-partnerships, individual behavioural and biological. Combining interventions to tackle factors at multiple levels, with high levels of population-wide uptake, could improve AGYW health. In 2016 the Determined, Resilient Empowered AIDS free Mentored and Safe (DREAMS) partnership aimed to do this in a HIV hyperendemic area of KwaZulu-Natal (KZN), South Africa. I'll argue that HIV prevention cascades are a useful way to describe the population-wide reach of multi-level interventions and thus inform implementation.

Methods I'll draw on the impact and process evaluation data collected as part of the DREAMS impact evaluation in a HIV demographic surveillance site in KZN between 1/2016 and 6/2019. This includes (i) longitudinal cohorts of a representative

sample of 13–35-year-old-females and males (n=5000); (ii) rapid ethnographic community mapping (one urban, one semi urban and two deep rural); (iii) provider and user interviews (n=22 and n=58 respectively); and (iv) group discussion (n=14). All qualitative interviews were audio-recorded, transcribed and analysed using a thematic content analysis. The longitudinal cohorts were used to describe the population awareness and uptake of each of the components of DREAMS at the individual, family and community level, as well as biomedical HIV prevention interventions.

Results 28 services, organised into 10 packages are delivered through 12 implementing partners and three government directorates. In this symposium I describe the population level awareness and uptake of individual, family and community interventions alone and in combination. I also describe the cascade of prevention for specific biomedical interventions, specifically condom use, uptake of HIV testing, voluntary male medical circumcision, HIV Pre-exposure Prophylaxis and treatment, and contraception.

Discussion The HIV prevention cascade is a powerful tool to improve the effective implementation of combination HIV prevention.

Disclosure No significant relationships.

S09.3 APPLICATION OF A CASCADE APPROACH FOR GUIDING PREVENTION OF CONGENITAL SYPHILIS

Patricia Garcia*. Cayetano Heredia University, Unit of Epidemiology, STIs and HIV, Lima, Peru

10.1136/sextrans-2019-sti.47

Syphilis remains a major public health problem worldwide especially in developing countries and in the region of Latin America and the Caribbean (LAC). Congenital syphilis is caused by mother-to-child transmission of the *Treponema pallidum* infection during pregnancy. Transmission can occur during any trimester of pregnancy and during any stage of syphilis. Nevertheless, the risk of transmission is highest during early syphilis (primary, secondary, or early latent syphilis). Untreated syphilis in pregnancy can result in adverse pregnancy outcomes including miscarriages, stillbirth, neonatal death, as well as prematurity, low birth weight and other congenital abnormalities. Congenital syphilis is preventable. Treatment to the infected mother with a long acting injectable penicillin (benzathine penicillin G) can prevent stillbirths and fetal infection if initiated as early as possible during pregnancy or at least 30 days before delivery. Many the countries of the LAC region have committed to reduce cases of congenital syphilis to less than 0.5 cases per 1,000 live births, however many of them are still far from achieving the objective. The reduction or elimination of congenital syphilis can be performed with simple, cost-effective interventions, like screening and treating pregnant women early in antenatal care. Peru has also a commitment to eliminate congenital syphilis and introduced the use of rapid syphilis tests for screening to simplify the testing and improve coverage. However, if a woman is tested and don't receive treatment there is a failure of the system, a broken care continuum. The concept of care cascades has been used to analyze the HIV care continuum and to evaluate other STD control activities. We decided to use Peruvian National data to create a congenital syphilis prevention

cascade to visualize the current status of activities and identify opportunities for improvement.

Disclosure No significant relationships.

S09.4 CASCADES AND OTHER APPROACHES TO GUIDE PREP PROGRAMMING

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10.1136/sextrans-2019-sti.48

Since the 2015 WHO recommendation to offer pre-exposure prophylaxis (PrEP) to all at substantial risk for HIV infection as part of a comprehensive HIV prevention package, there have been significant efforts to expand PrEP access. By 2018, an estimated 465,000 individuals globally had initiated PrEP, a figure that while impressive falls short of the UNAIDS Prevention 2020 target of 3 million eligible people on PrEP by 2020. Achievement of the target will require an intensification of efforts to ensure more effective delivery of PrEP. Similar to the HIV treatment cascade which has been powerful in illustrating the steps needed to achieve viral suppression, several authors have proposed a 'PrEP cascade' which summarises the steps to successful PrEP initiation and in some, continuation. In this presentation we review how these cascades are helpful when populated with programme data for summarising progress as well as identifying points of attrition along the continuum. Using these cascades individual and structural barriers to achieving a particular step can be identified and programmes adapted or strengthened in response. PrEP cascade data can also be used to model the potential impact of PrEP programmes on the HIV epidemic. PrEP cascades also have several unique challenges not observed in treatment cascades. These include the problem of estimating the potential population eligible for PrEP (i.e. denominator), the absence of standard definitions which makes operationalisation within programmes and comparisons across programmes difficult, and the dynamic nature of risk which makes measurement of PrEP continuation a challenge.

S10 – STIS IN LOW AND MIDDLE-INCOME COUNTRIES: RESURGENT INFECTIONS AND EVOLVING CONTROL MEASURES

Tuesday, July 16, 2019

10:45 AM – 12:15 PM

S10.1 HIGH RATES OF CURABLE STIS IN LOW AND MIDDLE INCOME COUNTRIES

Connie Celum*. University of Washington, Global Health, Seattle, USA

10.1136/sextrans-2019-sti.49

Background Sexually-transmitted infections (STIs) increase the risk of infertility and HIV acquisition. Data on STIs in low and middle income countries (LMIC) are sparse because of syndromic management and lack of testing. PrEP projects

which test for STIs provide key epidemiologic data, identify gaps, and should guide policies.

Methods PrEP projects are reaching populations at risk of HIV in LMIC, including adolescent girls and young women (AGYW), heterosexual HIV serodiscordant couples, and men who have sex with men. STI data from different populations and geographies will be reviewed, and research and intervention gaps will be discussed.

Results Among African AGYW in PrEP projects, the prevalence of *Chlamydia trachomatis* (CT) and/or *Neisseria gonorrhoea* (GC) is 30%, most of which is asymptomatic, syphilis is <1%, and annual incidence of CT is 30% and GC is 10%, most of which are new infections. Among African heterosexual HIV serodiscordant couples in PrEP studies, the prevalence of CT is 10%, trichomonas is 7%, GC is 6%, and syphilis is <1%. STI prevalence among African men who have sex with men (MSM) are more sparse, but indicate high prevalence of GC, CT, and syphilis.

Conclusion The prevalence of curable bacterial STIs is high in PrEP projects among diverse populations in LMIC, most of which are missed by syndromic STI management. STI services are an important reproductive sexual health intervention, are valued by clients, and increase the public health impact of PrEP. Interventions to lower the costs of STI diagnostic assays, point of care tests, and treatment of partners are needed. Innovative STI prevention strategies should be evaluated, including doxycycline post-exposure prophylaxis and vaccines. STI testing, treatment, and partner services should be integrated into PrEP, medical male circumcision, antenatal care, and HIV care and prevention programs which reach sexually-active persons in LMIC.

Disclosure No significant relationships.

S10.2 BUILDING STD CLINICAL INFRASTRUCTURE IN LMIC – ROLE OF GENERAL VS. SPECIALIZED INFRASTRUCTURE

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10.1136/sextrans-2019-sti.50

Making clinical service for STD patients accessible in LMICs will require to recognize common medical conditions. In China, general hospitals are the most visited by patients, including those with STD. Data from 105 Chinese STD sentinel sites in 2018 showed that 77.2% of syphilis cases were reported from general hospitals, followed by 5.6% from women and children hospitals, only 4.7% of syphilis cases from STD specialized institutions. Community health centers, although providing comprehensive medical services, are generally considered to be of lower level and only 3.0% syphilis cases were rereported from the community health centers and other primary care centers. In LMICs with limited human resources, general hospitals play very important role in providing clinical services for STD patients but are often unsatisfactory in preventive services. A survey from China found, the rates of contact tracing and partner notification were very low in general hospital as the physicians lack time and willingness for preventive services. The main function for general hospitals, women and child health care hospitals, are to provide STD screening and corresponding treatment for out-patients, inpatients and pregnant women. As for the specialized STD institutions, it usually includes the following functions:1.

Develop appropriate local STD case management procedures (flow chart); 2. STD surveillance, including case auditing and active surveillance; 3. STD testing center including external STD lab quality assessment; 4. Young people clinics, MSM clinics, et al; 5. Training. To make these services effective, integration of general and specialized institutions at the managerial and administrative levels will be crucial.

Disclosure No significant relationships.

S10.3 CERVICAL CANCER PREVENTION IN LMICS: ARE WE ON THE PATH TO ELIMINATION?

Megan Huchko*. *Duke University, Durham, USA*

10.1136/sextrans-2019-sti.51

In May 2018, the World Health Organization announced that a commitment to cervical cancer elimination. In October 2018, modelers from Australia showed that with current rates of vaccine implementation and screening, cervical cancer could be eliminated in that country within the next ten years. Researchers are working on clinical, implementation and modeling studies to determine the most effective strategies to achieve cervical cancer elimination. We examined prior commitments to disease elimination, modeling data on public health strategies for cervical cancer elimination in high and low-income countries, and possible challenges to successfully achieving elimination in the world's most vulnerable populations. Cervical cancer elimination, defined as fewer than four cases per 100,000 women, could be achievable in high-income countries (HICs) within the next 25 to 50 years. The speed and ultimate success of elimination is driven by high rates of coverage with the 9-valent vaccine, with screening providing only a small contribution. The most effective models in low- and middle-income countries (LMICs) include targeting female adolescents for two-dose vaccination, followed by either one or two lifetime screens. Challenges include a global shortage of the 9-valent vaccine, slower than anticipated roll-out to GAVI countries and low uptake rates in countries with vaccination programs. Remarkable advances in biomedical technologies have made cervical cancer elimination a potentially attainable goal within the next generation. Focusing efforts on widespread and effective implementation of evidence-based strategies to prevent the disease will be crucial. We must work to ensure that progress toward elimination is shared equally between HICs and LMICs to avoid a perpetuation of the global health disparity seen in cervical cancer.

Disclosure No significant relationships.

S10.4 SELF-CARE INTERVENTIONS FOR SEXUAL AND REPRODUCTIVE HEALTH AND RIGHTS

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10.1136/sextrans-2019-sti.52

Among the most promising and exciting new approaches to reach Universal Health Coverage (UHC) goals are self-care interventions for health. These interventions have the potential to increase choice, when accessible and affordable, as well as opportunities for individuals to make informed decisions regarding their health and health care. Self-care interventions

recognize the strengths of individuals as active agents in their health, and not merely passive recipients of health services.

To support WHO normative guideline on innovative self-care strategies for sexual and reproductive health and rights (SRHR), a conceptual framework was developed and the evidence base was evaluated on interventions in transition from provision by facility-based, healthcare providers to delivery in the self-care environment, including STI and HPV self-sampling. While further research is needed on user understanding, uptake and access, our reviews suggest that STI and HPV self-sampling are effective strategies to increase STI and HPV testing uptake respectively.

Challenge remain, however, for vulnerable, marginalized and socioeconomically underprivileged populations, who have the poorest health outcomes globally, to access quality health innovations, including self-care interventions. The WHO guideline on self-care interventions for SRHR is framed around key principles of human rights, gender equality and a holistic, people-centred approach to health and well-being. The potential benefits of such an approach includes the creation of a safe and supportive enabling environment which can potentially increase health coverage, access and quality of services; and thereby reduce health inequities. There is already widespread and rapidly growing use of self-care interventions. When these interventions are people-centred, and evidence-driven, even vulnerable populations will be able to exercise their rights to health, to information, to autonomous decision-making.

Disclosure No significant relationships.

S11 – RESEARCH ON THE VAGINAL MICROBIOME: ADVANCES & CONTROVERSIES

Tuesday, July 16, 2019
10:45 AM – 12:15 PM

S11.1 INTRODUCTION TO THE VAGINAL MICROBIOME PRE-CONFERENCE SYMPOSIUM

Jeanne Marrazzo*. *University of Alabama, Medicine, Birmingham, USA*

10.1136/sextrans-2019-sti.53

This will comprise an introduction to this session.

Disclosure No significant relationships.

S11.2 LESSONS LEARNED FROM THE PRE-MEETING SYMPOSIUM ON CHARACTERIZING THE VAGINAL MICROBIOTA THROUGH A BLINDED MULTI-LABORATORY COLLABORATION

Jennifer Balkus*. *University of Washington, Department of Epidemiology, Seattle, USA*

10.1136/sextrans-2019-sti.54

In studies of the microbiome, variability can arise from numerous steps in the microbial profiling process, including DNA extraction, PCR amplification, and bioinformatics

approaches for taxonomic assignment. This variability may contribute to issues with reproducibility in clinical and epidemiologic studies. Others have described the contribution of different steps in the microbial profiling process to measurement variability in samples comprised of bacteria from the human gut. We conducted a comparative study across four laboratories to better understand sources of variation in describing the human vaginal microbiota. In this session, we will share highlights from the pre-conference symposium that presented lessons learned from this comparative project and discuss implications for future vaginal microbiota research.

Disclosure No significant relationships.

S11.3 THE VAGINAL MICROENVIRONMENT PRIOR TO INCIDENT STI

Rebecca Brotman*. *University of Maryland School of Medicine, Institute of Genome Sciences, Baltimore, USA*

10.1136/sextrans-2019-sti.55

We sought to evaluate microenvironmental factors in the vagina that drive protection against STIs. We conducted a nested case control study in the Longitudinal Study of Vaginal Flora to assess the vaginal microenvironment of 397 cases at the visit before an incident genital STI (*Chlamydia trachomatis*, *Neisseria gonorrhoea*, or *Trichomonas vaginalis*) and 1,794 STI-negative controls. Controls were matched to cases on age, race and follow-up time. Vaginal lavages and surveys were collected every three months for one year. Vaginal microbiota, metagenomes, metabolites, and lactic acid isomers were assessed as factors associated with incident STI. Bacterial community state types (CSTs) were assigned by hierarchical clustering of vaginal microbiota. Metagenomes of 708 participants were characterized using VIRGO. We used conditional logistic regression with covariate adjustment (partner concurrency, number of sex partners, condom use). Women with a CST-IV-A profile, low-*Lactobacillus* with high relative abundance of BVAB-1, had the highest odds of incident STI. CST-I (*L. crispatus*-dominated), CST-II (*L. gasseri*-dominated), CST-III-A, and CST-III-C (both *L. iners*-dominated; the latter has other *Lactobacillus* spp.) had >50% lower odds of STI than women in CST IV-A (all $p < 0.01$). CST-II had the lowest point estimate (72% lower odds, $p = 0.02$). Metagenomic analyses confirmed these findings and revealed a cluster of *G. vaginalis* sub-species with 40% lower odds of STI than the BVAB-1 dominated cluster ($p = 0.02$). Higher bacterial absolute abundance had lower odds of STI in each CST ($p < 0.001$). High D-lactic acid concentration was associated with lower STI, irrespective of L-concentration ($p < 0.05$). Of the 185 metabolites that were significantly associated with incident STI ($q\text{-value} < 0.05$), 13 metabolites, including taurine and kynurenine (microbial metabolites with immunomodulating properties), were associated with $\geq 20\%$ lower odds of STI per fold change. Multi-omic interrogation revealed protection against STI acquisition was associated with vaginal microenvironments containing immunomodulatory metabolites, as well as *Lactobacillus* spp. that produce D-lactic acid.

Disclosure No significant relationships.

S11.4 ROLE OF THE GENITAL TRACT MICROBIOME IN SEXUAL AND REPRODUCTIVE HEALTH: REPORT FROM THE KEYSTONE SYMPOSIUM IN CAPE TOWN, 2018

Janneke van de Wijgert*. *University Medical Center Utrecht, Julius Center for Health Sciences and Primary Care, Utrecht, Netherlands*

10.1136/sextrans-2019-sti.56

Background The Keystone Symposium on 'Role of the Genital Tract Microbiome in Sexual and Reproductive Health' was held in Cape Town in December 2018.

Methods The aims were to discuss the most current and cutting-edge research findings, consider future directions, stimulate collaborations, and provide a forum for trainees and new investigators to present, learn, and network.

Results/Conclusions All aims were met. The Symposium was particularly successful in bringing researchers in HIV/STI and maternal and child health together. Areas of scientific consensus included: 1) Optimal is a better term to use than normal in the context of vaginal microbiota. *L. crispatus*-domination is considered optimal. *L. iners* is sometimes a friend and sometimes a foe. 2) Vaginal microbiota diversity on its own misses important dysbiosis types (such as *G. vaginalis*-domination). 3) Taxonomic community state types are useful, but we may need to move towards community state types that incorporate pathogenicity (e.g. inflammatory potential), and are therefore more useful from the prevention, diagnosis, treatment and prognosis perspectives. For some key bacterial taxa (e.g. *G. vaginalis*), we should differentiate between clades. In the meantime, we should use precise definitions of predictors and outcomes. 4) Moving from correlation to causality, the field needs more mechanistic studies and sufficiently powered longitudinal human studies. The latter could include frequent sampling studies to determine community dynamics, observational studies with clinically relevant endpoints, and intervention studies. These studies should ideally include quantification of total bacterial load and bacterial species (not relative abundance only), and measurement of all relevant microorganisms, biofilms, and host responses in the genital tract. 5) The efficacy of existing interventions, and pipeline of new interventions, are limited. We should expand the pipeline, which requires industry involvement and more investment into the field in general. We now have the tools to assess the effects of those interventions.

Disclosure No significant relationships.

S12 – NEW APPROACHES FOR STI VACCINES

Tuesday, July 16, 2019 4:15 PM – 5:45 PM

S12.1 PROGRESS TOWARDS A GONORRHOEA VACCINE

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10.1136/sextrans-2019-sti.57

Introduction Gonorrhoea is becoming increasingly difficult to control due to antibiotic resistance and the absence of a vaccine. However, a vaccine to the closely related bacteria *Neisseria meningitidis*, the outer membrane vesicle (OMV) vaccine MeNZB, was reported to be associated with reduced rates of

gonorrhoea. To investigate this possible cross-protection we assessed serum raised to the meningococcal vaccine Bexsero, which contains the MeNZB OMV component plus three recombinant antigens (NadA, fHbp-GNA2091, NHBA-GNA1030), in terms of its cross reactivity and functional activity against *Neisseria gonorrhoeae*.

Methods The similarity of MeNZB and Bexsero antigens to gonococcal proteins was assessed bioinformatically. Sera from rabbits immunised with the OMV component or the three recombinant antigens of Bexsero, and sera from humans immunised with Bexsero were tested in Western blot, ELISA, serum bactericidal activity (SBA) and neutrophil opsonophagocytic (OPA) assays to assess the level and functional activity of antibodies recognising *N. gonorrhoeae*.

Results There is a high level of sequence identity between MeNZB/Bexsero OMV antigens and gonococcal proteins. NHBA is the only Bexsero recombinant antigen that is conserved and surfaced exposed in *N. gonorrhoeae*. Rabbit antibodies to the OMV component or to the three recombinant antigens of Bexsero recognise gonococcal proteins and mediate SBA and OPA killing of *N. gonorrhoeae*. Furthermore, Bexsero induces antibodies in humans that recognise gonococcal proteins. Analysis of the functional activity of Bexsero-induced human antibodies against *N. gonorrhoeae* is ongoing.

Conclusions The ability of antibodies induced by MeNZB OMV proteins to recognise and kill *N. gonorrhoeae* could explain the decrease in gonococcal cases associated with MeNZB vaccination. The presence of antibodies to OMV proteins plus NHBA following Bexsero vaccination may result in additional protection against gonorrhoea. Analysis of Bexsero-vaccinate human sera may also facilitate the identification of a correlate of protection to guide future development of a gonococcal vaccine.

Disclosure No significant relationships.

S12.2 A TRI-ANTIGEN PROTECTIVE SYPHILIS VACCINE DESIGN THAT ENHANCES TREPONEMAL CLEARANCE AND INHIBITS PATHOGEN DISSEMINATION

Lorenzo Giacani*. *University of Washington, Medicine – Allergy and Infectious Diseases, Seattle, USA*

10.1136/sextrans-2019-sti.58

Background A protective vaccine against *Treponema pallidum* subsp. *pallidum* (*T. pallidum*) would facilitate syphilis control at a global scale. We have identified three *T. pallidum* antigens that, when used separately as immunogens, either attenuate chancre development at the challenge site or pathogen dissemination. Here, we report protection induced by a vaccine desing composed of these three antigens + two custom adjuvants containing Natural or Synthetic TLR4 agonists and a natural Mincle agonist.

Methods Recombinant TprK (aa 37–273), Tp0751 (aa 24–237), and Subfamily I Tpr (aa 23–351) peptides were emulsified in either adjuvant and used to immunize groups of eight rabbits. Immunized animals were challenged intradermally with $10^{5.5}$ *T. pallidum*/site at 10 sites, along with eight unimmunized control animals. Lesion development was recorded daily and treponemal burden measured by darkfield (DF) microscopy and qPCR of lesion aspirates and biopsies. Dissemination to distant tissues was evaluated by qPCR and rabbit infectivity test (RIT).

Results Compared to unimmunized, treponemal burden by DF in lesion aspirates at Day 19 was significantly lower in animals that received both Natural and Synthetic adjuvant groups. By qPCR, treponemal burden was significantly lower in the Natural group. At day 19 and 30, respectively, the proportion of lesions ulcerating was significantly lower in the Natural group, compared to Unimmunized. At day 30, the proportion of lesions ulcerating in the Natural group was significantly lower than in the Synthetic group. Mean lesion volume was smaller in immunized groups versus unimmunized on days 10–25 post-challenge. RIT indicated the lowest number of disseminated *T. pallidum* in rabbit tissues from the Natural group, followed by the Synthetic group, then the unimmunized group.

Conclusion Immunization with the three-antigen cocktail significantly attenuates syphilis infection: enhancing *T. pallidum* clearance, promoting lesion healing, and reducing dissemination. In rabbits, Natural adjuvant was more effective than Synthetic adjuvant in inducing protective immunity.

Disclosure No significant relationships.

S12.3 THERAPEUTIC VACCINATION TO TREAT HPV DISEASE: LESSONS LEARNED FROM HIGH GRADE INTRAEPITHELIAL LESIONS

Margaret M Madeleine*. *Fred Hutchinson Cancer Research Center, USA*

10.1136/sextrans-2019-sti.59

Malignancies caused by HPV represent a model clinical setting in which to test principles of immunotherapies, and to discover the consequences of interactions between tumors and their attendant immune milieu. A tumor-specific, non-‘self’ antigenic target is known, as HPV cancers are driven by constitutive and functionally obligate expression of the E6 and E7 viral oncoproteins, which bind and inactivate p53 and pRb, respectively. HPV disease can also be immunogenic; a growing body of evidence demonstrates that HPV-specific T-cell responses can mediate concomitant histologic regression and clearance of detectable virus in subsets of patients who have cervical HSILs. However, HPV researchers are faced with issues common to the development of effective immune-based therapies for every solid tumor, including determining the mechanisms that shape how a tissue microenvironment renders immune cells dysfunctional, deciphering the immunomodulatory effects of other treatment modalities such as targeted therapies, chemotherapy, and radiation, and identifying contributions to immune functional polarization mediated by tissue-specific microbiota. Insights gained from deconvolution of the cervical lesional microenvironment will be discussed.

S12.4 A MUCOSAL CHLAMYDIA TRACHOMATIS VACCINE STIMULATES PROTECTIVE MEMORY T CELLS

Michael N Starnbach*. *Harvard Medical School, Boston, USA*

10.1136/sextrans-2019-sti.60

Many non-mucosal vaccines are poorly protective against mucosal pathogens, presumably because they do not generate mucosa-tropic memory cells. Few mucosal vaccines are in clinical use because live vaccine vectors pose safety risks and

killed or molecular antigens (Ags) are weak immunogens when applied to intact mucosa. Adjuvants can potentially overcome this poor immunogenicity, however, conventional mucosal adjuvants possess unfavorable safety profiles. We have developed an adjuvanted vaccine against *Chlamydia trachomatis*. Genital *Ct* infection induced protective immunity that depended on interferon- γ (IFN- γ) producing CD4 T-cells, whereas mucosal exposure to UV-inactivated *Ct* (UV-*Ct*) generated tolerogenic *Ct*-specific regulatory T-cells, resulting in exacerbated bacterial burden upon *Ct* challenge. However, mucosal immunization with UV-*Ct* complexed with charge-switching synthetic adjuvant particles (cSAP) did not exert the tolerogenic effect of UV-*Ct* alone but elicited long-lived protection. This differential effect of UV-*Ct*-cSAP versus UV-*Ct* was because the former was presented by immunogenic CD11b⁺CD103⁻ dendritic cells (DCs), while the latter was acquired by tolerogenic CD11b⁻CD103⁺ DCs. Genital protection was achieved after intrauterine or intranasal, but not subcutaneous vaccination and was inducible in conventional and humanized mice. Regardless of vaccination route, UV-*Ct*-cSAP induced robust systemic memory cells. However, only mucosal vaccination induced a wave of *Ct*-specific effector T-cells that seeded the mucosa during the first week and established resident memory T cells (T_{RM}). Without T_{RM}, mice were suboptimally protected, even when circulating memory cells were abundant. For optimal *Ct* clearance, both early seeding by T_{RM} and infection-induced recruitment of a second wave of circulating memory cells were required. Thus, using a novel mucosal vaccine platform, we demonstrate that protection against *Ct* depends on synergistic actions of two memory T cell subsets with distinct migratory properties.

S13 – CONTROVERSIES IN CLINICAL STI CARE

Tuesday, July 16, 2019 4:15 PM – 5:45 PM

S13.1 DOES AZITHROMYCIN HAVE A FUTURE IN THE TREATMENT OF GONORRHOEA AND CHLAMYDIAL INFECTION?

Jane Hocking*. *University of Melbourne, Melbourne School of Population and Global Health, Carlton, Australia*

10.1136/sextrans-2019-sti.61

Azithromycin, a second generation macrolide antimicrobial, has been widely used as a first line treatment for chlamydia and non-gonococcal urethritis and as part of dual treatment with ceftriaxone for gonorrhoea. Its unique pharmacokinetic properties including its extensive tissue distribution and long half-life, have enabled it to be administered as single dose treatment making it preferred for many STIs, particularly when there are any concerns about treatment adherence. A single dose regimen of azithromycin gives a larger maximum tissue concentration and has more rapid bacterial clearance than longer courses of the same overall dose suggesting that shorter durations of larger doses (>1g) will increase treatment efficacy and reduce the induction of resistance. However, the evidence suggests that the efficacy of azithromycin may vary by site of infection, particularly for chlamydia infection, with observational data finding that it might not be as effective for

rectal chlamydia infections. The pharmacokinetic properties of azithromycin may also contribute to the development of macrolide resistance in other STIs including gonorrhoea and *Mycoplasma genitalium*. It has extensive tissue distribution with the majority of the drug confined to the intracellular space. After entering the acidic compartments of cells, it becomes trapped leading to its slow release from the tissues contributing to its long half-life. While this is effective for treating chlamydia, the long half-life results in sub-inhibitory levels in the extracellular space, potentially contributing to the development of macrolide resistance in other organisms. This is particularly an issue when new infections are acquired during the two weeks following azithromycin treatment when sub-inhibitory concentrations exist. This presentation will discuss how the pharmacokinetic properties of azithromycin affect its efficacy for treating chlamydia infections and whether it should have an ongoing role as part of a dual treatment regimen with ceftriaxone for gonorrhoea infections.

Disclosure No significant relationships.

S13.2 SHOULD ENTERIC INFECTIONS IN MSM ALWAYS BE TREATED?

Mark Pakianathan*. *St George's University Hospital Foundation Trust, HIV and Sexual Health, London, UK*

10.1136/sextrans-2019-sti.62

Sexual transmitted enteric infections (STeIs) have been well recognised in gay, bisexual and other men who have sex with men (GBMSM) for over three decades. This presentation will initially provide an overview of the range of enteric pathogens with propensity for sexual transmission in this population.

There has been a recent increase in the numbers of outbreaks of enteric infections reported affecting this population in particular with shigella species and Hepatitis A. These have occurred across borders reflecting internationally mobile GBMSM networks. Recently, multi-drug antimicrobial resistance (AMR) in strains of *Shigella sonnei* circulating amongst GBMSM in England and USA have been identified challenging standard treatment approaches. The epidemiology of some of these outbreaks, the emergence of AMR and public health responses will be discussed. Outbreaks of shigella have been linked to HIV status and parallel epidemics of gonorrhoea (also linked with AMR), syphilis and Lymphogranuloma venereum in this population of GBMSM.

Whilst the majority of shigella infections in GBMSM will be self-limiting, contextual and clinical factors may lower the threshold for antimicrobial treatment. The presentation highlights some of these challenges and dilemmas in clinical management particularly in the face of co-infection with STIs, the emergence of AMR and syndemic health inequalities such as problematic chemsex (use of psychoactive substances with sex).

The presentation will conclude with research gaps, implications for policy on STeIs and emphasize the need for partnership working across public health, microbiology and relevant frontline clinical services. The need for management approaches that are holistic and consider wider syndemic health needs when managing patients will also be highlighted.

Disclosure No significant relationships.

S13.3 DO RECTAL BACTERIAL STIS IN WOMEN MATTER? WHO SHOULD WE TEST AND WHEN?

Christine Khosropour*. *University of Washington, Epidemiology, Seattle, USA*

10.1136/sextrans-2019-sti.63

Rectal bacterial STIs are increasingly recognized as common infections among clinic-attending women, with estimated prevalences of 5% for rectal *Neisseria gonorrhoeae* (GC) and 9% for rectal *Chlamydia trachomatis* (CT). Although these prevalences are similar to urogenital GC and CT among these same populations of women, we know very little about the health implications or epidemiology of rectal STIs among women. Rectal STIs are typically asymptomatic and the infections themselves may not be morbid conditions. However, some investigators have hypothesized that women could autoinoculate bacteria from the rectum to the vagina which may result in reproductive tract sequelae in the absence of vaginal sex. Even if there were strong evidence to suggest this does occur, it is unclear which populations of women should be targeted for rectal screening. Employing current screening guidelines for urogenital infections would assure treatment of women with concurrent rectal STI, but would miss women with isolated rectal STI. Further, the efficacy of azithromycin for CT may be lower in the rectum than the urogenital tract, suggesting that screening and treating women for urogenital CT without regard to the presence of rectal CT may result in a persistent rectal infection. Alternatively, rectal STI screening could be limited to women who report anal sex. However, the prevalence of rectal STIs is similar among women who do and do not report anal sex, suggesting that this screening strategy would miss a substantial proportion of cases. Finally, some have hypothesized that oral acquisition of CT may lead to rectal infection. If this route is possible, rectal screening for women who report penile-oral sex may be warranted. This session will review the epidemiologic and microbiologic evidence on these topics and will discuss what studies are needed to address the gaps in our understanding of these infections and define a way forward.

Disclosure No significant relationships.

S13.4 HPV VACCINATION IN MSM: WHO SHOULD BE VACCINATED AND IS THERE A ROLE FOR VACCINATION OF OLDER AND/OR HIV-POSITIVE MSM IN PREVENTING INITIAL, PERSISTENT AND RECURRENT HPV AND RELATED DISEASES?

David Templeton*. *RPA Sexual Health, Sydney, Australia*

10.1136/sextrans-2019-sti.64

Background Anogenital infection with human papillomavirus (HPV) disproportionately affects men who have sex with men (MSM), especially those living with HIV. It remains unclear whether HPV vaccination of older MSM and/or MSM living with HIV is beneficial in terms of preventing new HPV infections, reinfections with the same HPV subtype, new diagnoses or recurrence of HPV-related lesions or anal cancer.

Results HPV16 causes most anal squamous cell cancer worldwide. However, other high-risk HPV (hrHPV) types contained in the 9-valent vaccine (9vHPVvax) cause a substantial minority of anal cancers in HIV-positive MSM. In the landmark

quadrivalent HPV vaccination (qHPVvax) randomised controlled trial in MSM aged 16–26 years, qHPVvax significantly reduced the risk of anal warts, persistent anal HPV infection and anal precancerous lesions. An RCT of qHPVvax among HIV-positive individuals aged over 26 years was stopped early due to futility, largely due to lack of statistical power. Current evidence suggests little benefit of vaccination for established HPV infections. Nonetheless, qHPVvax has been shown to be safe and highly immunogenic among older HIV-positive MSM. Findings from cohort studies suggest potential benefits of vaccination beyond 26 years of age. Among HIV-negative MSM (median age 35), HPV16 seroincidence did not decline until after 35 years of age. A cohort of HIV-negative and HIV-positive MSM (median age 49) found anal HPV16 was only detected in one-third of men at baseline, and acquisition of new 9vHPVvax types occurred at a rate of almost 20 per 100 person-years. A similar-aged cohort of HIV-positive MSM suggested potential protection of almost 30% of participants against acquisition of new hrHPV types contained in the 9vHPVvax.

Conclusion Despite a lack of evidence of HPV vaccine efficacy in older/HIV-positive MSM, some existing data theoretically support a role of vaccination. Further studies are required to confirm whether any benefit exists.

Disclosure No significant relationships.

S14 – SEXUAL NETWORKS AND STI TRANSMISSION: FROM MODELLING TO PRACTICE

Tuesday, July 16, 2019 4:15 PM – 5:45 PM

S14.1 SEXUAL CONTACT NETWORKS, STI TRANSMISSION AND THE EFFECTIVENESS OF INTERVENTIONS: INSIGHTS FROM MATHEMATICAL MODELLING

Christian Althaus*. *University of Bern, Institute of Social and Preventive Medicine, Bern, Switzerland*

10.1136/sextrans-2019-sti.65

Sexual contact networks are a key determinant for the spread of sexually transmitted infections (STIs). The impact of different sexual contact structures on the effectiveness of interventions is not always well understood. Mathematical modelling provides an excellent tool to study the interrelationship between sexual contact networks, STI transmission and intervention effectiveness. We use deterministic, population-based as well as stochastic, individual-based transmission models to study the effects of control interventions against *Chlamydia trachomatis* and *Neisseria gonorrhoeae*. We illustrate that an accurate description of heterosexual contact networks is critical to evaluate the effectiveness of screening and partner notification strategies against chlamydia. We further analyse antibiotic resistance surveillance data to estimate the rates at which antibiotic-resistant *N. gonorrhoeae* spread in heterosexual men (HetM) and men who have sex with men (MSM). Interestingly, we can show that antibiotic-resistant *N.*

gonorrhoeae spread faster with more treatment, not more sexual partners. The effectiveness of control interventions for an STI strongly depend on the life history of the disease and the underlying sexual contact structure.

Disclosure No significant relationships.

S14.2 USE OF WHOLE GENOME SEQUENCING TO EXPLORE TRANSMISSION BETWEEN SEXUAL NETWORKS IN AN STI OUTBREAK

Helen Fifer*. *Public Health England, National Infection Service, London, UK*

10.1136/sextrans-2019-sti.66

Whole genome sequencing (WGS) is increasingly being used to describe the molecular epidemiology of *Neisseria gonorrhoeae* at a population level, mainly as part of national surveillance programmes or research studies. Recently, Public Health England has used WGS as part of outbreak investigations to understand the spread of resistant *N. gonorrhoeae*, and inform public health interventions in real-time. The benefits and difficulties of this approach will be explored.

Disclosure No significant relationships.

S14.3 MAXIMIZING THE ACCEPTABILITY, FEASIBILITY AND VALIDITY OF SEXUAL NETWORK STUDIES: LESSONS FROM THE FIELD

Abigail Norris Turner*. *Ohio State University, Internal Medicine, Infectious Diseases, Columbus, USA*

10.1136/sextrans-2019-sti.67

Network studies are an increasingly important source of evidence explaining the movement of sexually transmitted infections (STIs) through at-risk populations. This design type complements traditional epidemiological measures by incorporating spatial and temporal data about people's social and sexual connections to evaluate the spread of STIs. This applied presentation describes the speaker's experience initiating a multi-site sexual network study of syphilis transmission among men who have sex with men (MSM) in an LGBTQ-friendly Midwestern US city. She discusses challenges and field-tested solutions specific to chain-referral network studies across multiple domains, including: 1. ethical review, which required extensive education of IRB members and changes to local IRB policy prior to approval; 2. feasibility and acceptability, which required community engagement and sensitization to assuage participant concerns about confidentiality in the use of peer referrals and with the enumeration of sexual partners using modified identifiers; and, 3. data capture, including management challenges inherent to tracking sexual partners and behaviors over time, in the context of changing relationships (e.g., evolution and devolution of relationships from anonymous to casual to primary to dissolved to reinitiated), changing disease exposure, and use of a smartphone app to capture inter-visit behavioral risk data. She describes strategies used prior to and after study initiation to develop, maintain and enhance relationships with the target community, and future

plans for continued engagement around dissemination of results. Accurate measurement of sensitive or stigmatized behavior presents a challenge to the validity of nearly all STI research. Maximizing the acceptability, feasibility and validity of network studies will lead to more accurate estimates of the drivers of STI transmission and will provide more valid insights about the opportunities for interventions to prevent and control STI outbreaks.

Disclosure No significant relationships.

S14.4 THE ROLE OF SEXUAL NETWORKS IN THE GLOBAL SPREAD OF ANTIMICROBIAL-RESISTANCE ENTERIC INFECTIONS

Nigel Field*. *University College London, Centre for Molecular Epidemiology and Translational Research, Institute for Global Health, London, UK*

10.1136/sextrans-2019-sti.68

In high-income countries, enteric pathogens have typically affected returning travellers or children, or spread from contaminated point sources. However, sexually transmitted enteric infections (STEI) are now well documented, particularly among men who have sex with men (MSM). The phenomenon was recognised in patients with HIV/AIDS in the early 1970's as arising from direct/indirect ingestion of faecal matter via sexual contact. Bacteria (*Shigella spp.*, *Salmonella spp.*, *Campylobacter spp.*, *Escherichia coli*), viruses (Hepatitis A), and protozoa (*Giardia spp.*, *Cryptosporidium spp.*, *Entamoeba histolytica*) have all been implicated. Following a nadir during the 90's and early-2000's, new epidemics of enteric pathogens affecting MSM have been reported internationally. Facilitated by global travel, these have familiar characteristics (oral-anal behaviours and HIV-associations), but also important new features (associations with 'chemsex', social media use, PrEP, syndemic STIs, and transmission in the absence of HIV). For some STEIs, notably Shigellosis, a worrying new feature is resistance to multiple antimicrobial classes found in most isolates from MSM. This may be collateral to frequent antibiotic exposure acting as a selection pressure among the sexual networks affected. Understanding of these sexual networks has been informed by a wide range of approaches, from qualitative patient interviews, through scrutiny of national surveillance trends (male-to-female ratios, gender excess, geographical distributions) and electronic data linkage, to population-level pathogen phylogenomics. These are challenging infections to study, not least due to being sometimes asymptomatic, as well as patient and clinician unawareness about sexual transmission leading to missed or mis-diagnoses, the hidden nature of the affected population, and stigma. Moreover, many questions remain about the prevalence, transmission, duration of infection, clinical implications, drivers of antimicrobial resistance, and effective public health and clinical interventions. Embracing transdisciplinary approaches to understand the sexual networks affected and the behavioural and pathogen-associated drivers seems essential if we are to move from observation to control.

Disclosure No significant relationships.

S15 – NEW APPROACHES TO STI DIAGNOSIS AND PREVENTION

Wednesday, July 17, 2019

10:45 AM – 12:15 PM

S15.1 FOUR *TREPONEMA PALLIDUM* PROTEINS DETECTED IN URINE FROM SYPHILIS-INFECTED INDIVIDUALS USING MASS SPECTROMETRY

Chris Kenyon*. *Institute of Tropical Medicine, Berchem, Belgium*

10.1136/sextrans-2019-sti.69

Background The direct detection of *Treponema pallidum* peptides in bodily fluids could facilitate the early diagnosis of initial-, repeat-, congenital- and neuro-syphilis.

Methods To this end, we prospectively recruited 54 individuals with a new diagnosis of syphilis and 6 controls. Their urine specimens were pooled according to disease stage and assessed using complementary mass spectrometry techniques (MALDI-TOF-TOFMS/MS, LC/ESI-IM-Q-TOF/HDMS^E) to uncover potential syphilis biomarkers.

Results In total, 26 unique peptides were uncovered corresponding to four unique *T. pallidum* proteins (Tp0486, Tp0742, Tp0804 and Tp0369) that have no, or minimal, genetic sequence similarity to other known proteins, including prokaryotes and human proteins.

Conclusion This is the first study reporting direct detection of *T. pallidum* proteins in human biofluid samples using MS-based proteomics methods. These could be promising diagnostic test targets.

Disclosure No significant relationships.

S15.2 CRISPR DIAGNOSTICS: EXPANDING THE NUCLEIC ACID DETECTION TOOLBOX BY HARNESSING MICROBIAL DIVERSITY

Jonathan Gootenberg*. *MIT, Cambridge, USA*

10.1136/sextrans-2019-sti.70

Versatile, rapid, and portable sensing of nucleic acids is vital for applications in human health. The RNA-targeting CRISPR-associated enzyme Cas13 has recently been adapted for such purpose. This detection platform, termed SHERLOCK (Specific High Sensitivity Enzymatic Reporter UNLOCKing), can discriminate between inputs that differ by a single nucleotide at very low concentrations and can be lyophilized for portable deployment. However, this technology has several limitations, including the lack of quantitation and reliance on fluorescent detection equipment for readout. Here, we extend the SHERLOCK technology to address these limitations and further develop the utility of this platform. Many applications require detection of more than one target molecule in a single reaction, and we therefore sought to create a multiplex platform that relies on unique cleavage preferences of Cas enzymes. To identify possible candidate enzymes compatible with multiplexing, we biochemically characterized three members of the

CRISPR-Cas13a family and fourteen members of the CRISPR-Cas13b family.

We next focused on tuning the output of the SHERLOCK signal to make it more quantitative, sensitive, and robust to broaden the utility of the technology, testing optimizations of the amplification to enable quantitative and able to accept larger input volumes for increased sensitivity.

Another goal of SHERLOCKv2 was engineering a visual readout of activity requiring no additional instrumentation. We designed a lateral-flow readout that was based on the destruction of a FAM-biotin reporter, allowing for detection on commercial lateral flow strips. Abundant reporter accumulates anti-FAM antibody-gold nanoparticle conjugates at the first line on the strip, preventing binding of the antibody-gold conjugates to protein A on the second line; cleavage of reporter would reduce accumulation at the first line and result in signal on the second line. We profiled Cas13 cleavage preferences on homopolymer reporters, and found that most orthologs preferred either uridine, a combination of bases, or adenine. We refined the cleavage sequence preferences by evaluating collateral activity across di-nucleotide motifs, finding a large diversity of di-nucleotide cleavage motif preferences. From these di-nucleotide cleavage screens, we found that the activities of LwaCas13a, CcaCas13b, LbaCas13a and PsmCas13b could all be independently measured with the four di-nucleotide reporters AU, UC, AC, and GA, respectively. Additionally, using a random in vitro RNA library motif cleavage screen, we identified numerous RNA 6-mers that allowed for further orthogonality between Cas13 enzymes. When combined with RPA, we detected two DNA targets (the *P. aeruginosa* acyl-transferase gene and the *S. aureus* thermonuclease gene) down to the attomolar range. These advances in in-sample multiplexing via orthogonal base preferences allow for many targets to be detected at scale and for cheaper cost.

We tested a range of primer concentrations and found that 240nM exhibited the greatest correlation between signal and input, and quantification was sustainable across a large range of sample concentrations down to the attomolar range. By scaling up the pre-amplification RPA step, we found that Lwa-Cas13a could give detection signal for 200, 80, and 8zM input samples and allow for single-molecule volume inputs of 250µL and 540µL.

We tested lateral flow with Cas13 for instrument-free detection of ZIKV or DENV ssRNA, and found that detection was possible in under 90 minutes with sensitivities down to the 2 aM condition. Moreover, we found that we could do rapid genomic DNA extraction from human saliva (<10min) and input this directly into SHERLOCK without purification for rapid genotyping in under 23 minutes by fluorescence and 2 hours by lateral flow. The additional refinements presented here for Cas13-based detection allow for quantitative, visual, more sensitive, and multiplexed readouts, enabling additional applications for nucleic acid detection, especially in settings where portable and instrument-free analysis are necessary. SHERLOCKv2 can be used for multiplexed genotyping to inform pharmacogenomic therapeutic development and application, detecting genetically modified organisms in the field, or determining the presence of co-occurring pathogens. Moreover, the rapid, isothermal readout of SHERLOCKv2, enabled by lateral flow and Csm6, provides an opportunity for detection in settings where power or portable readers are unavailable, even for rare species like circulating DNA. In the future, it might be possible to make solution-based colorimetric readouts and multiplex lateral flow assays containing multiple test

strips for different targets. Improved CRISPR-dx nucleic acid tests make it easier to detect the presence of nucleic acids in a range of applications across biotechnology and health and are now field-ready for rapid and portable deployment.

Disclosure No significant relationships.

S15.3 REDUCING THE GLOBAL BURDEN OF INFECTIOUS DISEASES THROUGH PRECISION INFECTION MANAGEMENT (PIM)

Ian Lewis*. *University of Calgary, Biological Science, Calgary, Canada*

10.1136/sextrans-2019-sti.71

The global rise in the prevalence of antibiotic resistant bacteria is a problem so serious that it threatens all modern medicine. One major factor contributing to the problem is the limited information available to clinicians regarding the risks posed by individual strains of pathogens. Titrating clinical interventions according to these risks would enable the more judicious use of antibiotics, would reduce the time necessary to control serious infections, and would minimize antibiotic-associated treatment complications. We are developing a new Precision Infection Management (PIM) strategy for achieving these objectives. Our approach links the complete proteomic, metabolomic, and genomic sequences of 50,000 microbial isolates to birth-to-death medical records and integrates microbial risk-factors into a hand-held smartphone app for clinicians. 50,000 isolates spanning two decades of clinical diagnostic work in southern Alberta are being cultured in 96-well format and DNA, protein, and metabolites are being extracted using an automated workflow. Full genome sequences are being collected by the Broad Institute, quantitative proteomics analyses are being acquired using a TMT11plex workflow, and metabolomics data are being acquired using our metabolic preference assay. De-identified patient data have been collected from Alberta Health Services and these records are being linked to each clinical isolate to enable microbe/clinical outcome association studies. All data are being stored on a new secure data hub, ResistanceDB, which supports complex multi-omics data mining, machine learning, and microbial risk assignment. We are currently establishing the microbiology, analytical, and informatics pipelines necessary to support the comprehensive analyses of 50,000 microbial isolates. We have recently launched our pilot ResistanceDB hub, and have collected genomics, proteomics, and metabolomics data on a pilot set of 1,000 clinically-linked microbial isolates. We have established automated data capture and archival systems to collect data from each of the 'omics pipelines and have invested significant time in evaluating practical methods for analyzing thousands of microbial samples. We are currently using our computational resources to survey the current state of microbial populations and document their evolution over the last decade. Our preliminary analyses show a dramatic rise in the prevalence of resistant organisms over this time. We have developed several new visualization tools for projecting microbial population-level changes over time and we are currently working to understand how these microbial dynamics have affected patient outcome. Our quantitative proteomics methods are currently capturing over 1,000 microbial proteins, including most of the known virulence factors and our metabolomics assay is capturing more than 250 metabolites from a transect of central carbon metabolism. We are currently transitioning

into scale-up of the program and are building the informatics tools that will ultimately allow our microbial risk scores to be made available to clinicians via a smart-phone enabled app. The primary objective of this work is to enable the precision management of infections using isolate-specific virulence data. This PIM approach will inform clinical decision-making and infection management practices in point-of-care settings resulting in, (1) a reduction in the number of people who develop life-threatening infections, (2) a reduction in the number of side effects that result from over-treating benign infections, and (3), an extended service-life for our existing antibiotics by dramatically reducing the over-use of these drugs. We introduce a new Precision Infection Management (PIM) strategy for titrating clinical care according to the risks posed by each individual infection.

Disclosure No significant relationships.

S15.4 COMBATting HIV WITH NANOMATERIALS

Kim A Woodrow*. *University of Washington, Bioengineering, Seattle, USA*

10.1136/sextrans-2019-sti.72

The delivery of drug combinations is a paradigm for treatment of cancer, HIV/AIDS and drug resistant bacterial infections. My laboratory is interested in the application of engineered biomaterials to control the spatial and temporal delivery of a combination of agents (small molecules, biologics, conjugates). Strategies to combine chemically incompatible agents may facilitate the discovery of unique drug-drug activities, particularly unexplored combination drug synergy. In this presentation, I will summarize our efforts to develop polymeric delivery systems for the combination delivery of antiretroviral (ARV) drugs in HIV prevention, treatment and cure. We have developed polymeric particulate and fiber carrier systems for delivering ARV drug combinations. The flexibility to design the nanoarchitecture of these polymeric carriers, combined with the versatility of drugs that can be encapsulated for controlled release, motivate the use of these systems for topical, injectable or oral delivery of combination agents.

S16.1 – ANATOMICAL SITES OF INFECTION: BIOMEDICAL, MODELING, BEHAVIORAL, AND PROGRAMMATIC CONSIDERATIONS FOR STI PREVENTION

Wednesday, July 17, 2019
10:45 AM – 12:15 PM

S16.1 ANATOMICAL SITES OF INFECTION – BIOMEDICAL CONSIDERATIONS FOR STI PREVENTION

Jane Hocking*. *University of Melbourne, Melbourne School of Population and Global Health, Carlton, Australia*

10.1136/sextrans-2019-sti.73

Extragenital (anorectal and oropharyngeal) sexually transmitted infections (STIs), particularly chlamydia and gonorrhoea,

are highly prevalent among men who have sex with men (MSM), but are now an increasing concern among heterosexual men and women with calls for anorectal testing in women. Further, there is ongoing debate about the role of oropharyngeal STIs driving transmission, particularly among MSM and about anorectal chlamydia in women causing urogenital infection via auto-inoculation. These issues highlight that site of infection is an important issue. Treatment efficacy can vary considerably by site of infection – for example, treatment efficacy is lower for oropharyngeal gonorrhoea and anorectal chlamydia with some treatments. Factors related to the pharmacokinetic properties of the drug can affect its efficacy at different anatomic sites including its tissue distribution, protein binding and half-life. Factors related to the individual including the pH of the local tissue environment, immune response, drug side-effects and sexual practices can affect treatment efficacy. Finally, factors related to the micro-organism itself such as organism load and antimicrobial resistance can also impact on treatment efficacy. These factors should play a role in guiding treatment guidelines as it is possible that treatment regimens need to vary by site of infection. The use of mouthwash and doxycycline prophylaxis have been raised as potential biomedical interventions to reduce STI transmission, although ongoing concern about antimicrobial stewardship threatens the widespread use of doxycycline. We also need to understand the natural history of extra-genital STIs, particularly in women where the importance of anorectal infections and whether they play an important role in inoculating and causing persistent urogenital infection is not well understood. This presentation will discuss the importance of the site of infection particularly when considering treatment options and the possible role of biomedical interventions to prevent infection.

Disclosure No significant relationships.

S16.2 MODELING CONSIDERATIONS RELATED TO MULTI-SITE INFECTION

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10.1136/sextrans-2019-sti.74

Background Gonorrhoea may infect the urethra, rectum, and oropharynx in men. It may only be acquired when there is contact between infected and uninfected anatomical sites. Seven plausible routes of MSM transmission have been proposed: urethra-to-rectum, rectum-to-urethra, urethra-to-oropharynx, rectum-to-oropharynx, oropharynx-to-urethra, oropharynx-to-rectum, and oropharynx-to-oropharynx. We characterize the uncertainty and potential importance of transmission from each anatomical site using a deterministic compartmental mathematical model.

Methods We developed a model of site-specific gonococcal infection, where individuals are infected at zero, one, two, or all three sites. Sexual behavior and infection duration parameters were fixed similar to recent analyses. Markov Chain Monte Carlo methods were used to sample the posterior distribution of transmission probabilities that were consistent with site-specific prevalence in American MSM populations under specific scenarios. Scenarios were defined by whether transmission routes may or may not transmit by constraining specific transmission probabilities to zero rather than fitting them.

Results Transmission contributions from each site have greater uncertainty when more routes may transmit, when all routes may transmit, the oropharynx can contribute 0–100% of all transmissions. In contrast, when only anal or oral sex may transmit, transmission from the oropharynx can account for only 0–25% of transmission. Intervention effectiveness against transmission from each site also has greater uncertainty when more routes may transmit.

Conclusion Multiple routes of transmission leads to great uncertainty. Even under ideal conditions (i.e., when site-specific gonococcal prevalence, relative rates of specific sex acts, and duration of infection at each anatomical site are known and do not vary), the relative importance of different anatomical sites for gonococcal transmission cannot be inferred with precision. This result is generalizable to any other infection where multi-site infection leads to multiple routes of transmission. Additional data informing per act transmissibility are needed to understand site-specific gonococcal infection transmission. This understanding is essential for predicting population-specific intervention effectiveness.

Disclosure No significant relationships.

S16.3 ANATOMICAL SITES OF INFECTION: BEHAVIOURAL CONSIDERATIONS FOR STI PREVENTION

Catherine Mercer*. *University College London, Centre for Population Research in Sexual Health and HIV, Institute for Global Health, London, UK*

10.1136/sextrans-2019-sti.75

Many industrialised countries have witnessed a broadening of sexual repertoires, including increases in reported heterosexual oral, and in particular, anal sex, and same-sex behaviour in women, while among MSM, oral sex remains more prevalent than anal sex. Condoms, when used correctly, are highly-effective in preventing STI transmission through penetrative sex, yet their use remains suboptimal. For MSM, this may partly reflect the effectiveness of biomedical interventions for HIV such as treatment as prevention and pre-exposure prophylaxis. For heterosexuals, pregnancy prevention often trumps STI concerns, with more reliable and less intrusive contraception used for vaginal sex, while condoms are seldom used for heterosexual anal sex, or oral sex regardless of gender.

Given these behavioural trends, it is unsurprising that a large proportion of STI transmission is thought to occur extra-genitally. Among MSM attending US sexual health clinics, more than half of GC/CT infections were not in the urethra, and most MSM with extra-genital GC/CT infections did not have concurrent urethral infections. Extra-genital infections are more often asymptomatic, a potential reservoir for transmission, and undetected antibiotic resistant strains may spread resistance. STI prevention efforts must therefore include targeting extra-genital infections.

Efforts to change sexual practice, e.g. promoting condom use for oral sex and/or sexual positioning, are unlikely to have significant impacts, but opportunities exist beyond the bedroom. Raising public awareness about the potential for, and consequences of, extra-genital infection may encourage disclosing sexual behaviour to clinicians and appropriate site-specific testing. Educating clinicians - especially non-specialists - about the importance of asking all patients about their sexual practices and testing for extra-genital STIs accordingly may also be helpful. Such endeavours could result in the

greater detection of extra-genital infections but cost-effective strategies need determining. As such, a multifaceted approach including evidence-based behavioural and biomedical interventions is likely to yield the greatest health gains.

Disclosure No significant relationships.

S16.4 DESIGNING AN APPROACH TO DEAL WITH EXTRAGENITAL SEXUALLY TRANSMITTED INFECTIONS: DO WE HAVE THE DATA WE NEED?

Jeanne Marrazzo*. *University of Alabama, Medicine, Birmingham, USA*

10.1136/sextrans-2019-sti.76

This symposium entitled ‘Anatomical Sites of Infection: Biomedical, Modeling, Behavioral, and Programmatic Considerations for STI Prevention’ will focus on the implications that extragenital (defined as infections that occur outside of the cervix and urethra) sexually transmitted infections have for various dimensions of STI care and prevention. These infections are common, particularly among men who have sex with men (rectal and pharyngeal) and heterosexual women (both sites as well). Yet, we have little understanding of the pharmacokinetics of commonly used antimicrobials at these sites, the natural history of the infections at these sites, and as a critical corollary, how much of a role these sites have in providing a meaningful reservoir for sustaining transmission in populations at risk. We need to have a better understanding of these parameters before we can intelligently design screening protocols and intervention studies. This presentation will explore these issues and allow ample time for discussion of these challenges.

Disclosure No significant relationships.

S17 – CLINICAL ISSUES IN WOMEN’S HEALTH AND STI

Wednesday, July 17, 2019
10:45 AM – 12:15 PM

S17.1 HPV SCREENING – NEW EVIDENCE AND CURRENT STATE OF THE ART

Suzanne Garland*. *The University of Melbourne, Obstetrics and Gynaecology, Parkville, Australia*

10.1136/sextrans-2019-sti.77

HPV-vaccination programs constitute major public-health initiatives worldwide and have been introduced into National immunisation programs in over 80 countries, although most are in high income countries. Programs were implemented around 10 years ago: where high coverage of target populations especially with catch-up programs, the impact and effectiveness on HPV infection and disease has been remarkable. For the quadrivalent vaccine (6/11/16/18) there have been reductions of ~90% for HPV vaccine type infections, ~90% for genital warts, ~45% for low-grade cytological cervical abnormalities, ~60% for cervical histologically-proven high-grade abnormalities [HSIL], in colposcopic referrals, and

ablative therapy. Thus, the positive predictive value of cervical cytology [Pap screening] for underlying HSIL has reduced: accordingly, countries are adopting new screening strategies using more sensitive, more objective methods of HPV nucleic acid tests (NAT). In 2017 Australia, screening changed to HPV NAT assays commencing at 25 years of age, with immediate triage to cytology and colposcopy if HPV16/18 positive, and five yearly screening for those HPV DNA negative. It is important that NAT assays chosen must strike a balance between sufficient clinical sensitivity to detect/predict HSIL, without being too sensitive (detecting transient infection only not destined to becoming lesions). The highest quality HPV NAT is thus a priority to reduce falsely negative screens and manage the risk associated with false positive HPV NAT test results. It is imperative that we adopt the best QA and QC measures to accompany the introduction of these new assays. Today we are poised to markedly reduce the incidence of cervical cancer, with the vision of eventually eliminating it as a public health problem (as the call to action from WHO DG Dr Tedros May 2018), using the combination of sustained high coverage HPV vaccination and sustained high coverage HPV NAT screening, with treatment of those with disease.

Disclosure No significant relationships.

S17.2 TREATMENT OF BACTERIAL VAGINOSIS: HOW, WHEN AND HOW MUCH?

Caroline Mitchell*. *Massachusetts General Hospital, Obstetrics and Gynecology, Boston, USA*

10.1136/sextrans-2019-sti.78

Bacterial vaginosis (BV) is a leading cause of symptomatic vaginitis in North American populations. BV is also associated with adverse reproductive health outcomes such as miscarriage, preterm birth, and increased risk for sexually transmitted diseases. Treatment of this common disorder is mostly effective in the short term, but recurrence is common. Current treatment guidelines will be reviewed, as well as alternative regimens and treatments, some of which may not be FDA-approved for treating BV. This presentation will discuss the short and long term efficacy of recommended antibiotic treatment regimens, as well as alternative treatment and prevention strategies such as boric acid and probiotics. The role of treatment for prevention of adverse health outcomes will be reviewed. Predictors of treatment success will be discussed, and incorporated into practical advice for patients and treating providers.

Disclosure No significant relationships.

S17.3 SCREENING WOMEN FOR BACTERIAL STIS: SHOULD WE SCALE-BACK?

Jonathan Ross*. *University Hospital Birmingham NHS Trust, Birmingham, UK*

10.1136/sextrans-2019-sti.79

Screening for bacterial STIs, in particular chlamydia, is common in high income countries using a variety of different

approaches. However, recent reductions in funding for STI treatment services in several countries highlight the need to ensure that investment in screening remains appropriate and cost-effective. The evidence base for chlamydia screening suggests that it can reduce the incidence of pelvic inflammatory disease but with several caveats, and it remains unclear whether screening represents good value for money. In particular, the opportunity cost of choosing screening over other sexual health interventions requires consideration. Harms have been poorly characterised but need to be addressed when measuring the potential value of a screening program. Overall, the evidence for broad population based screening is limited and new approaches are needed to reduce the morbidity and reproductive sequelae associated with bacterial STIs.

Disclosure No significant relationships.

S17.4 PREMATURITY AND STI – VALUE OF SCREENING AND TREATMENT

Deborah Money*. *University of British Columbia, Vancouver, Canada*

10.1136/sextrans-2019-sti.80

Prematurity and STI – the value of screening and treatment. Preterm birth is a significant cause of perinatal morbidity and mortality worldwide and strategies to prevent preterm birth have often focussed on infectious etiologies. In addition, prenatal care is a time when women access health care, even in resource limited settings, and poses a very important opportunity to optimize a woman's health and ensure screening for communicable diseases, particularly STI's is conducted. Screening and treating STI's in any reproductive aged woman are important but treating in pregnancy requires appropriate selection of antimicrobials that will be the safest in pregnancy depending on the gestational age. Many STI's have been associated with preterm birth but treating in all cases has not been consistently associated with prevention of prematurity. This talk will present data on the most common STI's and sexually associated genital tract infections, and the individual value of screening and treating in pregnancy including; HIV, Hepatitis B, Hepatitis C, Syphilis, *Herpes simplex*, *Trichomonas vaginalis*, bacterial vaginosis, *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Mycoplasma genitalium*, *Mycoplasma hominus*, *Ureaplasma urealyticum*. Screening and treatment of bacterial vaginosis has been studied extensively over time with variability in results. Many studies have shown an association of bacterial vaginosis with higher rates of preterm birth, but in low risk women treatment has not proven of benefit. In some studies, treatment of high-risk women has been beneficial. However, the lack of precision around the diagnosis of bacterial vaginosis has likely contributed to confusing results in the literature, and new methods of genomic analysis of the vaginal microbiome is leading to opportunities for much greater precision in the diagnosis of dysbiosis and targeted treatment trials that would be more promising than standard treatment has proven to be in the past.

Disclosure No significant relationships.

S18 – REGIONAL RESPONSES TO GLOBAL HIV/STI TRENDS (IUSTI SPECIAL SYMPOSIUM)

Wednesday, July 17, 2019
10:45 AM – 12:15 PM

S18.1 AN UPDATE ON THE STATUS OF HIV/STIS IN IUSTI'S FIVE REGIONS

Francis Ndowa*. *Skin and GU Medicine Clinic, Harare, Zimbabwe*

10.1136/sextrans-2019-sti.81

The global outbreak of human immunodeficiency virus (HIV) in the 1980s invigorated the academic research on the role of the classical sexually transmitted infections (STIs), such as gonorrhoea, syphilis and chlamydia, in the transmission and acquisition of HIV infection.

The community-based studies conducted in Africa on STI interventions to control HIV infection brought about seemingly conflicting results which put STIs on the back burner. However, ongoing data demonstrate that interactions between HIV and the other STIs cannot be ignored.

The control of STIs is not simple and straight forward, however, – the determinants and drivers of STIs are very diverse from one setting to another and from one population sub-group to another.

Also, not to be forgotten, are the characteristics of the sexually transmitted pathogens themselves, ranging from transmissibility, the symptomless nature of some of the pathogens, their ability to become resistant to standard treatments and the lack of affordable diagnostic tools to detect them.

A coordinated response is required but, in terms of the global response, the syndemics between HIV and the other STIs were not fully grasped, resulting in competing priorities for funding the responses.

HIV treatment has been justifiably prioritised to save millions of lives, and new HIV infections are falling, albeit not fast enough. On the other hand, the other STIs are not showing the same trend as HIV. What is common to both HIV and the other STIs is that prevention services for both HIV and other STIs are not delivered to scale to reach the most vulnerable people who need them.

The presentation will summarise the consequences of such a diversity of the response and highlight the status of HIV/STI infections in the five regions of the International Union against Sexually Transmitted Infections.

Disclosure No significant relationships.

S18.2 BRIDGING THE GAP – BEST PRACTICE GLOBAL EXAMPLES OF INTEGRATION OF HIV AND STI SERVICES

Janet Wilson*. *Leeds Teaching Hospitals NHS Trust, Leeds Sexual Health and HIV, Leeds, UK*

10.1136/sextrans-2019-sti.82

In response to the 2015 United Nations resolution, Transforming our world: The 2030 Agenda for Sustainable Development, in 2016 WHO developed three global strategies on HIV, viral hepatitis, and STIs. These are aiding reductions in

the infections, and their related deaths, as well as improving the sexual health and well-being of all people. All three strategies highlight the importance of policies and systems that enable the delivery of integrated health interventions and services, and which can be tailored to different populations, at different locations, in order to achieve equitable and quality care. What might an integrated sexual health service look like? It would include the integration of STI services (including hepatitis B and HPV vaccination), reproductive health services (including contraception and cervical cancer screening), and HIV treatment and care. Partner notification and treatment would be a core component of the services. There would be universal antenatal screening for HIV, STIs and hepatitis B (or infant vaccination at birth) with combined efforts to reduce mother to child transmission of HIV, syphilis and hepatitis B. There would be targeted services for key populations such as sex workers and men who have sex with men. It would also include advice about protection against STIs, HIV and unplanned pregnancies and initiatives to promote behaviour change, with the provision of male circumcision, pre-exposure prophylaxis and post-exposure prophylaxis for the prevention of HIV. There would be assessments for drug and alcohol use/addiction and provision of, or referral to, services to reduce these. This talk will look at examples of health policies and services from around the world that are delivering integrated sexual, reproductive and HIV services. It will consider potential barriers to providing integrated services and possible solutions to overcome these.

Disclosure No significant relationships.

S18.3 IMPROVING THE SEXUAL AND REPRODUCTIVE HEALTH OF WOMEN LIVING WITH HIV

Angelica Espinosa Miranda*. *Universidade Federal do Espírito Santo, Brazil, Vitória, Brazil*

10.1136/sextrans-2019-sti.83

HIV is not only determined by gender inequality, but it also bookmarks gender unfairness, leaving women more vulnerable to its impact. According to UNAIDS, girls and women represent more than half of the 36.7 million people living with HIV; around 7,000 young women aged 15–24 years become infected with HIV every week and 80% of pregnant women living with HIV had access to antiretroviral medicines to prevent transmission of HIV to their babies in 2017.

Providing sexual and reproductive health interventions for women living with HIV, which are grounded in principles of gender equality, can have a positive impact on their quality of life. In many countries, women living with HIV do not have proper access to good-quality health services.

Health interventions related to the sexual and reproductive health services (SRHS) of women living with HIV, need to be organized into specific services, mainly focused on sexual health counseling, violence against women, family planning and infertility, antenatal care and maternal health, safe abortion; sexually transmitted infections and cervical cancer. The interventions need to consider cultural, economic, geographic location, social and legal factors, including gender norms and power relations. It is also important to consider religious and cultural beliefs, stigma and discrimination related to HIV and other demographic factors, as age, gender, sexuality, social class, disability, ethnicity and race. SRHS programs need to

provide equitable services that are people-centered, accessible, acceptable and affordable.

It is essential to address the barriers, improve the quality of care and provide continuous training for health professionals. Moreover, women living with HIV need to be made aware of their rights and empowered to benefit themselves of these offered services and health professionals should help them understand their reproductive goals, while safeguarding their human rights.

Disclosure No significant relationships.

S18.4 ENGAGING CULTURALLY AND LINGUISTICALLY DIVERSE POPULATIONS IN HIV/STI SERVICES: CHALLENGES AND OPPORTUNITIES

Shailendra Sawleshwarkar*. *University of Sydney, Australia, Faculty of Medicine and Health, Parramatta, Australia*

10.1136/sextrans-2019-sti.84

Cultural and linguistic diversity in many high-income countries including Australia is increasing, with more than one in four Australians being born overseas. Culturally and linguistically diverse populations (CALD) or ethnic minorities are disproportionately affected by HIV and sexually transmitted infections (STIs) in many countries with universal access to healthcare. Studies from the Australia, UK, USA and Canada suggest disparities in sexual health outcomes in CALD populations which persist even when controlling for sexual behaviour. Understanding service delivery issues for CALD populations is critical to the development and implementation of effective public health policy and health services. Enhanced HIV testing, HIV pre-exposure prophylaxis and treatment as prevention have been very effective in interrupting HIV transmission but people from CALD backgrounds especially men who have sex with men (MSM) continue to face difficulties in accessing these interventions. Lower knowledge of HIV risk factors, low perception of risk, stigma, and risky sexual risk behaviors may increase risk of HIV and STIs among CALD populations. Lack of awareness among healthcare workers regarding issues affecting CALD population also contributes to the challenges in providing effective health services. In the context of changes in HIV prevention landscape from condom promotion to biomedical approaches, sexual health services will benefit from taking culturally and linguistically sensitive approach in engaging and delivering HIV and STI care. Tailored approaches that effectively address cultural, language and gender issues to address inequalities in access and improve linkage, engagement and retention in care are needed for several CALD sub-populations, including MSM, sex workers, people who inject drugs, international students, refugees, and women. Failing to address these issues may lead to ongoing high rates of HIV transmission in these CALD subpopulations and have significant impact on achieving the goal of ending the AIDS epidemic by 2030.

Disclosure No significant relationships.

S19 – GLOBAL PUBLIC HEALTH APPROACHES TO GONORRHEA PREVENTION AND THE THREAT OF ANTIBIOTIC RESISTANCE

Wednesday, July 17, 2019

1:45 PM – 3:15 PM

S19.1 PERSPECTIVES FROM NORTH AMERICA

Karen Schlanger*. *Centers for Disease Control and Prevention, Atlanta, USA*

10.1136/sextrans-2019-sti.85

Background As in other regions, rates of gonorrhoea in North America continue to rise, while *Neisseria gonorrhoeae* (Ng) antimicrobial susceptibility, and particularly macrolide susceptibility, has declined. These patterns have heightened concerns about emerging resistance to the only remaining recommended treatment regimen and the prospect of untreatable gonorrhoea.

Methods In this session, available data on Ng antimicrobial susceptibility trends in North America will be reviewed, with a focus on recent trends in cephalosporin, macrolide, and fluoroquinolone susceptibility. Public health responses, such as United States outbreak preparedness and response activities, will be explored.

Results Although the percentage of Ng isolates with reduced cephalosporin susceptibility has declined in recent years in the United States and Canada, the percentage with reduced azithromycin susceptibility has increased in both countries. High-level azithromycin resistant strains have been identified in the United States, and an isolate with a high ceftriaxone minimum inhibitory concentration (1 µg/ml) was identified in Canada (2017). Data from Mexico are limited. In addition to robust surveillance in the United States and Canada, the United States has implemented efforts to enhance rapid detection and response to Ng resistance.

Conclusions Robust surveillance and public health engagement are critical to address the growing threat of Ng resistance.

S19.2 PERSPECTIVES FROM BRAZIL AND LATIN AMERICA

Adele Benzaken*. *Fundação de Medicina Tropical Doutor Heitor Vieira Dourado, Manaus, Brazil*

10.1136/sextrans-2019-sti.86

Global emergence of resistance to extended-spectrum cephalosporins (ESCs) cefixime and ceftriaxone is alarming scientific and healthcare communities. Following cases in Japan, a case was reported last year in England - and a Ceftriaxone-Resistant Multidrug-Resistant *Neisseria gonorrhoeae* (NG) was reported in Singapore in 2019. In Latin America, first isolates with reduced sensitivity to ceftriaxone were reported in

Argentina, Brazil, Cuba, Chile and Uruguay (GASP Latin America). Most were observed in 2012 (12 isolates). After four unsuccessful attempts to implement national gonococcal antimicrobial surveillance, in 2016/2017 Brazil established a first national surveillance system with 550 isolates from seven sites across the country. Minimal inhibitory concentration (MIC), determined by agar dilution, revealed 42% to 79% of isolates resistant to ciprofloxacin, and 4% to 9.9% resistant to azithromycin, along with expected high rates of resistance to penicillin and tetracycline. Regarding resistance to ESCs, isolates with cefixime MIC bordering resistance (MIC=0.125 mg/L) were observed according to European cefixime resistance breakpoint, and were found in all five regions of Brazil (3.1 to 10.8%). This result led to revision of the Brazilian Guidelines for STI Treatment; current recommendation is intramuscular (IM) ceftriaxone 500 mg associated with azithromycin 1g (VO) in a single dose. The rates of resistance have concerned Brazil's Ministry of Health and led to a new surveillance study including new collection sites (12), further epidemiological data, and samples from different anatomic sites, so as to monitor the spread of isolates and increase national representativeness. Challenges are to improve etiological diagnostics among PrEP users and PLHIV as well as in STI clinics; moreover, systematic surveillance of *Neisseria gonorrhoeae* antimicrobial resistance in Brazil and many Latin American countries is related to the organization of health systems, which do not require notification and often treat STI through a syndromic approach.

Disclosure No significant relationships.

S19.3 PERSPECTIVES FROM THAILAND

Pachara Sirivongrangson*. *Thailand Ministry of Public Health, Department of Disease Control, Nonthaburi, Thailand*

10.1136/sextrans-2019-sti.87

Gonorrhoea is a major public health concern in South East Asia including Thailand. In 2016, 9434 (14.3/100,000 population) of gonorrhoea cases were reported. Complications including pelvic inflammatory disease, ectopic pregnancy and infertility compound the disease burden. Antimicrobial resistance (AMR) in *Neisseria gonorrhoeae* (NG) has been monitored. In addition, the novel Enhanced Gonococcal Antimicrobial Surveillance Program (EGASP) was initiated in 2015. Review the approach of public health on prevention, surveillance data and responses to the treat of AMR in NG including the EGASP in Thailand. This presentation will include the burden of gonorrhoea, gonococcal antimicrobial susceptibilities to the drugs currently recommended for the treatment of gonorrhoea (ceftriaxone, cefixime, and azithromycin), development of prevention strategies and responses to the threat of AMR gonorrhoea and challenges. Public health approach on gonorrhoea prevention is crucial and the threat of AMR in NG driven the urgent need to strengthen Gonococcal

Antimicrobial Surveillance Program and rapid response to treatment failure gonorrhoea cases and control the spreading of AMR NG. Effective and combination prevention strategies at country and global level is needed.

Disclosure No significant relationships.

S19.4 PUBLIC HEALTH APPROACHES TO GONORRHOEA PREVENTION AND THE THREAT OF ANTIBIOTIC RESISTANCE – PERSPECTIVES FROM EUROPE

Otilia Mårdh*. *European Centre for Disease Prevention and Control (ECDC), Solna, Sweden*

10.1136/sextrans-2019-sti.88

Background Gonorrhoea is the second most frequently reported STI in the European Union and European Economic Area (EU/EEA). Detection of multi- or extensively-drug resistant *Neisseria gonorrhoeae* isolates and cases of treatment failure to the first-line recommended therapy have been reported in the region. We present main epidemiological trends and implications for gonorrhoea prevention and control.

Methods The European Centre for Disease Prevention and Control (ECDC) collects data from EU/EEA countries on gonorrhoea diagnoses through the European Surveillance System and monitors antimicrobial resistance through the European Gonococcal Antimicrobial Surveillance Programme (Euro-GASP). Annual ECDC reports on gonorrhoea epidemiology and gonococcal antimicrobial susceptibility aim to inform public health control efforts and evidence-based clinical guidelines in the EU/EEA. Most recent surveillance and Euro-GASP data are summarised.

Results In 2017, 89,239 gonorrhoea cases were reported by 27 EU/EEA countries, a 17% increase compared to 2016. The EU/EEA notification rate was 22/100,000 population, but national rates varied between 0.2 and 74.7. Of cases with available information, 76% were males, 62% aged 20–34 years, 52% MSM, 24% heterosexual men and 24% women. HIV-positivity was 13.6% overall, 22.2% for MSM, 1.4% for heterosexual men and 0.6% for women. Between 2013–2017, gonorrhoea diagnoses increased by 67%, 31% and 13% among MSM, women and heterosexual men, respectively. The 2017 Euro-GASP data reported by 27 EU/EEA countries indicate stable levels of resistance to cefixime (1.9% vs 2.1%), azithromycin (7.5 vs 7.5%) and ciprofloxacin (46.5% vs 46.5%) and no resistance to ceftriaxone, compared to 2016.

Conclusions, recommendations Enhanced testing of populations at high-risk, appropriate treatment of cases and partner notification can facilitate prevention and control of gonorrhoea and should be optimally complemented with novel technology approaches adapted to deliver prevention interventions among MSM, a population that displays the highest burden and most accelerated increase in recent years. New therapeutic drugs and ideally a vaccine are needed.

Disclosure No significant relationships.

S20 – CRIMINALIZATION, THE LAW AND SEXUAL HEALTH

Wednesday, July 17, 2019

1:45 PM – 3:15 PM

S20.1 UNDERSTANDING HOW LAWS AND POLICIES AFFECT HIV PREVENTION PRACTICES: A THEORETICAL APPROACH

Morten Skovdal*. *University of Copenhagen, Department of Public Health, Copenhagen, Denmark*

10.1136/sextrans-2019-sti.89

Laws and policies play a critical role in creating contexts for the prevention of HIV. Research for example shows that incriminating laws, and policy absences, prevent certain population groups from taking full advantage of existing HIV prevention services, constrain the development of new interventions, contribute to stigma and discrimination, and reinforce social disadvantage. While an enabling law and policy environment in the form of regulations and guidelines is central to the fight against HIV, reducing laws and policies to 'context', overshadows the complex mechanisms through which they come to have effect on HIV prevention practices. To support further research into how laws and policies shape HIV prevention practices, I explore the potential of social practice theory as an approach for interrogating how laws and policies mediate links between individual, community, and societal phenomena. I introduce a 'table of questioning' for identifying the range of material, symbolic, competence, relational and motivational law and policy elements that may affect HIV prevention practices. I argue that such exploration can facilitate analysis and action of the links and connections between laws, policies, elements, and social practices that establish (dis)engagement with HIV prevention practices as a possible and desirable thing to do. Such analysis can help uncover local hitherto un-identified issues and provide a platform for novel synergistic and combination prevention approaches for action that are not otherwise obvious.

Disclosure No significant relationships.

S20.2 INTERSECTIONALITY, CRIMINALISATION AND SEXUAL HEALTH

Carmen Logie*. *University of Toronto, Factor-inwentash Faculty of Social Work, Toronto, Canada*

10.1136/sextrans-2019-sti.90

Intersectional stigma converges with criminalization to produce sexual health disparities. The convergence of socially marginalized identities constrains sexual rights, as well as provides opportunities for resilience, resistance, and solidarity. This presentation explores how an intersectionality lens helps to elucidate the ways that criminalization shapes sexual health across diverse populations and contexts. This presentation draws from three community-based studies. Applying a multiple case study design to these studies provides the opportunity to examine broader themes of intersectionality and criminalization and how these shape sexual health across global contexts.

A qualitative study was conducted with lesbian, gay, bisexual and transgender (LGBT) persons in Lesotho, a country where same-sex practices were recently decriminalized but there remains no legal protection from discrimination for LGBT persons. A mixed-methods study was conducted with LGBT youth and gender diverse sex workers in Jamaica, where sex work and same sex practices are criminalized. Finally, a quantitative study was conducted with urban refugee youth in Uganda, where sex work is criminalized. We found that managing and negotiating sex—and in turn sexual health—was constrained by intersectional sexual rights violations. The ways by which persons were affected by criminalization differed based on intersectional identities, including gender, sex work and sexual orientation. By examining contexts of constrained sexual rights, we found that survival challenges included pervasive violence—including from police, limited healthcare access, employment & housing barriers, barriers to accessing prevention tools, and barriers to healthy relationships. Participants across contexts discussed awareness of, and strategies to navigate, these barriers to sexual health. Criminalization of sex work and LGBT identities constrains negative and positive sexual rights. An intersectional lens provides insights into both intercategory complexity—shared and differential experiences across populations and contexts—and intracategory complexity of lived experiences within socially marginalized groups. Findings can inform intersectional, structural-level sexual health interventions.

Disclosure No significant relationships.

S20.3 THE HEALTH IMPACTS OF SEX WORK CRIMINALIZATION: A REVIEW OF THE EVIDENCE

Lucy Platt*. *London School of Hygiene and Tropical Medicine, Faculty of Public Health and Policy, London, UK*

10.1136/sextrans-2019-sti.91

Background Sex workers are at disproportionate risk of violence and sexual and emotional ill-health, harms that have been linked to criminalisation.

Methods We synthesised evidence on the extent to which sex work laws and policing practices, affect sex workers' safety, health and access to services, and the pathways through which these effects occur. We searched bibliographic databases for research with sex workers of all genders and terms relating to legislation, police and health. We operationalised criminalisation into categories of lawful or unlawful police repression of sex workers or their clients. We included quantitative studies measuring associations between policing and outcomes, and qualitative studies exploring related pathways. We conducted a meta-analysis to estimate the effect of experiencing physical/sexual violence, HIV/sexually transmitted infections (STI) and condomless sex, comparing individuals exposed and unexposed to repressive policing. We synthesised qualitative studies iteratively, inductively and thematically.

Results We reviewed 40 quantitative and 94 qualitative studies. Meta analyses suggest that on average sex workers who had experienced repressive policing were at increased risk of sexual/physical violence from any party (OR=2.99 95% CI=1.96–4.5, n=5204), increased risk of HIV/STIs (OR=1.87, 95% CI=1.60–2.19, n=12506) and more likely to practice condomless sex (OR=1.42 95% CI=1.03–1.94, n=9447) compared to those who had not. The qualitative

synthesis showed that criminalisation and repressive policing disrupted sex workers' safety and risk reduction strategies and access to health services and justice, including where clients are criminalised. Criminalisation and regulatory frameworks exacerbated stigma, racial, economic and other inequalities. In decriminalised contexts, sex workers' relationships with police have improved and they report being better able to refuse clients and insist on condom use.

Conclusions The evidence shows the increased harms associated with sex work criminalisation—including laws and enforcement targeting the sale and purchase of sex, and sex work organisation. These demonstrably harmful sex work policies and laws must be reformed urgently if sex workers' right to health is to be realised.

S20.4 CRIMINALISATION OF HIV TRANSMISSION IN THE ERA OF U=U

Michael Brady*. *Kings College Hospital, London, UK*

10.1136/sextrans-2019-sti.92

Globally, HIV criminalisation continues to exacerbate and perpetuate HIV stigma and discrimination. Over 70 countries have laws that specifically criminalise HIV non-disclosure, exposure or transmission, and 39 countries have used existing criminal laws to prosecute people living with HIV. Society and criminal justice systems have failed to keep up with scientific advances of recent years and, in particular, our understanding of the powerful impact anti-retroviral therapy has on reducing HIV transmission risk. We now know that individuals on effective HIV therapy with an undetectable viral load do not transmit the virus to their sexual partners. This knowledge has not, as yet, translated into any significant change to the application of criminal law. The era of U=U (Undetectable = Untransmittable) should support our ability to use scientific evidence to end the criminalisation of HIV and the disproportionate impact this has on marginalised communities and those less able, for whatever reason, to achieve and maintain an undetectable viral load.

Disclosure No significant relationships.

S21 – BUILDING A HUMAN INFRASTRUCTURE FOR STI PREVENTION: BEYOND COMMUNITY ENGAGEMENT, CONSULTATION AND ADVISORY BOARDS

Wednesday, July 17, 2019

1:45 PM – 3:15 PM

S21.1 YOUTH AND COMMUNITY BASED RESEARCH

Sarah Flicker*. *York University, Toronto, Canada*

10.1136/sextrans-2019-sti.93

This paper reports on the micro-, meso-, and macro-level impacts of creating and sharing digital stories created by Indigenous youth leaders about HIV prevention activism in

Canada. Eighteen participants created digital stories and hosted screenings in their own communities to foster dialogue. Data for this paper is drawn from individual semi-structured interviews with the youth leaders, audio-recordings of audience reflections, and research team member's field notes collected between 2012–2015 across Canada. Data were coded using NVIVO. A content analysis approach guided analysis. The process of sharing their digital stories had a positive impact on the youth themselves and their communities. Stories also reached policy makers. They challenged conventional public health messaging by situating HIV in the context of Indigenous holistic conceptions of health. The impact(s) of sharing digital stories were felt most strongly by their creators, but rippled out to create waves of change for many touched by them. Participatory visual methodologies can be powerful tools in creating social change and reducing health disparities.

Disclosure No significant relationships.

S21.2 ADDRESSING ANTI-LGBT STIGMA AND MEDICAL MISTRUST THROUGH A DATA-INFORMED APPROACH TO COMMUNITY ENGAGEMENT

Errol Fields*. *Johns Hopkins University School of Medicine, Baltimore, USA*

10.1136/sextrans-2019-sti.94

HIV disparities are an ongoing problem affecting LGBT populations, particularly Black gay, bisexual and other men who have sex with men (GBMSM) and transgender women (TGW). The etiology of these disparities is multi-factorial, but medical mistrust and anti-LGBT stigma are key barriers to HIV prevention and care access that likely contribute to disparities. A public health department and university-academic collaboration in partnership with clinical and community partners was funded to improve HIV prevention and care access among Black GBMSM and TGW. Recognizing medical mistrust and anti-LGBT stigma as significant prevention and care access barriers for these communities, the project included the development of Baltimore in Conversation (BIC), a program designed to understand and address these barriers. BIC engaged community voices through small-group conversations about lived experiences as LGBT persons, storytelling nights with presentations of personal narratives of resilience, and photo-story exhibitions of local LGBT persons. Innovative evaluation tools were designed and embedded within BIC. The evaluation sought, through qualitative and quantitative approaches, to inform programming with community perspectives and, ultimately, to determine whether BIC programming reduced medical mistrust and anti-LGBT stigma. The evaluation findings showed evidence of progress towards reducing medical mistrust and anti-LGBT stigma and provided community feedback used to make programming more relevant to experiences and needs of local LGBT communities. For example, analysis of small-group conversation transcripts provided community-informed and locally relevant language and images for an HIV prevention media campaign for Black GBMSM and TGW. Analysis of in-depth interviews of photo-story participants suggested participation led to reductions in internalized stigma and external stigma from important members of their social networks. This public health-academic collaboration created the opportunity to develop, evaluate and improve a public health program through a community-informed

approach. The overall findings, suggest reductions in medical mistrust and anti-LGBT stigma.

Disclosure No significant relationships.

S21.3 AUTHENTIC AND SUCCESSFUL COMMUNITY ENGAGEMENT FOR STI/HIV PREVENTION, SCREENING AND TREATMENT IN RURAL AND URBAN SETTINGS

Scott Rhodes*. *Wake Forest School of Medicine, Social Science and Health Policy, Winston-Salem, USA*

10.1136/sextrans-2019-sti.95

Sexually transmitted infections (STIs) and HIV remain critical public health challenges in the United States. There is a clear need for innovative approaches that identify, prioritize, and address underlying 'upstream' social determinants of health while developing and harnessing community assets to improve STI and HIV prevention, screening, and treatment. Community engagement has emerged as an approach to improve public health outcomes, including reduced STIs and HIV. However, community engagement is difficult, and this presentation provides guidance on the characteristics and strategies of authentic and successful community engagement designed to promote STI and HIV prevention, screening, and treatment in both rural and urban settings. Members of our community partnerships used mixed-methods to identify characteristics of successful community engagement and associated strategies across more than 30 STI and HIV initiatives across the United States. We abstracted data from existing project documentation including proposal documents, project-specific logic models, team and partnership meeting notes, and other materials. Partnership members examined these documents and used an iterative approach with review, discussion, and re-review. A component of our analysis was to identify characteristics and strategies that crossed initiatives, had potential to be generalizable, and could guide future STI and HIV initiatives. Some of the characteristics and strategies that were identified included, staff/team knowledge and unflagging commitment to community engagement; understanding of and commitment to social justice; structural flexibility; strong and charismatic institutional leadership; participation of partners representing diverse multiple sectors; recognizing, acknowledging, and reducing power differentials; shared decision making; embracing and working through conflict; identifying and leveraging talent, strengths, and resources; and using a stepwise approach to build a shared history. Often and incorrectly conflated with advisory boards, qualitative methods, and behavioral and social sciences more broadly, community engagement requires careful forethought, the use of inclusive processes that bring together diverse constituencies, and shared resources and power.

Disclosure No significant relationships.

S21.4 SPURRING INNOVATION IN IMPROVING COMMUNITY ENGAGEMENT FOR STI PREVENTION

Weiming Tang*. *UNC Project-China, Guangzhou, China*

10.1136/sextrans-2019-sti.96

Improving the input from the community is an approach for STI Prevention. For example, by engaging the contribution of

the community, a 'pay-it-forward' dramatically improved chlamydia and gonorrhoea testing among Chinese men who have sex with men (MSM). In this presentation, we summarized how innovative tools were used to engage different groups of the population for STI prevention. First, crowdsourcing approaches were used to solicit the inputs from the community for developing new intervention approaches, designing intervention messages, and evaluating intervention programs. Crowdsourcing involves a group of non-experts and experts working together to solve a problem and then sharing solutions with the public. Second, designathon and hackathon methods were adjusted to develop STI intervention messages and platforms among key populations. For example, in China, a 3-day designathon (hackathon-like event) was hosted to develop an HIV testing service strategy for MSM, while MSM were invited to join the event. In 2019, a hackathon event was also conducted in China to develop a platform for MSM to seek for gay-friendly health service. Third, social-marketing and other participatory approaches were used to develop intervention tools for improving STI services.

Disclosure No significant relationships.

Clinical Case Series

CCS01 – CLINICAL CASE SERIES – SYPHILIS: THE GREAT IMITATOR

Monday, July 15, 2019 7:00 AM – 8:00 AM

CCS01.1 NEUROSYPHILIS IS MORE COMMON AMONG MALIGNANT SYPHILIS: BASED ON CASE SERIES EVIDENCE

Pingyu Zhou*, Lin Zhu. *Shanghai Skin Disease Hospital, Shanghai, China*

10.1136/sextrans-2019-sti.97

Background Malignant syphilis and neurosyphilis were believed more likely to exist in the HIV positive population. However China's huge and active epidemics of syphilis were much more seen in HIV negative population, thus a considerable amount of the malignant syphilis patients with HIV-uninfected patients might be under the shadow of lower evaluate of neurosyphilis.

Methods This study aimed to investigate the relationship between HIV infection, malignant syphilis and neurosyphilis through a systematic analysis.

Results **Clinical characteristics of the malignant syphilis:** 26 patients were diagnosed with malignant syphilis and eighteen out of them were HIV negative. They presented different symptoms, and had a more aggressive disease progression with skin rashes. **Laboratory findings:** 1) A strongly high titre of serum RPR and a sub-acute inflammation of the histopathological finds; The RPR titers of all patients were strongly positive with a range from 1:32 to 1:256. Histopathological examination demonstrated a sub-acute inflammation rich with dermal perivascular plasma cell and neutrophils infiltrate. Numerous spirochetes will be found by immunohistochemistry. 2) WBC, protein and VDRL index in CSF. CSF test revealed the increased WBC count (>10 cells/ μ L) in eleven patients, of which five were with HIV positive. Increased total protein (>0.5 g/L) were found in eight patients, and four of them

showed HIV positive. A positive CSF-VDRL test was shown in seven patients, three had HIV positive. 3) Peripheral blood CD4⁺ T cell count The peripheral blood CD4⁺ T cell count was low (<550 cells/ μ L) in fifteen out of 26 malignant syphilis, of those seven cases were HIV seropositive. Six out of 26 patients suffered from both malignant syphilis and neurosyphilis but without HIV infection.

Conclusion There is no direct association between HIV infection and malignant syphilis or neurosyphilis. Additionally, we found a new unusual combination of malignant syphilis and neurosyphilis in the absence of HIV infection.

Disclosure No significant relationships.

CCS01.2 A CASE SERIES OF SYPHILIS MASQUERADING AS THORACIC MALIGNANCY

Jessica Doctor*, Achyuta Nori. *Guys' and St Thomas's NHS Foundation Trust, London, UK*

10.1136/sextrans-2019-sti.98

Background Infectious syphilis incidence is increasing worldwide, particularly amongst men who have sex with men (MSM). We report a case series of two patients with a rare presentation of syphilitic pneumonitis masquerading as thoracic malignancy.

Methods Patient history review via electronic records.

Results Case 1- 54 year old MSM, HIV diagnosed 2011, CD4 nadir 557 cells/ μ L, current CD4 861 cells/ μ L and HIV viral load (VL) undetectable since commencing antiretroviral therapy (ART), presented to emergency department (ED) with pleuritic chest pain and normal oxygen saturation. CT scan demonstrated parenchymal and sub-pleural nodules measuring maximum 13 mm, thought likely to represent malignancy and one lesion had features of an infarct. He started Rivaroxaban in ED and subsequently developed a rash suggestive of evolving syphilis. Rapid plasma reagin (RPR) six weeks after initial presentation was 1:32. Treated with 2 weeks of doxycycline, RPR six weeks later was 1:16 and at five months 1:4. CT scan six weeks post treatment showed almost complete resolution of nodules. Case 2- 38 year old MSM, HIV diagnosed in March 2017, CD4 nadir 65 cells/ μ L, current CD4 219 cells/ μ L and VL 109 cells/ μ L on ART. Kaposi's sarcoma (KS) diagnosed in 2017, involving skin, lymph nodes and spleen, treated to remission with ART alone. Presented in July 2018 with deranged liver function tests. CT scan showed multiple sub-pleural and parenchymal nodules, largest 11 mm, however no progression of lymphadenopathy or clinical progression of cutaneous KS. RPR 1:512 and resolution to 1:16 three months after treatment with intramuscular Benzathine Penicillin. Radiological resolution of lung nodules occurred after 2 months of treatment. Chemotherapy was avoided.

Conclusion Syphilitic pulmonary/pleural nodules resolve with standard antibiotic therapy. Patients with pulmonary nodules usually present to primary care or specialist services where they are investigated for vasculitis/malignancy, but rarely for syphilis. For patients at risk, ruling out syphilis would avoid unnecessary interventions.

Disclosure No significant relationships.

CCS01.3 SYPHILIS AS FIBROMYALGIA WITH UNEXPLAINED HEPATOSPLENOMEGALY

Jackie Sherrard*. *Buckinghamshire Healthcare NHS Trust, Amersham, UK*

10.1136/sextrans-2019-sti.99

Disclosure No significant relationships.

CCS02 – CLINICAL CASE SERIES – CLINICAL CASES FROM EXPERTS

Tuesday, July 16, 2019 7:00 AM – 8:00 AM

CCS02.1 DEQUALINIUM CHLORIDE VAGINAL TABLETS FOR RECALCITRANT *TRICHOMONAS VAGINALIS* (TV): A CASE REPORT

Deborah Goode*, Natasha Astill, Janet Wilson. *Leeds Teaching Hospitals NHS Trust, Leeds Sexual Health, Leeds, UK*

10.1136/sextrans-2019-sti.100

Background Treatment for TV is often ineffective. Even very high-dose tinidazole has 8–10% failure and subsequent treatment options have limited evidence-base. Dequalinium has an EU license for bacterial vaginosis treatment. It is well tolerated, safe and has in-vitro activity against TV, but clinical experience is limited. We present the case of an 18-year old female with a 12-month history of persistent TV despite standard and resistant treatments, which finally responded to prolonged dequalinium.

Methods The patient was white British with no significant medical history. The presumed source of infection was a male living in Dubai. There was no risk of reinfection and adherence was self-reported as excellent throughout. Initial and subsequent presentations were with typical symptoms of vulvovaginitis and purulent vaginal discharge. Investigations were with onsite microscopy and TV nucleic acid amplification tests (NAAT). Treatment initially followed the British Association of Sexual Health and HIV TV Guideline. She received: several courses of 7-day and very high dose oral metronidazole (once with concurrent ampicillin and clotrimazole pessaries); intravenous metronidazole administered alongside vaginal metronidazole gel; oral tinidazole with intravaginal metronidazole. All nitroimidazole courses were up to 14 days duration. Vulvovaginitis symptoms settled during antimicrobial therapy, but recurred soon after cessation of treatment. At each follow-up TV was confirmed by microscopy and NAAT. We retreated with 4-weeks of metronidazole 400 mg twice daily with dequalinium intravaginal pessaries nightly. Symptoms were controlled, but TV NAAT and microscopy remained positive. As there was symptomatic relief from dequalinium, this was continued as monotherapy for a further 14 weeks pending sourcing alternative treatments.

Results Her symptoms remained controlled and microscopy and NAAT became negative. She remained asymptomatic with

negative microscopy and NAAT 2 months after stopping dequalinium.

Conclusion Prolonged dequalinium may offer an alternative treatment option for recalcitrant TV, particularly where high dose systemic antibiotics have been unsuccessful.

Disclosure No significant relationships.

CCS02.2 PENILE INTRAEPITHELIAL NEOPLASIA: MYRIAD PRESENTATIONS AND INTRACTABLE COURSE

Somesh Gupta*. *All India Institute of Medical Sciences, Dermatology and Venereology, New Delhi, India*

10.1136/sextrans-2019-sti.101

Disclosure No significant relationships.

CCS02.3 PERSISTING URETHRITIS IN AN IMMUNOCOMPROMISED PATIENT

William Geisler*. *University of Alabama at Birmingham, Birmingham, USA*

10.1136/sextrans-2019-sti.102

CCS03 – CASES FROM THE CLINIC

Wednesday, July 17, 2019

7:00 AM – 8:00 AM

CCS03.2 NEONATAL HSV: COULD THIS TRANSMISSION HAVE BEEN PREVENTED?

Elizabeth Foley*. *Solent NHS Trust, Genitourinary Medicine, Southampton, UK*

CCS03.3 ZOON BALANITIS IN HIV-INFECTED PATIENT

RC Melo*, M Ramos. *Ambulatório de Dermatologia Sanitária, Porto Alegre, Brazil*

10.1136/sextrans-2019-sti.103

Background Genital lesions lead patients to seek care in sexually transmitted diseases (STD) clinics. The old axiom “all genital lesions must be considered sexually acquired until proved to the contrary” is true today. A high level of suspicion of an STD must accompany examination of patients with genital lesions. Although other causes are also seen, we present a case of Zoon’s balanitis in a patient with HIV infection.

Methods A 40-year old, white male, sought attention for a genital lesion evolving over six months. He was on treatment with antiretrovirals, and underwent treatment with topic and systemic antifungal without improvement. He had multiple, well-delimited, moist red-orange lesions on the glans and foreskin. Some lesions had a face-to-face (kissing) disposition. Treponemal and non-treponemal serology was negative. With the hypothesis of plasmacytic balanitis, a biopsy was performed. Histopathologic examination demonstrated a lichenoid inflammation with an inflammatory infiltrate with plasmacytes, lymphocytes and neutrophils. No vascular alteration was found. There was spongiosis and erosion of the epithelium.

Results Zoon balanitis is a chronic, idiopathic, reactive balanoposthitis. It is believed to be associated with irritation in the context of a dysfunctional foreskin. It presents as well-circumscribed orange-redish moist lesions in the glands and foreskin, usually asymptomatic. HIV infection is an acknowledged risk factor for other STDs. Infectious causes such as candidiasis and syphilis are much more common and must be considered. Syphilitic lesions and Zoon balanitis share clinical and histopathological features including a slight thickening of the epidermis, parakeratosis, and patchy lichenoid infiltrates of lymphocytes and plasma cells, making their differential diagnosis complex, hence the need of always performing syphilis serology in such cases.

Conclusion In spite of STD generally being the first hypothesis in patients with genital lesions, many causes must be considered, especially when atypical lesions are present or there is poor response to therapeutic measures.

Disclosure No significant relationships.

Oral Presentations

001 – DEVELOPMENT OF VACCINES FOR BACTERIAL STIS

Monday, July 15, 2019

10:45 AM – 12:15 PM

001.1 GENETIC SIMILARITY OF GONOCOCCAL HOMOLOGS TO MENINGOCOCCAL OUTER MEMBRANE PROTEINS OF SEROGROUP B VACCINE

Henju Marjuki*, Nadav Topaz, Sandeep Joseph, Kim Gemert, Ellen Kersh, Antimicrobial Resistant *Neisseria gonorrhoeae* Working Group, Xin Wang. *Centers for Disease Control and Prevention, Atlanta, USA*

10.1136/sextrans-2019-sti.104

Background Human pathogens, *Neisseria gonorrhoeae* (Ng) and *N. meningitidis* (Nm), share high genome similarity. Retrospective analysis of surveillance data in New Zealand suggests cross-protection against Ng infections conferred by serogroup B meningococcal (MenB) outer membrane vesicle (OMV)-based vaccine. We explored the possible cross-protective mechanisms against gonorrhoea conferred by the licensed multicomponent 4CMenB (BexseroTM) vaccine containing NZ98/254 OMVs.

Methods A dataset of 970 Ng genomes of isolates collected from the Gonococcal Isolate Surveillance Project sites across the United States was analyzed to identify common proteins present in both Ng and NmB, and assess the sequence diversity of vaccine antigens and OMV components between the two bacteria, and within the Ng strains. Bioinformatics tools were applied to predict the subcellular localization of each identified common protein.

Results We found 1525 common proteins shared by both *Neisseria* species, of which 59 were predicted as outer membrane proteins (OMPs). The 4CMenB vaccine antigen NhbA showed moderate sequence identity (73%) to the respective gonococcal homologs, and was highly conserved within Ng.

The gonococcal FHbp was predicted as not being surface-expressed, while NadA was absent in all the Ng isolates. The immunodominant OMV protein PorA was present in nearly all Ng isolates, but harbored deletions in the promoter regions, preventing its transcription. Noteworthy, OMPs including FetA, PilQ, Omp85, RmpM, LbpA and TonB-dependent receptors, previously identified and abundantly expressed in the NZ98/254 OMV, displayed $\geq 93\%$ sequence identity between Nm and Ng, and were highly conserved within Ng.

Conclusion Our results provide a better understanding of the OMPs present in the OMV of the 4CMenB vaccine. These OMPs may contribute to the observed cross-protection, and can serve as potential antigen targets for guiding the next steps of gonorrhoea vaccine development.

Disclosure No significant relationships.

001.2 GENETIC, STRUCTURAL, AND SURFACE ANTIGENIC VARIATION OF *TREPONEMA PALLIDUM*'S OMPEOME: STEPS TOWARDS A GLOBAL SYPHILIS VACCINE

¹Kelly Hawley*, ²Amit Luthra, ³Carson La Vake, ⁴Morgan Ledoyt, ⁵Wentao Chen, ⁶Zheng Heping, ⁷Bin Yang, ⁸Jonathan J Juliano, ⁹Jonathan B Parr, ⁴Justin Radolf, ¹Juan Salazar, ⁴Melissa Camaino. ¹Connecticut Children's Medical Center, Division Of Infectious Diseases, Hartford, USA; ²UConn Health, Department Of Medicine, Farmington, USA; ³UConn Health, Pediatrics, Farmington, USA; ⁴UConn Health, Farmington, USA; ⁵Dermatology Hospital of Southern Medical University, Guangzhou, China; ⁶Guangdong Center for STD Control and Prevention, Guangzhou, China; ⁷Division of Infectious Diseases, Chapel Hill, USA

10.1136/sextrans-2019-sti.105

Background The failure of current prevention strategies to curtail the spread of syphilis, including mother-to-child transmission, underscores the need for a vaccine with worldwide efficacy. Characterization of variation within *T. pallidum* (TPA) outer membrane proteins (OMPs) is critical for this goal.

Methods ClustalW identified polymorphisms within 21 β -barrel forming OMPs (TPA's OMPeome) of 15 unique TPA strains. Structural models and conformational B-cell epitopes (BCEs) were predicted. Clade assignments were made using *tp0548* and *tp0558* sequences.

Results TPA OMPeomes contain four paralogous families (Tpr, FadL, OmpW, and efflux pump OMPs) and orthologs for BamA and LptD. The Tprs group into Subfamilies I (C/D/I), II (E/G/J) and III (B/H/L); Tpr β -barrel domains contain 10 β -strands and five extracellular loops (ECLs) harboring BCEs. TprI is invariant, while TprC and TprD have variability located predominantly in ECLs. The closely related TprE and TprJ β -barrels exhibit extremely low variability. TprG β -barrels variants contain a 23 aa insertion derived from TprE or TprJ. The TprB and TprH β -barrels are fully conserved; there are two TprL β -barrels variants. The FadL orthologs (TP0548, TP0856, TP0858, TP0859, TP0865) consist of 14-stranded β -barrels with seven ECLs harboring predicted BCEs. Variability among FadLs range between fully conserved (TP0856) to highly variable (TP0548). Both OmpWs are fully conserved and consist of 8-stranded β -barrels with four ECLs containing BCEs. The highly conserved efflux pump OMPs (OprJ/TP0966, OprN/TP0967, TolC/TP0969) likely form homotrimeric 12-stranded β -barrels. The 18-stranded BamA/TP0326 β -barrel contains a single aa substitution in ECL4. The LptD/TP0515 β -barrel contains 24 β -strands, 12 ECLs and

numerous BCEs, which cluster primarily into two variants. Most OMPs do not align with clade designations.

Conclusion 1.) TPA OMPs display variable degrees of sequence and surface antigenic variation. 2.) TPA OMPeomes are mosaics likely resulting from recombination among circulating strains. 3.) Our analysis enables selection of variable and non-variable OMPs for assessment of protective capacity.

Disclosure No significant relationships.

001.3 ENGINEERING HYBRID BACTERIAL TRANSFERRIN RECEPTOR-BASED VACCINES TO CONFER BROAD PROTECTION AGAINST *NEISSERIA GONORRHOEA*

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10.1136/sextrans-2019-sti.106

Background The bacterial transferrin receptor has long been considered an outstanding vaccine target against pathogenic *Neisseria* species as it is surface-exposed and essential for bacterial survival and virulence *in vivo*. Required for iron uptake from the human protein transferrin (hTf), this receptor is composed of two proteins, an integral membrane channel (transferrin binding protein A; TbpA), and a surface anchored lipoprotein (TbpB). Vaccine development has predominantly focused on TbpB as it is a soluble, stable antigen that is highly immunogenic and easy to produce in large quantities. However, TbpB is also highly variable and so achieving broad cross-protection in a vaccine has been considered challenging. In comparison, TbpA is highly conserved but the production of this integral membrane protein is technically challenging and not considered practicable for large-scale development.

Methods We performed protein structure-based engineering to remove variable unstructured surface loops on TbpB to provide a soluble, stable and immunologically cross-protective scaffold upon which surface-exposed loops of TbpA have been displayed. These chimeric immunogens have been used to immunize rabbits and mice, including 'humanized' transgenic mice that express human hTf. Immunological cross-reactivity against a broad panel of *N. gonorrhoeae* isolates and the presence of functional antibodies targeting the gonococcal transferrin receptor were monitored by ELISA, hTf-binding and growth-based analyses, and immunized mice were challenged with genital *N. gonorrhoeae* infection.

Results The chimeric immunogens elicit antibodies against both TbpA and TbpB. The antisera is broadly cross-reactive against the gonococcal strain panel, is bactericidal, blocks transferrin-based iron acquisition and growth, and protects mice against gonococcal infection. While wild type TbpB-based immunogens have reduced functional antibody in hTf-expressing mice, the binding-defective Tbp-based immunogens are equally efficacious in both wild type and hTf-transgenic animals.

Conclusion Our rationally-designed hybrid immunogens simultaneously target two components of an essential iron acquisition pathway, eliciting broad cross-protection against gonococcal colonization and disease.

Disclosure No significant relationships.

001.4 RABBIT IMMUNIZATION WITH *B. BURGDORFERI* EXPRESSING *T. PALLIDUM* TPRK AND TP0435 AS A NOVEL VACCINE DESIGN FOR SYPHILIS

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10.1136/sextrans-2019-sti.107

Background Syphilis is resurgent in many developed countries, including the United States, and still prevalent in developing nations, where it causes significant morbidity in adults and mortality when infection is congenital. Such evidence highlights the need for novel control strategies to curtail syphilis spread, including the development of a vaccine. Although some of the most promising vaccine candidates have been identified among the putative surface-exposed integral outer membrane antigens of the syphilis spirochete, immunization/challenge experiments using denatured/refolded recombinants did not fully protect animals against infection in the rabbit model of syphilis. We speculated that immunizing with antigens in their native structure and with a delivery approach that simulates the antigen cellular compartment could increase the protective ability of these vaccine candidates.

Methods To test our hypothesis, we engineered a lab-derived non-pathogenic *Borrelia burgdorferi* strain to express the *tp0897* and *tp0435* genes of *Treponema pallidum* subsp. *pallidum* and immunized rabbits by injecting recombinant strain intramuscularly without adjuvant. The *tp0897* and *tp0435* genes encode the putative integral outer membrane protein TprK, and the abundantly expressed periplasmic/surface 17-kDa lipoprotein (Tp0435) of the syphilis agent, respectively. Following the development of a specific response to these treponemal antigens in immunized animals, rabbits were challenged with the Nichols strain of *Treponema pallidum*. Primary lesion development and treponemal burden within lesions were measured using dark-field microscopy and real time RT-qPCR, while serology was used to assess establishment of the infection.

Results No protection was seen in rabbits immunized with *Borrelia* expressing Tp0435 and only partial protection in animals immunized with *Borrelia* expressing TprK.

Conclusion Our surrogate *Borrelia* system is an effective delivery system to elicit a specific response to *Treponema pallidum* antigens. This novel approach will help assess the efficacy of syphilis vaccine candidates

Disclosure No significant relationships.

001.5 A MENINGOCOCCAL NATIVE OUTER MEMBRANE VESICLE VACCINE AS A PLATFORM FOR PRESENTING CONSERVED GONOCOCCAL ANTIGENS

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10.1136/sextrans-2019-sti.108

Background *Neisseria meningitidis* (Nm) outer membrane vesicles (OMV) are treated with detergents to decrease endotoxin activity, which removes lipoproteins and may result in non-native protein structures. Previously, we prepared native OMV (NOMV) vaccines from mutant Nm with genetically attenuated endotoxin and over-expressed Factor H binding protein (FHbp) mutants with reduced binding to human FH. Mice immunized with NOMV-FHbp developed higher and broader meningococcal SBA responses than a control

recombinant FHbp vaccine. The NOMV-FHbp also elicited SBA against *Neisseria gonorrhoeae* (Ng) strain FA1090, which expresses many outer membrane proteins that are highly conserved in both pathogens. In this study, we identify antigens in NOMV-FHbp that elicit SBA against Ng as well as those that elicit blocking antibodies in rhesus macaques to develop a NOMV vaccine with the potential to provide protection against both pathogens.

Methods Antiserum from mice immunized with NOMV-FHbp were used to immunoprecipitate antigens from FA1090. The antigens were identified by LC-MS/MS. Antigens that elicit blocking antibodies in macaques were identified by comparing antibody responses that were positive for SBA in mice and macaques with those in macaques that also had antibodies to conserved antigens but lacked SBA against FA1090.

Results Antibodies elicited by NOMV-FHbp were reactive with four integral membrane proteins and one lipoprotein in FA1090 that are highly conserved in Nm ($\geq 87\%$ identity), essential for bacterial survival humans, and are known to mediate SBA against Nm and Ng. One of the proteins also mediates Ng adhesion to human cervical cells, which can be blocked by vaccine-elicited antibodies. Blocking antibodies elicited by NOMV-FHbp appear to be directed to Rmp, which is known for this effect.

Conclusion An engineered NOMV vaccine containing a few conserved overexpressed antigens and lacking antigens having the potential to elicit blocking antibodies, such as Rmp, may provide broad protection against disease caused by pathogenic Nm and Ng.

Disclosure No significant relationships.

001.6 MENINGOCOCCAL VESICLE VACCINES DELETED FOR MAJOR OUTER MEMBRANE PROTEINS ENHANCE GONOCOCCAL CLEARANCE IN A MURINE MODEL

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10.1136/sextrans-2019-sti.109

Background With an incidence rate of 106 million infections a year, *Neisseria gonorrhoeae* has a significant effect on global morbidity. Rapid development of gonococcal antibiotic resistance, and reports of treatment failures with last-line cephalosporins, has caused the Centers for Disease Control and Prevention to label *N. gonorrhoeae* as an urgent threat and has sparked renewed interest in development of a gonococcal vaccine.

Methods In this study, we immunized mice with detoxified outer membrane vesicles (dOMVs) isolated from the closely-related pathogen *Neisseria meningitidis* and examined the effect on gonococcal clearance in a murine vaginal colonization model. dOMV vaccines were derived from (1) wild type (WT) bacteria, (2) an isogenic strain (Δ ABR) deleted for expression of the major outer membrane proteins PorA, PorB, and RmpM, or (3) an isogenic strain (OCh) deleted for PorA and expressing a varying PorB sequence type relative to the parental strain. ELISAs were used to evaluate anti-dOMV IgG and IgA antibody titers present in sera and vaginal washes. Sera were also used to identify potential gonococcal vaccine

antigens using immunoblot and immunoprecipitation experiments.

Results Although vaccination with WT dOMVs significantly enhanced gonococcal clearance relative to adjuvant-only controls, vaccination with Δ ABR dOMVs resulted in clearance of a higher percentage of mice relative to WT dOMV-vaccinated mice one week post-immunization. Higher levels of clearance in Δ ABR dOMV-immunized mice correlated with significantly increased vaginal IgA titers and enhanced immunogenicity of unique meningococcal protein antigens.

Conclusion Immunization with meningococcal dOMVs deleted for PorA, PorB, and RmpM promotes gonococcal clearance in a murine model. Deletion of the major porins likely enhances immunogenicity of proteins that are less abundant on the meningococcal surface but exhibit a high degree of homology with corresponding gonococcal proteins, suggesting the potential utility of these dOMVs as a broadly cross-protective *Neisseria* vaccine.

Disclosure No significant relationships.

002 – EXTRAGENITAL BACTERIAL STIS: EPIDEMIOLOGY, NATURAL HISTORY, TESTING AND ANTIMICROBIAL RESISTANCE

Monday, July 15, 2019
10:45 AM – 12:15 PM

002.1 WHAT IS THE OPTIMAL TESTING STRATEGY FOR OROPHARYNGEAL NEISSERIA GONORRHOEAE IN WOMEN VISITING STI CLINICS?

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10.1136/sextrans-2019-sti.110

Background Oropharyngeal *Neisseria gonorrhoeae* (*N. gonorrhoeae*) is not routinely tested for in women visiting Dutch STI clinics. It is hypothesized that many oropharyngeal *N. gonorrhoeae* infections remain undetected due to its asymptomatic nature, creating a reservoir for ongoing transmission and drug resistance. It is yet unknown what the optimal testing policy is for women, as data on universal screening are missing.

Methods Surveillance data 2008–2017 from all Dutch STI clinics were used (n=546,246 consultations). Oropharyngeal testing policy was defined as (1) universal screening, that is >85% of consultations included oropharyngeal testing per clinic per year, (2) selective testing (<85% tested) or (3)

incidental testing (0.1–5% tested). The proportion infections missed using selective testing was calculated by extrapolating *N. gonorrhoeae* positivity found by routine universal screening. Independent risk factors for oropharyngeal *N. gonorrhoeae* were assessed among women routinely universally screened between 2016–2017 using backward multivariable logistic regression analyses.

Results Routine universal screening was used in 11% (n=57,359) of consultations, selective testing in 81% (n=444,283) and incidental testing in 8% (n=44,108). Oropharyngeal *N. gonorrhoeae* positivity was comparable between universal and selective; 1.4%(95%CI 1.3–1.5,n=703), 1.4% (95%CI 1.3–1.3,n=1858,P=0.68), and higher in incidental 2.8%(95%CI 1.9–3.9,n=30, P<0.01). Selective testing missed 89% (n=5,517) of oropharyngeal infections (95%CI 88–90%). The proportion oropharyngeal-only was 47% in routine universal screening and 52% in selective testing. Independent risk factors were being notified for any STI (OR1.3,95% CI1.03–1.5), concurrent urogenital *N. gonorrhoeae* (OR80.0,95%CI59.0–108.4) and commercial sex work (OR4.1,95%CI2.8–5.9). When using the risk factors except urogenital *N. gonorrhoeae* as testing indicators, 27.8% (n=5,418) of all women would be tested, finding 55.6% (n=119) of infections.

Conclusion Selective testing potentially misses almost 90% of oropharyngeal *N. gonorrhoeae* in women, of which almost half were oropharyngeal-only infections. Using two risk factors as testing indicators, half of all oropharyngeal *N. gonorrhoeae* infections would be detected by testing almost one-third of women. This seems like a valid and minimal testing strategy for women, as is advocated in the Dutch STI-guidelines.

Disclosure No significant relationships.

002.2 OROPHARYNGEAL AND GENITAL GONORRHOEA AMONG HETEROSEXUALS WHO REPORT SEXUAL CONTACT WITH PARTNERS WITH GONORRHOEA

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10.1136/sextrans-2019-sti.111

Background Recent evidence has shown that the oropharynx may be the primary driver for gonorrhoea transmission among men who have sex with men, but there have been very limited studies on heterosexuals due to lack of routine screening of oropharyngeal gonorrhoea. The aim of this study was to examine oropharyngeal gonorrhoea positivity among heterosexuals reporting contact with sexual partners with gonorrhoea.

Methods At the Melbourne Sexual Health Centre, all heterosexual individuals reporting contact with sexual partners with gonorrhoea are tested for genital gonorrhoea. In May-2017, MSHC also included screening for oropharyngeal gonorrhoea in heterosexuals reporting sexual contact with partners with gonorrhoea. All contacts of gonorrhoea cases among heterosexuals between May-2017 and November-2018 were

reviewed. Site-specific gonorrhoea positivity was also calculated.

Results 191 heterosexual contacts (102 males and 89 females) were reviewed. The median age was 28 [IQR=24–33] years. The gonorrhoea positivity in male was significantly higher at the oropharynx compared to urethra (17.6% [95% CI: 10.8–26.4%] versus 2.0% [0.2–6.9%]; $p<0.001$); and higher at the oropharynx in female compared to cervicovaginal site (46.1% [35.4–57.0%] versus 36.0% [26.1–46.8%]; $p=0.056$). Of the 100 males who did not have genital gonorrhoea, 17 (17.0% [10.2–25.8%]) tested positive at the oropharynx. Of the 55 females who did not have genital gonorrhoea, 21 (23.6% [15.2–33.8%]) tested positive at the oropharynx. Infection at both the oropharynx and genital sites was not associated with sex worker status in females. Overall, 89.5% and 39.6% of gonorrhoea in males and females were detected only in the oropharynx, respectively.

Conclusion Multiple sites of gonococcal infection are more common in female contacts than in male contacts. Approximately 90% and 40% oropharyngeal infections would have been missed in males and females, respectively, by genital-only screening among heterosexuals reporting contact with sexual partners with gonorrhoea. Oropharyngeal gonorrhoea screening among heterosexual contacts of gonorrhoea is important to prevent ongoing transmission.

Disclosure No significant relationships.

002.3 ANTIMICROBIAL RESISTANCE IN PHARYNGEAL *NEISSERIA GONORRHOEA* INFECTION: A CROSS-SECTIONAL STUDY IN MEN WHO HAVE SEX WITH MEN

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10.1136/sextrans-2019-sti.112

Background Pharyngeal *Neisseria gonorrhoeae* (NG) infections are common among men who report sex with men (MSM). The pharynx is an important anatomic reservoir for the development of antimicrobial resistance due to the potential for exchange of genetic material between NG and other commensals of this niche, including other *Neisseria* species. We investigated whether there was an association between pharyngeal infection and reduced susceptibility (RS) or resistance to antimicrobials used to treat NG compared to genital and rectal infection.

Methods Logistic regression of odds ratios (OR) was used to model the association between the anatomical site of infection and RS or resistance to azithromycin, ceftriaxone, cefixime and ciprofloxacin using isolates from MSM in England and Wales collected within the Gonococcal Resistance to Antimicrobials Surveillance Programme (GRASP), 2012–2017.

Results Among 5,448 isolates from MSM, 729 (13.4%) were pharyngeal, 2,365 (43.4%) were rectal and 2,354 (43.2%) were genital samples. Pharyngeal infections were more likely to be associated with azithromycin resistance (minimum inhibitory concentration (MIC) >0.5 mg/L (adjusted OR (aOR) 1.62, 95%CI:1.13–2.31, $P<0.001$) and RS to ceftriaxone (MIC ≥ 0.015 mg/L) (aOR 1.25, 95%CI:1.03–1.52, $P=0.023$) compared to genital infections. Pharyngeal infections were also more likely to be associated with azithromycin resistance (aOR 1.49, 95%CI:1.06–2.11, $P<0.001$) and RS to ceftriaxone

(aOR 1.21, 95%CI:1.00–1.47, $P=0.045$) compared to rectal infections. No significant association was found between site of infection and cefixime or ciprofloxacin resistance.

Conclusion Pharyngeal NG infection among MSM are more likely to be RS to ceftriaxone and resistant to azithromycin compared to rectal and genital infections. Poor pharyngeal tissue drug penetration may lead to persistent infections, which would provide more time for exchange of genetic material that confer AMR. This highlights the importance of extra-genital testing and antimicrobial susceptibility testing in this population, to reduce the risk of treatment failure and onward transmission of resistant strains.

Disclosure No significant relationships.

002.4 INCIDENCE AND DURATION OF PHARYNGEAL AND RECTAL GONORRHEA AND CHLAMYDIA AMONG HIGH-RISK MEN WHO HAVE SEX WITH MEN (MSM)

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10.1136/sextrans-2019-sti.113

Background The duration of untreated extragenital gonococcal (GC) and chlamydial infection (CT) infection is not well defined.

Methods From March 2016 to December 2018, we enrolled 140 MSM in a 12-month cohort study. Men ≥ 18 years were eligible if they reported receptive anal intercourse and had ≥ 1 following risks in ≤ 12 months: 1) diagnosis of GC, CT or syphilis; 2) methamphetamine or poppers use; or 3) >2 sex partners in ≤ 2 months or >5 in ≤ 12 months. Enrolled men either tested negative for GC/CT at enrollment, or, tested positive, were treated and waited 2–3 weeks prior to data collection. Each week, men self-collected pharyngeal and rectal specimens and completed an electronic diary. Specimens were tested after study completion (Aptima, Hologic Inc). We defined incident infections as two consecutively positive tests and clearance as ≥ 2 consecutively negative tests. We used Kaplan Meier curves to estimate duration of infection censoring subjects for receipt of pathogen-specific antibiotic, positive swab in final week of study, or loss-to-follow-up.

Results Forty-eight men were observed for 1,687 weeks and contributed 3,579 tested specimens. Twenty-four (50%) MSM had ≥ 1 incident GC/CT infection; 13 (27%) had >1 infection. Overall extragenital GC/CT incidence was 129 (95%CI: 94–172) infections per 100 person-years. Pharyngeal GC, and rectal GC and CT incidence were 35 (95%CI: 20–61), 37 (95%CI: 22–64) and 59 (95%CI: 38–91) per 100 person-years, respectively. 46% (6/13) pharyngeal GC, 43% (6/14) rectal GC, 81% (17/21) rectal CT were censored. The estimated median duration of pharyngeal GC, rectal GC and rectal CT were 15 (95%CI 3 – undefined), 12 (95%CI 2 – undefined) and >20 (95% CI 12 – undefined) weeks.

Conclusion Among high-risk MSM, incident extragenital GC/CT occur frequently: >1 infection per person per year. Untreated, these infections persist for a median of 3 to 5 months.

Disclosure No significant relationships.

002.5 **INFLAMMATORY CYTOKINES IN RECTAL GONORRHEA/ CHLAMYDIA INFECTION AND TREATMENT: TOWARDS STI CONTROL AS HIV PREVENTION FOR MSM**

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10.1136/sextrans-2019-sti.114

Background Rectal gonorrhoea (GC) and chlamydia (CT) infection are associated with mucosal inflammation and HIV transmission. To determine the impact of GC/CT infection and treatment on rectal tissue inflammation, we assessed levels of inflammatory cytokines in MSM with and without rectal GC/CT in Lima, Peru.

Methods We screened 605 behaviorally high-risk MSM for rectal GC/CT using Hologic TMA between July-December, 2017. We identified 101 GC/CT(+) cases among 469 HIV-uninfected candidates (101/469; 21.5%). Prior to antibiotic treatment, we randomly selected 50 GC/CT(+) cases and matched 52 GC/CT(-) controls according to age and number of receptive anal intercourse partners during the prior 30 day period. Participants underwent anoscopy and sponge collection of rectal secretions for inflammatory cytokine quantification (IL-1b, IL-6, IL-8, and TNF-a) via Luminex multiplex assays. HIV and rectal GC/CT testing, and mucosal cytokine assessments were repeated at 3- and 6-month Follow-up Visits. Pre- and post-treatment cytokine levels in cases were compared against levels in uninfected controls using Wilcoxon Rank-Sum tests for non-parametric data.

Results At baseline, MSM with GC/CT had elevated levels of all inflammatory cytokines in rectal mucosa compared with uninfected controls (all p-values <0.001). During Follow-up evaluation, 6 HIV seroconversions and 14 new or recurrent GC/CT cases were diagnosed at 3 months, with 2 new HIV cases and 12 GC/CT infections at 6 months. Antibiotic treatment led to resolution of mucosal inflammation with no residual cytokine differences between case and control groups noted at 3- or 6-month Follow-up evaluations after censoring subjects with HIV and/or GC/CT infection diagnosed at that visit (all p-values >0.05).

Conclusion Rectal tissue inflammation and cytokine recruitment is associated with GC/CT infection and resolves following antibiotic treatment. Our data provides 'proof of concept' for use of rectal STI screening as part of an integrated bio-behavioral HIV prevention program for MSM.

Disclosure No significant relationships.

002.6 **EXTRAGENITAL MYCOPLASMA GENITALIUM INFECTIONS AMONGST MEN WHO HAVE SEX WITH MEN**

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10.1136/sextrans-2019-sti.115

Background There are limited data on the prevalence of *Mycoplasma genitalium* (MG) coinfection with rectal chlamydia and rectal gonorrhoea infections in men who have sex with men (MSM). There are also few studies examining the prevalence of pharyngeal MG in MSM. Using a highly sensitive transcription mediated amplification assay, this study aimed to determine the proportion of rectal chlamydial and gonococcal infections in MSM that are co-infected with rectal MG, and the proportion of MSM with MG detected in the pharynx.

Methods This study was conducted at Melbourne Sexual Health Centre in Victoria, Australia. Consecutive routinely collected rectal swabs from MSM, that previously tested positive for chlamydia (N=212) or gonorrhoea (N=212) using Aptima Combo 2 (Hologic, San Diego), were tested for MG co-infection using the Aptima *Mycoplasma genitalium* Assay (Hologic, San Diego). Consecutive pharyngeal samples (N=500) from MSM were also tested for MG using Aptima *Mycoplasma genitalium* Assay. Samples were linked to demographic and epidemiological data, as well as symptoms and clinical diagnosis, and irreversibly de-identified prior to MG testing.

Results Rectal-MG was co-detected in 27/212 chlamydial (13%, 95%CI 9-18) and in 29/212 gonorrhoea (14%, 95%CI 9-19) samples, with no difference in the proportion positive for MG between the two groups (p=0.774). MSM with rectal-gonorrhoea and MG co-infection were more likely to be HIV positive than those infected with gonorrhoea alone (OR 2.96, 95%CI 1.21-7.26, p=0.023). Pharyngeal-MG was detected in 8/464 consecutive samples (2%, 95%CI 1-3%).

Conclusion We found high and identical rates of MG coinfection (13-14%) in MSM with chlamydial or gonorrhoeal rectal infection. Macrolide resistance in MG exceeds 80% in MSM at our service. Rectal gonorrhoea and chlamydia treatment involves use of azithromycin. These data highlight the prevalence of unidentified MG which is inadvertently exposed azithromycin. Using highly sensitive diagnostic methods, pharyngeal-MG was only detected in 2% of MSM in this study.

Disclosure No significant relationships.

003 – PERSISTENCE AND RESISTANCE

Monday, July 15, 2019

10:45 AM – 12:15 PM

003.1 NATURAL HISTORY OF GENITAL AND ORAL HERPES SIMPLEX VIRUS-1 (HSV-1) SHEDDING AFTER FIRST EPISODE GENITAL HSV-1 INFECTION

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10.1136/sextrans-2019-sti.116

Background Genital HSV-1 has surpassed HSV-2 as a cause of first episode genital herpes in high-income settings. To inform counseling messages regarding prevention of genital HSV-1 transmission, we assessed oral and genital shedding patterns among persons with laboratory documented first episode genital HSV-1 infection.

Methods Participants with virologic evidence of first episode genital HSV-1 infection self-collected oral and genital swabs for HSV PCR and completed symptom diaries for 30 days at 2 and 11 months after the first episode. Questionnaires about sexual practices were completed. Blood samples were collected at serial timepoints to assess antibody and cellular immune responses to HSV-1. HSV serostatus was determined using the HSV Western Blot, and those who were HSV seronegative at the time of enrollment had primary infection. The per-participant risk of oral and genital HSV-1 shedding during the first and second collection periods was determined.

Results Of 62 participants who completed both swabbing sessions, 42 (68%) were women and 36 (58%) had primary HSV-1 infection. Of 54 who responded, 44 (81%) had a sex partner of the opposite gender and 43 (80%) had a single partner within 4 weeks prior to symptom onset. Genital HSV was detected on 205 (12.2%) of 1684 days at 2 months and declined significantly to 92 (5.5%) of 1668 days at 11 months (RR=0.45, 95% CI=0.24–0.85). On days when genital HSV was detected, the median quantity was higher at 11 months (4.2 log₁₀ copies/ml) as compared to 2 months (3.2 log₁₀ copies/ml), p<0.0001. HSV was detected from the mouth on 4.1% of days and stable over the first year. Genital lesions were rare during both periods (104 (2.8%) of 3687 days).

Conclusion HSV-1 genital shedding is rapidly contained after the first year of genital HSV-1 infection. Genital HSV-1 shedding is relatively infrequent, but does persist, one year after first episode infection.

Disclosure No significant relationships.

003.2 DETECTION OF GLYCOSYLATED *TREPONEMA PALLIDUM* PROTEINS: RELEVANCE FOR DIAGNOSTIC ASSAYS AND IMPORTANCE FOR INFECTION

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10.1136/sextrans-2019-sti.117

Background Current serology-based, treponemal-specific diagnostic tests detect antibodies reactive against *T. pallidum* molecules and cannot differentiate between past and current syphilis infections. Further, existing diagnostic tests for syphilis have non-optimal sensitivity and specificity and require expertise for test administration and interpretation. These limitations, combined with the rising number of syphilis infections, highlight the need for a reliable direct diagnostic assay to detect active syphilis. We sought to develop such an assay using immuno-mass spectrometry to detect *T. pallidum* proteins. Our results revealed that select *T. pallidum* proteins are glycosylated.

Methods We developed antibodies directed against proteotypic, surrogate peptides from six prioritized *T. pallidum* biomarker proteins. These antibodies were tested using a technology called Stable Isotope Standards and Capture by Anti-Peptide Antibodies (SISCAPA), which involves antibody enrichment of the peptide surrogates coupled with their identification by mass spectrometry. The anti-peptide antibodies were tested by SISCAPA and in immunoblots to detect *T. pallidum* proteins in urine from patients with clinically confirmed active syphilis.

Results Immunoblot analyses consistently identified *T. pallidum* proteins in urine samples from patients with syphilis. Initially, SISCAPA technology detected the surrogate peptides in only a fraction of the urine samples. However, deglycosylation of the proteins in the urine samples prior to SISCAPA analyses allowed successful identification of the *T. pallidum* biomarkers.

Conclusion This is the first report of protein glycosylation during *T. pallidum* infection. The results show sample deglycosylation prior to SISCAPA analysis improves peptide detection and enables use of a SISCAPA-based direct diagnostic test for accurately detecting active syphilis. Further, the results suggest a potential mechanism of immune evasion used during infection, that of masking *T. pallidum* proteins from the immune system by the addition of glycosyl groups. These findings increase our understanding of *T. pallidum* infection and will assist with development of a non-invasive, sensitive and specific assay for syphilis.

Disclosure No significant relationships.

003.3 THE EUROPEAN GONOCOCCAL ANTIMICROBIAL SURVEILLANCE PROGRAMME FINDINGS 2017

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10.1136/sextrans-2019-sti.118

Background The European Gonococcal Antimicrobial Surveillance Programme (Euro-GASP) annually investigates antimicrobial susceptibility data for *Neisseria gonorrhoeae* with patient epidemiological data to monitor current and emerging trends in antimicrobial resistance (AMR) across Europe. Susceptibility to ceftriaxone and azithromycin, currently recommended for combination treatment in the European management guideline, has decreased in the past; regular surveillance of AMR is crucial. We present the main Euro-GASP findings from 2017.

Methods Agar dilution and minimum inhibitory concentration (MIC) gradient strip tests were used to determine the antimicrobial susceptibility to cefixime, ceftriaxone and azithromycin (using EUCAST breakpoints) of 3248 *N. gonorrhoeae* isolates collected in 2017 from 27 countries across the European Union/European Economic Area (EU/EEA). Significance of changes in resistance compared to 2016 was analysed using Z-tests.

Results There were no isolates with ceftriaxone resistance (MIC>0.125 mg/L) (zero in 2016), 7.5% of isolates were azithromycin resistant (MIC>0.5 mg/L) (7.5% in 2016; p=0.93) and cefixime resistance (MIC>0.125 mg/L) was observed in 1.9% of isolates (2.1% in 2016; p=0.53). Seven isolates from four countries displayed high-level azithromycin resistance (MIC≥256 mg/L), which is the same number as observed in 2016, although in different countries (five countries in 2016). Ceftriaxone MICs for 28 isolates (0.9%) were 0.125 mg/L (on the resistance breakpoint) which is double the number observed in 2016 (14 isolates, 0.5%) although this increase is not statistically significant (p=0.33). Of the 28 isolates on the ceftriaxone resistance breakpoint, four showed intermediate susceptibility to azithromycin.

Conclusion Ceftriaxone, azithromycin and cefixime resistance levels remained stable compared with 2016. However, the current azithromycin resistance rate of 7.5% and the number of isolates on the resistance breakpoint for ceftriaxone threaten the effectiveness of the currently recommended European therapeutic regimen of ceftriaxone 500 mg plus azithromycin 2 g. Continued surveillance is essential together with, ultimately, development of new effective antimicrobials.

Disclosure No significant relationships.

003.4 MODELLING INTERVENTION STRATEGIES FOR PREVENTING SPREAD OF EXTENSIVELY DRUG RESISTANT GONORRHOEA STRAINS AMONG AUSTRALIAN MSM

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10.1136/sextrans-2019-sti.119

Background Recent reports from Australia and the UK of extensively drug resistant (XDR) gonorrhoea strains, have increased concerns over remaining treatment options. Outbreak-type responses to detection of such strains may help to delay wider emergence of such resistance but lack a clear

evidence base as to their effect. Here, we use mathematical models to assess the potential impact of outbreak response strategies in a high-incidence population of Australian men who have sex with men (MSM) with gonorrhoea.

Methods We developed an individual-based, anatomical site-specific model of gonorrhoea transmission in Australian MSM. The model was calibrated to available site-specific prevalence and incidence data with respect to the per-act transmission probabilities for four types of sexual practice. As pharyngeal importations were most difficult to control, we focused on these in estimating the probability of elimination of an imported XDR strain. We considered various combinations of contact tracing and screening interventions, with results for each scenario based on 5000 simulations.

Results At current levels of gonorrhoea screening in Australian MSM, we predict persistence of secondary spread at 5 years post-importation in just under 20% of simulations. If all infected regular partners of index patients are traced and treated, this persistence probability declines to ~8%, and further to ~4% and 0.04%, respectively, if 20% and 50% of all casual partners in the last two months are traced and treated. Alternatively, if the screening rate is increased to the level recommended in STI management guidelines, the probability of persistence after 5 years is ~9.7%. When combined with treatment of regular partners, this probability is reduced to <0.01%.

Conclusion This study suggests that contact tracing and screening rate can separately play an important role in responding to outbreaks of XDR gonorrhoea, and in combination these strategies may have the potential to prevent domestic establishment of such strains.

Disclosure No significant relationships.

003.5 UTILITY OF REAL-TIME WHOLE GENOME SEQUENCING IN PARTNER NOTIFICATION AND CONTROL OF NEISSERIA GONORRHOEA INFECTION

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10.1136/sextrans-2019-sti.120

Background Gonorrhoea is a sexually transmitted infection of global public health concern. We investigated whole genome sequencing (WGS) as a partner notification (PN) tool in gonorrhoea management.

Methods Between May–November 2018, all *N. gonorrhoeae* isolated from patients attending Leeds Sexual Health, UK, underwent WGS. Sequences were compared with historical isolates from Leeds, 2016 onwards. Reports listing sequences within 20 single nucleotide polymorphisms (SNPs) were issued to clinicians. Patient and PN data were reviewed; numbers of traceable and untraceable partners were determined. Reports were reviewed to confirm WGS links between traceable partners and to identify possible links for untraceable partners, as determined by a transmission nomogram and epidemiological match (gender, sexual orientation, onset of symptoms, and other identifiers e.g. name). Clusters of cases within 20 SNPs were examined for patterns.

Results Overall 380 isolates from 377 cases were successfully sequenced. Traceable partners were found in 244 cases. 147

cases had at least one traceable contact with confirmed attendance, and 122 had contacts testing positive. WGS confirmed links between traceable contacts in 82 cases. Reasons for unconfirmed links include contacts testing elsewhere and testing NAAT positive, culture negative. Untraceable contacts were reported in 157 cases; WGS provided possible links in 83, with confirmation in only six, given inherent information unavailability. Cases were grouped into 123 clusters, with eight containing >10 patients. Examination of clusters highlighted gaps in partner finding, including clusters containing heterosexual females with identical strains but no male; heterosexual males with identical strains who reported female sex worker contact; confirmed instances of partner underreporting; and 35 cases with multiple partners but no genetically related case.

Conclusion WGS has the potential to improve gonorrhoea PN and control by identifying new links and clusters with significant gaps in partner finding, where PN can be enhanced. Its utility will improve with larger databases.

Disclosure No significant relationships.

003.6 VAGINAL BACTERIA AND RISK OF INCIDENT AND PERSISTENT INFECTION WITH HIGH RISK SUB-TYPES OF HUMAN PAPILLOMAVIRUS

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10.1136/sextrans-2019-sti.121

Background Certain vaginal bacteria may increase women's risk for infection with high risk sub-types of human papilloma virus (hrHPV). The role of vaginal bacteria in hrHPV persistence is less well studied. We assessed associations between vaginal bacteria and hrHPV acquisition and persistence among Kenyan women in the placebo arm of the Preventing Vaginal Infections trial.

Methods Nonpregnant, HIV-uninfected women aged 18–45 from Kenya and the United States were enrolled in a randomized trial of periodic presumptive treatment to reduce vaginal infections over 12 months. Genital fluid specimens collected at enrollment and every 2 months thereafter were tested for 14 hrHPV types using the Hologic APTIMA HPV assay. Quantitative PCR targeting the 16S rRNA gene from ten bacteria was used to measure bacterial concentrations in vaginal swabs. Multivariate multinomial logistic regression and multi-state Markov models restricted to Kenyan placebo participants were used to assess associations between log₁₀-transformed bacterial concentrations (categorized in tertiles) and hrHPV acquisition and persistence.

Results Among the 84 Kenyan placebo participants, hrHPV was detected in 79/563 specimens (14%), with 16 episodes of persistent hrHPV (detection in ≥ 2 consecutive specimens; median duration was 6 months). Controlling for age, hormonal contraceptive use, and condom use, *Lactobacillus jensenii* concentration was positively associated with hrHPV incidence (adjusted odds ratio (aOR)=1.57; 95% CI 1.07–2.30); and *Atopobium vaginae* (aOR=1.40; 95% CI 1.02–1.93), *Megasphaera* species (aOR=1.39; 95% CI 1.03–1.88), and *Mageeibacillus indolicus* (aOR=1.48; 95% CI 1.09, 2.02)

concentrations were positively associated with hrHPV persistence. BV (Nugent score ≥ 7) was not significantly associated with hrHPV incidence or persistence. Multistate Markov models did not indicate that bacterial concentrations were associated with transitions between HPV detection states.

Conclusion These findings suggest that higher concentrations of certain vaginal bacteria may increase risk of hrHPV incidence and persistence. Future work with more frequent sampling could provide additional insight into factors associated with hrHPV persistence.

Disclosure No significant relationships.

004 – ANTIMICROBIAL RESISTANCE IN STI PATHOGENS

Monday, July 15, 2019 4:15 PM – 5:45 PM

004.1 NOVEL PATHWAY TO CEFTRIAXONE RESISTANCE IN CLINICAL ISOLATES OF *N. GONORRHOEAE* VIA POINT MUTATIONS IN THE RNA POLYMERASE

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10.1136/sextrans-2019-sti.122

Background Widespread antimicrobial resistance in *Neisseria gonorrhoeae* has limited the effective treatment options. Cephalosporins remain one of the few classes of antibiotics recommended for gonococcal infections, but reduced susceptibility to the third-generation cephalosporins, including ceftriaxone, has emerged. Most reduced susceptibility to ceftriaxone is caused by an alternative *penA*(PBP2) allele. However, the isolates with the among the highest level cephalosporin resistance identified in the US lack this allele and other *penA* resistance mutations, raising the possibility of cephalosporin resistance not mediated directly through *penA*.

Methods To identify the genetic basis of resistance in these isolates, we employed an undirected transformation strategy, and used molecular microbiology and genetics methods to investigate the mechanism of resistance.

Results Here, we show that resistance to ESCs has arisen in clinical isolates multiple times through distinct mutations in the RNA polymerase components *rpoB* and *rpoD*. The resistance caused by these changes is not a general tolerance response: these mutations neither changed the growth rate *in vitro* nor altered susceptibility to other classes of antibiotics (including penicillin). These mutations result in large variations in transcription, including in genes coding for penicillin binding proteins (increase in PBP1, decrease in PBPs 3 and 4) and pilus pore. We show that increases in PBP1 protein levels contribute to the rise in CRO MIC, likely through replacement of inhibited PBP2 activity, though other factors are needed to recapitulate the resistance seen in the clinical isolates with *rpoB* and *rpoD* mutations.

Conclusion Pathways to extended spectrum cephalosporin resistance do not require alterations to *penA* (PBP2) and can arise through mutations in components of the RNA polymerase holoenzyme. Additional pathways to cephalosporin

resistance in gonococcus remain to be identified. These findings have implications for the development of molecular diagnostics and for understanding the mechanistic basis of cephalosporin resistance.

Disclosure No significant relationships.

004.2 PHYLOGENOMIC ANALYSIS REVEALS PERSISTENCE OF *NEISSERIA GONORRHOEA* CLADES WITH REDUCED SUSCEPTIBILITY TO CEPHALOSPORINS

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10.1136/sextrans-2019-sti.123

Background The emergence of *Neisseria gonorrhoeae* strains with reduced susceptibility to the extended-spectrum cephalosporins (ESCs) cefixime and ceftriaxone has raised concerns over a future of untreatable gonorrhoea. In 2015, a treatment regimen consisting of ceftriaxone and azithromycin were recommended to assist in delaying the further selection of resistant strains, including those with elevated cephalosporin minimum inhibitory concentrations (MICs) (ESC^{em}). Recently, we conducted a retrospective study to assess the genetic relatedness of isolates in the United States from 2006–2017, and describe the emergence and dissemination of ESC^{em} lineages over time.

Methods We examined the genomes of 637 *N. gonorrhoeae* isolates collected through the Gonococcal Isolate Surveillance Project (GISP), including 317 isolates with elevated cefixime MICs (CFX^{em}; MIC \geq 0.25 μ g/mL), 96 isolates with elevated ceftriaxone MICs (CRO^{em}; MIC \geq 0.125 μ g/mL), and 224 accompanying cephalosporin-susceptible isolates matched by region and collection date. We generated a core-genome SNP phylogeny, and examined the distribution of antimicrobial determinants known to be associated with cephalosporin resistance.

Results The majority of gonococcal isolates with elevated MICs to either cephalosporin or both (n = 337) possessed the mosaic *penA* XXXIV allele (cefixime: 87%, 276/317, P < 0.001; ceftriaxone: 61%, 59/96, P < 0.001). SNP analysis revealed that there were two major clades containing ESC^{em} isolates that appear to have arisen independently. Notably, Clade A (MLST ST1580; 2009–2011) contained 30, primarily CFX^{em} isolates, while the largest clade in the study (Clade B, MLST ST1901; 2006–2017) contained 224 ESC^{em} isolates. A third clade (Clade C, MLST ST1600; 2014–2017) contained 6 ESC^{em} isolates with a novel *penA* LXXI.

Conclusion The prevalence of mosaic *penA* XXXIV alleles was highest among gonococcal isolates with reduced susceptibility to ESCs over a 12-year period. Genomic methods can aid in efforts to monitor antimicrobial resistance markers of concern and ultimately slow the emergence and spread of circulating ESC^{em} strains.

Disclosure No significant relationships.

004.3 PRIORITIZING NOVEL DRUG TARGETS BASED ON GENOMICS AND PROTEOMICS APPROACH IN *NEISSERIA GONORRHOEA*

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10.1136/sextrans-2019-sti.124

Background *N. gonorrhoeae*, a major causative agent of STI, has acquired resistance to most of the commonly used drugs. Hence there is an urgent need to look for novel drug targets and new drugs to combat this disease. Although a large number of prokaryotic genomes have been sequenced, only a small percentage is completely annotated. Structure-function annotation of hypothetical proteins (HPs) can be exploited to identify novel drug targets.

Methods Various web tools were used under stringent condition to predict the function of different HPs and to identify novel drug targets based on their cellular localization, domains, motifs and by using STRING (<http://string-db.org/>) to identify their potential interactions with other proteins. To predict drug targets, essential genes were identified using DEG database and BLASTed against proteome of *Homo sapiens* to exclude homologous proteins.

Results Using bioinformatics tools, 206 HPs were analyzed for their subcellular localization. 140 HPs were predicted as cytoplasmic proteins and 10 as extracellular, Nine proteins in the outer membrane, seven as inner membrane whereas three in the periplasmic area. Using available tools, function to 32 HPs was assigned with high confidence; 11 proteins showed signal peptide whereas 21 proteins showed transmembrane helices. We predicted 19 proteins as putative enzymes crucial for the survival of *Neisseria*. These 19HPs were sub-classified as DNA modification system (5), transferases (3), hydrolase (3), FAD/NAD binding enzymes (5) and others (3). Other 12 HPs were characterized as transporter proteins including autotransporter (8), TonB dependent receptor (2), members of TAT pathway (1) and branched chain amino acid transporter (1). Two transporter proteins were predicted as adhesins and further classified as drug targets whereas five were predicted as vaccine candidates. We also predict five cytoplasmic and 4HPs localized in outer membrane as potential drug targets.

Conclusion These results are expected to be helpful in the development of improved therapeutics.

Disclosure No significant relationships.

004.4 *MYCOPLASMA GENITALIUM parC AND gyrA* MUTATIONS ASSOCIATED WITH MOXIFLOXACIN AND SIFATFLOXACIN TREATMENT FAILURE

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10.1136/sextrans-2019-sti.125

Background There has been a rapid increase in the resistance of *Mycoplasma genitalium* to first line (azithromycin) and second line (fluoroquinolone) therapy, particularly in the Asia-Pacific

region. While mutations conferring resistance to azithromycin are well established, this is not the case for fluoroquinolones. We aimed to define mutations associated with fluoroquinolone failure to inform next generation resistance assays.

Methods Samples from patients undergoing resistance-guided therapy with either moxifloxacin (Apr-2017–Jun-2018, 202 cases: 21 moxifloxacin failures) or sitafloxacin (Jun-2016–May-2017, 125 cases: 12 sitafloxacin failures) were sequenced for key regions of *parC* and *gyrA* genes. Chi-square or Fisher's exact tests were used to examine prevalence of each mutation and treatment outcome.

Results In an interim analysis the most common *parC* mutations were G248T (amino acid change S83I; 16%), G259A (D87N; 4%), G248A (S83N; 1%) and mutations effecting S83R (1%). G248T (S83I) mutation was more common among patients that failed moxifloxacin [15/21 failures (71%) vs 11/181 cures (6%), $p < 0.001$] and sitafloxacin [6/12 failures (50%) vs 19/113 cures (17%), $p = 0.0063$]. Notably, sitafloxacin cured a higher proportion of infections carrying the S83I mutation than moxifloxacin (76% vs 42%; $p = 0.015$). ParC D87N was not associated with failure of moxifloxacin [1/21 failures (5%) vs 11/181 cures (6%)]. The most common *gyrA* mutations were G285A (M95I; 5%) and G295T (D99Y; 1%). An infection with an S83I mutation was more likely to fail treatment when combined with a *gyrA* mutation (M95I or D99N) (4/6 sitafloxacin failures with *parC* S83I also had *gyrA* mutation, compared to 1/16 cures; $p = 0.0093$), suggesting an additive effect.

Conclusion This study provides compelling evidence that *parC* G248T (S83I) mutations contribute to failure of moxifloxacin and sitafloxacin used for macrolide-resistant *M. genitalium*. These data will inform the development of quinolone resistance assays needed to ensure optimal selection of antimicrobials in *M. genitalium*.

Disclosure No significant relationships.

004.5 POINT-OF-CARE MAGNETOFLUIDIC ASSAY CARTRIDGE FOR *NEISSERIA GONORRHOEA*E DETECTION AND ANTIMICROBIAL RESISTANCE DETERMINATION

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10.1136/sextrans-2019-sti.126

Background The rise of antimicrobial resistant (AMR) *Neisseria gonorrhoeae* (NG) has prompted worldwide concern over the looming possibility of untreatable gonococcal infections. A reduction of antimicrobial use by transitioning from generalized prescriptions to targeted pathogen-specific treatments would aid in treatment efficacy and reduce the risk of AMR NG development. However, actual implementation of such targeted treatments has been limited by the lack of rapid diagnostic tools that can provide antimicrobial susceptibility results at the point-of-care (POC).

Methods To address the need for a rapid NG screening test, we have developed a portable magnetofluidic instrument and corresponding assay cartridge. The assay cartridges use functionalized magnetic beads to couple nucleic acid extraction directly to a PCR-based duplexed nucleic acid amplification test (NAAT). The NAAT targets the *opa* gene for NG identification and the *gyrA* gene for characterization of ciprofloxacin

susceptibility. In order to assess assay performance, we analyzed 27 well characterized NG strains and 29 swabs (20 urethral, 9 penile meatal) previously tested by culture.

Results The instrument has a compact footprint (5'x5.3'x3.3') and runs on a 5V, 2A power supply that can be provided by a small portable battery pack. Detection of NG and genotypic characterization of ciprofloxacin susceptibility was completed in <40 minutes. The cartridge-based assay correctly identified 100% (27/27) of the NG isolates as well as 100% (10/10) of the ciprofloxacin-resistant NG strains. All urethral and penile swabs were correctly identified as well (15/15 positive, 14/14 negative).

Conclusion Magnetofluidic assay cartridges allow automation of NAAT-based testing for NG and assessment of antimicrobial susceptibility. The portability, low power consumption, and ease-of-use of our platform has potential for enabling rapid diagnostics at the POC and in low-resource settings to guide targeted use of antimicrobials. Further studies with clinical samples are warranted.

Disclosure No significant relationships.

004.6 PREDICTION OF AVAILABLE DRUG TARGETS OF *NEISSERIA GONORRHOEA*E BASED ON CODON USAGE PARAMETER

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10.1136/sextrans-2019-sti.127

Background *Neisseria gonorrhoeae* is a gram negative diplococcus bacterium and the causative agent of the sexually transmitted disease Gonorrhoea. It has been recently given the status of 'superbug' by World Health Organization because of the increasing antibiotic resistance and unavailability of a viable vaccine candidate targeted against this bacterium. Over the recent years, there have been increasing reports about the use of subtractive genomics to identify potential drug and vaccine targets.

Methods Hence, present study utilizes the knowledge of Codon biasing, a tool to identify the essential genes in *N. gonorrhoeae* that could be novel therapeutic targets for drug or vaccine development. Through the screening of a total of 2350 genes, we could shortlist 29 'essential' genes from the complete gene set. This selection process was done through calculating CAI scores for individual genes. Through the data-mining of BLAST2GO and InterProScan databases, we could predict the function of these 29 genes.

Results All the selected 29 genes were involved in important cellular functions like DNA replication, energy synthesis and metabolites production. This study also shortlists the essential genes of *N. gonorrhoeae* that could be used to target *Neisseria*. We identified a molecule/drug which can be used as a target against essential protein DapD (succinyltransferase).

Conclusion To conclude, through subtractive genomics, we could identify 29 genes that seem to be essential for the survival of the bacteria *Neisseria gonorrhoeae*. Identification of these genes can be helpful in understanding the pathogenesis of the bacteria as well. Moreover some of these genes are excellent drug targets as these are essential for the growth of bacteria. The selected molecule ZINC06311339 promises hope

for treating this pathogen after having validated through experimental study.

Disclosure No significant relationships.

005 – FEMALE GENITAL INFECTIONS, IMMUNOLOGY AND MICROBIOME

Monday, July 15, 2019 4:15 PM – 5:45 PM

005.1 LOWER GENITAL TRACT PREDICTORS OF ACUTE ENDOMETRITIS AMONG WOMEN WITH SIGNS AND SYMPTOMS OF PELVIC INFLAMMATORY DISEASE (PID)

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10.1136/sextrans-2019-sti.128

Background PID is diagnosed clinically when women have cervical motion, uterine and/or adnexal tenderness, but many women meeting these clinical criteria have no histological evidence of endometritis on endometrial biopsy. The objective of this study was to evaluate vaginal microbiological predictors of acute endometritis among women with signs and symptoms of PID.

Methods The Anaerobes and Clearance of Endometritis (ACE) study enrolled women with symptomatic PID in a clinical trial (NCT01160640) comparing treatment regimens with or without metronidazole. This analysis included 169 women who had evaluable endometrial biopsies; acute endometritis was defined as ≥ 1 plasma cell per 120X field in the stroma plus ≥ 5 neutrophils per 400X field in the epithelium. *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC) were detected by Aptima Combo 2 and vaginal swabs were evaluated by quantitative PCR for five species of *Lactobacillus* (*crispatus*, *vaginalis*, *jensenii*, *gasseri*, *iners*), three species of *Prevotella* (*bivia*, *timonensis*, *amni*), *Atopobium vaginae*, *Gardnerella vaginalis* and *Megasphaera* phylotype I.

Results Only 31(18%) of 169 women with diagnosed PID had endometrial histology consistent with acute endometritis. By univariate analysis, lower genital tract CT, GC and BV-associated bacteria were each associated with increased endometritis, while *L. crispatus*, *L. jensenii* and *L. vaginalis* were negatively associated ($P < 0.05$ for each). Based on the results of multivariable regression and factor analyses, a risk score for acute endometritis was developed combining CT (3 points), *G. vaginalis*, *A. vaginae* and *P. amni* (1 point each if $< 10^6$, 2 points each if $\geq 10^6$) and *L. crispatus* (-2 points if $< 10^6$ and -4 points if $\geq 10^6$). A score of 5 or more detected 27 (87%) of 31 cases of endometritis and had a negative predictive value of 96%.

Conclusion Among women with symptomatic PID, a simple lower genital tract risk score including CT plus 4 vaginal bacteria was a predictor of acute endometritis.

Disclosure No significant relationships.

005.2 CHARACTERIZING THE IMPACT OF PENILE-VAGINAL SEX ON HIV-SUSCEPTIBLE CD4+ T CELL SUBSETS IN THE FEMALE GENITAL TRACT

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10.1136/sextrans-2019-sti.129

Background HIV in women is often acquired across the female genital tract mucosa, and a key parameter determining mucosal HIV susceptibility is the density of HIV-susceptible CD4+ T cells, particularly activated CD4+ T cells and Th17 cells. However, although most HIV transmission occurs during sex, the impact of sex itself on CD4+ T cell subsets is poorly described.

Methods STI-free heterosexual couples (N=40) were recruited. Blood, cervicovaginal secretions and a cervical cytobrush were collected from the female partner at baseline; couples then had penile-vaginal sex 48h later, with repeat sampling after 1–2 hr and 72 hr. Couples either had unprotected sex (n=31) or condom-protected sex (n=11); two couples participated twice, once with and once without a condom. Cytobrush-derived CD4+ T cell subsets were assessed by flow cytometry, and paired changes assessed by Wilcoxon signed-rank test.

Results The proportion of endocervical Th17 (CCR6+) cells transiently increased 1–2 hr after penile-vaginal sex (median increase = 4.95%; $p=0.006$), and returned to baseline by 3 days. Endocervical activated (HLA-DR+) CD4+ T cells also increased after 1–2 hr, but these increases persisted for >72 hr (1.63%; $p=0.007$ and 4.75%; $p < 0.0001$, respectively). Importantly, increases in both types of HIV target cells were only apparent after condomless sex (5.0% for CCR6; $P=0.015$ and 2.11% for HLA-DR; $p=0.006$), with no increase seen after condom-protected sex (1.1% for CCR6; 0.7% for HLA-DR; both $p > 0.3$). The expression of CCR5 and the frequency of other cervical CD4+ T cell subsets, including Th1 and Trm, were unchanged after sex.

Conclusion Penile-vaginal sex rapidly increased the proportion of cervical Th17 cells and activated CD4+ T cells, thought to be key endocervical CD4+ T cell HIV targets. Future work will assess the impact of sex on genital cytokine levels and the microbiota, and correlate cervical immune changes with semen parameters in the male partner.

Disclosure No significant relationships.

005.3 THE COMBINED CONTRACEPTIVE VAGINAL RING INCREASES TH17-RELATED CYTOKINES IN THE GENITAL TRACT: A RANDOMIZED CROSSOVER TRIAL

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Background Progestin only-injections (NET-EN and DMPA) have been reported to increase HIV target cells in the female

genital tract (FGT), which are target cells for HIV infection. Recently, CD4 Th17 cells have been identified to be more susceptible to HIV infection. Here, we investigated the impact of the combined contraceptive vaginal ring (CCVR, NuvaRing), combined oral contraceptive pills (COCPs) and NET-EN on Th17-related cytokines in the FGT of adolescent girls.

Methods This was a randomized crossover trial with a duration of 8 months. Adolescent girls between the ages of 15–19 were recruited and assigned to NET-EN, CCVR and COCPs in a 1:1:1 ratio. After four months, participants crossed over to another product for an additional four months. Cervical supernatants were collected at baseline, crossover and exit visits. Fifteen Th17-related cytokines were measured using Lumiplex multiplex assays.

Results A total of 130 participants were enrolled at baseline, with 107 reaching visit 2 (crossover) and 92 completing the final visit. Baseline characteristics were similar across arms. Median concentrations of Th17-related cytokine did not differ at baseline across all arms. In an intention to treat analysis (ITT) at crossover, intraindividual analysis of participants on CCVR showed an increase in IL-21 ($p = 0.009$), IL-1 β ($p = 0.007$), TNF- α ($p = 0.01$) and IFN- γ ($p = 0.016$). We did not see any intraindividual differences within the NET-EN and COCPs arm. Comparison across arms at both crossover and exit showed elevated Th17-related cytokines (including IL-17A, IL-6, IL-1 β , IL-33, TNF- α) in participants on CCVR compared to those on NET-EN and COCPs.

Conclusion In summary, the use of CCVR was associated with an increase in Th17-related cytokines compared to NET-EN and COCPs. Further studies are needed to investigate how these immune alterations in the FGT contribute to HIV risk in adolescent girls.

Disclosure No significant relationships.

005.4 THE EFFECT OF THE COMBINED ORAL CONTRACEPTIVE PILL ON THE VAGINAL MICROBIOTA OF WOMEN TREATED FOR BACTERIAL VAGINOSIS

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Background Bacterial Vaginosis (BV) is considered to be a dysbiosis of the vaginal microbiota (VM); it causes vaginal symptoms, increases risk for STI/HIV acquisition and negatively impacts obstetric outcomes. We analysed the VM of women from an open-label trial of women randomized to the combined-oral contraceptive pill (COCP) or current non-hormonal contraceptive practices after antibiotic treatment for BV. Our aim was to determine if COCP-exposure was associated with an optimal VM dominated by *Lactobacillus spp.* following antibiotic treatment.

Methods Women (N=92) returned vaginal swabs and questionnaires monthly for 6 months or until BV recurrence. Specimens (N=449) underwent VM analysis by 16S rRNA gene V3V4 amplicon sequencing. Alpha diversity was calculated using the Shannon diversity index. Associations between behavioural factors and diversity were investigated using generalized estimating equations population-averaged models and

multinomial regression was used to assess factors associated with composition.

Results Specimens were grouped into five VM types: *Lactobacillus iners* dominated, *L. crispatus* dominated, mixed *Lactobacillus spp.*, *Gardnerella vaginalis* dominated and mixed highly diverse taxa. COCP-exposure was associated with a decrease in VM diversity (Shannon; adjusted coefficient=-0.55, 95% CI:-0.75, 0.36, $p < 0.001$). Women with COCP-exposure were also more likely to have VM dominated by either *L. iners* (adjusted relative risk ratio [RRR]=4.40, 95%CI: 1.90,10.18, $p = 0.001$) or *L. crispatus* (adjRRR=3.12, 95%CI:1.24,7.81, $p = 0.015$) than one dominated by *G. vaginalis*. Conversely, women who reported an ongoing regular sex partner (RSP) were more likely to have a VM dominated by *G. vaginalis* (adjRRR=2.56, 95%CI:0.80,8.22, $p = 0.144$) or mixed diverse taxa (adjRRR=2.01, 95%CI:0.81,4.99, $p = 0.129$) than by *L. crispatus*, although this was not significant.

Conclusion COCP-exposure is associated with higher relative abundance of *Lactobacillus spp.* and an increased likelihood of developing a VM dominated by *L. crispatus* or *L. iners* following antibiotic treatment. Conversely, re-exposure to an RSP increased the likelihood of a VM that was abundant in BV-associated bacteria including *G. vaginalis*. These findings have important implications for the development of BV treatment and prevention strategies.

Disclosure No significant relationships.

005.5 A CASE CONTROL STUDY TO EXAMINE THE CERVICO-VAGINAL MICROBIOTA ASSOCIATED WITH PELVIC INFLAMMATORY DISEASE

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Background This is a case-control study comparing women presenting with pelvic inflammatory disease (PID) (cases), and women presenting for routine cervical and/or sexually transmitted infection screening (cases) to examine the cervico-vaginal microbiota associated with PID. Currently, there is limited understanding of the association of the cervico-vaginal microbiota with PID.

Methods The study design is a case-control study with prospective recruitment of women presenting with PID and asymptomatic women presenting for routine cervical or sexual health screening. Cervical and posterior vaginal fornix specimens are collected for the study for microbiota (presented here) and gene expression analysis. Participant demographic data, clinical chart review to ensure consistency of recruitment and response to treatment of PID cases, and self-collected questionnaire on sexual, reproductive, and gynaecological history were also analysed. Antibiotic treatment in the month preceding recruitment and pregnancy were exclusion criteria.

Results The study is still progressing, to date 38 control participants have been recruited and 12 cases consistent with PID. The analysis indicates that *Lactobacillus iners* (referred to as community state type 3 in vaginal microbiome) dominant vaginal microbial communities were significantly more frequently detected in cases. Additionally, cases were significantly more likely to have taken antibiotics in the past year, had

recent partner change and/or self reported vaginal symptoms such as thrush or BV in the preceding 3 months. These are all factors which would potentially impact vaginal microbiota.

Conclusion Pelvic inflammatory disease is known to be associated with sexual behaviour but a sexually transmitted infection is not always detected in PID. Here, we have found preliminary indications that a microbiota previously associated with sexually transmitted infection risk is also associated with PID. This is pilot data and further numbers are needed before conclusions can be reached.

Disclosure No significant relationships.

005.6 CERVICOVAGINAL METABOLIC PROFILING REVEALS THE INTERPLAY BETWEEN HPV, MICROBIOTA AND INFLAMMATION IN CERVICAL CARCINOGENESIS

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Background Vaginal dysbiosis has emerged as a key risk factor in HPV acquisition, persistence, and potentially cervical carcinogenesis. However, the biological mechanisms driving persistence and carcinogenesis have not been elucidated. Hence, our objective was to perform metabolic profiling of the cervicovaginal microenvironment to identify interactions between virus, host and microbes in the context of genital inflammation, dysplasia, and cancer.

Methods In a multicenter study, metabolic profiles of 78 premenopausal, non-pregnant women with low-grade (LSIL) and high-grade squamous intraepithelial lesions (HSIL), invasive cervical cancer (ICC), or healthy controls (HPV-positive and -negative Ctrl) were analyzed using gas chromatography-mass spectrometry. Metabolome and vaginal microbiome datasets were integrated using state-of-the-art bioinformatic tools (PICRUSt, AMON, and MIMOSA). Hierarchical clustering analysis (HCA) and principal component analysis (PCA) were employed to reveal the influence of genital inflammation, patient groups, and microbiota on metabolic profiles. Receiver Operating Characteristics (ROC) analysis was used to discriminate metabolites for each patient group. Statistical differences were tested using ANOVA or Mann-Whitney U test.

Results Metabolomes of ICC patients (n=468 metabolites) formed a distinct cluster on PCA and HCA plots, due to enrichment of membrane lipids. Amino acid and nucleotide metabolites were depleted in HPV-positive Ctrl, LSIL and HSIL groups (P<0.05). Microbial communities were predicted to alter amino acid and nucleotide metabolisms. Eicosenoate, 3-hydroxybutyrate, and oleate/vaccenate (AUC > 0.9, P<0.01) discriminated ICC from healthy patients. Sphingolipids and plasmalogens positively correlated with genital inflammation (Spearman's rho > 0.7). Anti-inflammatory nucleotides, adenosine and cytosine positively correlated with *Lactobacillus* abundance (Spearman's rho>0.5) and negatively correlated with genital inflammation (Spearman's rho<-0.3). HCA of metabolites demonstrated that metabolic profiles were driven by cancer, genital inflammation and *Lactobacillus* dominance.

Conclusion The complex virus-host-microbe interplay within the cervicovaginal microenvironment lead to unique metabolic fingerprints that could be exploited for future development of diagnostics, preventatives or treatments to positively impact women's health outcomes.

Disclosure No significant relationships.

006 – STI/HIV TREATMENT EFFICACY AND EFFECTIVENESS

Monday, July 15, 2019 4:15 PM – 5:45 PM

006.1 GENTAMICIN FOR PHARYNGEAL GONORRHEA: A SINGLE-ARM, NON-BLINDED CLINICAL TRIAL

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Background CDC guidelines recommend gentamicin for the treatment of gonorrhea in cephalosporin-allergic patients. The efficacy of gentamicin in the treatment of pharyngeal gonorrhea, which is often undiagnosed, is uncertain.

Methods Between September 2018 – March 2019, we enrolled MSM with NAAT-diagnosed pharyngeal gonorrhea in a single-arm, unblinded clinical trial. Men received a single 360 mg intramuscular (IM) dose of gentamicin at enrollment and underwent test-of-cure (TOC) by culture 4–7 days later. The study measured creatinine at enrollment and TOC, serum gentamicin concentration post-dose to establish peak concentration (Cmax), and standard antimicrobial minimal inhibitory concentrations (MIC). The trial was designed to establish a point estimate for the efficacy of gentamicin for pharyngeal gonorrhea. We planned to enroll 50 evaluable subjects; assuming that gentamicin was 80% efficacious, the trial would establish a 95% confidence interval of 66%-90%. We planned interim analyses at n=10 and n=25.

Results The study was stopped early due to poor efficacy. Of 13 enrolled men, 10 were evaluable, and only two (20%, 95%CI: 2.5% - 55.6%) were cured. Of 2 concomitant rectal infections, both were cured. Efficacy was not associated with gentamicin Cmax (p=0.809) or MIC (p= 0.429). No participants experienced renal insufficiency; average creatinine percent change was 5% (range: -7%, 21%). Six (46%) subjects experienced headache; all deemed unrelated to treatment. On a scale of 0–10, mean injection pain was 2 (range: 1–7). Among subjects with history of bicillin (n=7) and/or ceftriaxone (n=8) IM injections, 86% believed IM gentamicin to be less painful than bicillin and 75% believed it was more painful than ceftriaxone.

Conclusion 360 mg of gentamicin failed to eradicate *N. gonorrhoeae* from the pharynx. Caution should be used when using the CDC's current alternative therapy (gentamicin 240 mg plus azithromycin 2g) given increases in azithromycin resistance and gentamicin's poor efficacy at the pharynx.

Disclosure No significant relationships.

006.2 IN VITRO COMBINATION TESTING AND SELECTION OF RESISTANCE TO ZOLIFLODACIN COMBINED WITH SIX ANTIMICROBIALS FOR *N. GONORRHOEA*

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10.1136/sextrans-2019-sti.135

Background Resistance in *Neisseria gonorrhoeae* to all therapeutic antimicrobials for gonorrhoea has emerged. Novel antimicrobials for treatment are imperative and the first-in-class spiropyrimidinetrione zoliflodacin appears promising. Zoliflodacin could be introduced in dual antimicrobial therapies to prevent the emergence and/or spread of resistance. We investigated the *in vitro* activity and induction/selection of resistance to zoliflodacin alone and in combination with six novel, currently or previously used therapeutic antimicrobials against *N. gonorrhoeae*.

Methods The international gonococcal reference strains examined were WHO F (wild-type), and WHO O, WHO V, and WHO X (strains with different AMR profiles). Zoliflodacin was evaluated alone or in combination with ceftriaxone, spectinomycin, gentamicin, tetracycline, cethromycin, and sitafloxacin in checkerboard assays, time-kill curve analysis, and induction/selection of resistance studies.

Results Zoliflodacin alone or in combination with all six antimicrobials showed rapid rates of *in vitro* bacterial killing against all examined strains in time-kill studies. Tetracycline or cethromycin combined with zoliflodacin decreased the rate of zoliflodacin growth inhibition, while ceftriaxone or gentamicin increased the rate of cell killing. The frequency of induced/selected zoliflodacin resistance mutations was low for zoliflodacin and further reduced for all antimicrobial combinations. All resistant mutants contained the GyrB mutations D429N, K450T or K450N, resulting in zoliflodacin MICs of 0.5–4 mg/L consistent with previous results.

Conclusion Zoliflodacin, alone or in combination with STI therapeutic antimicrobials has a rapid and high *in vitro* efficacy against gonococci with low resistance emergence. Zoliflodacin remains a promising novel oral therapeutic for gonorrhoea monotherapy and as part of dual antimicrobial therapy with low resistance emergence potential. A phase III clinical trial evaluating efficacy and safety of zoliflodacin for uncomplicated gonorrhoea treatment is planned in 2019.

Disclosure No significant relationships.

006.3 EFFICACY OF RESISTANCE GUIDED THERAPY FOR *MYCOPLASMA GENITALIUM* USING DOXYCYCLINE FOLLOWED BY AZITHROMYCIN OR MOXIFLOXACIN

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Background Macrolide-resistance in *Mycoplasma genitalium* (MG) exceeds 50% in many nations and increasing quinolone-

resistance is reported. Recent data showed resistance-guided therapy (RGT) using doxycycline then sitafloxacin for macrolide-resistant MG cured 92% of infections and doxycycline-azithromycin for macrolide-susceptible MG cured 95%. As sitafloxacin is not widely available, we undertook a study of RGT to evaluate the efficacy of moxifloxacin in RGT to provide data that is relevant to international guidelines and to assess the efficacy of this alternative approach in a population with 15–20% quinolone-resistance (ParC mutations).

Methods Patients attending Melbourne Sexual Health Centre between April 2017–June 2018 with urethritis, cervicitis or proctitis were treated with doxycycline (7 days) and recalled if positive for MG. Macrolide-susceptible cases received azithromycin (1g, then 500 mg daily 3 days) and resistant-cases received moxifloxacin (400 mg daily, 7 days). Patients attended for test of cure (TOC) following treatment. Adherence and side effects were recorded. Patients were included in the efficacy analysis if they were treated in accordance with RGT protocol, were not at high risk of reinfection and had a 14–90 day TOC.

Results 382 participants (80 female/106 heterosexual male/196 MSM) were included: 109 (28.5%) had macrolide-susceptible MG and 273 (71.5%) macrolide-resistant MG. Doxycycline-azithromycin cure was 95.4% (95%CI 89.7–98%) and doxycycline-moxifloxacin cure was 91.9% (95%CI 88.1–94.6%). Median time to TOC was 27 days (IQR=22–35). Doxycycline-azithromycin data was combined with our prior RGT study and the pooled estimate of cure (n=186) was 95.2% (95%CI 91.1–97.4%). Analysis of selected macrolide resistance is underway but will not exceed 4.3% (95%CI 2.2–8.6%).

Conclusion Despite 15–20% quinolone resistance in Melbourne the sequential strategy of doxycycline-moxifloxacin achieved unexpectedly high cure (92%), and did not differ to doxycycline-sitafloxacin, a more effective quinolone, suggesting preceding doxycycline may improve cure through reducing pre-treatment load. Doxycycline followed by azithromycin for susceptible infections consistently achieves 95% cure and low levels of selected resistance (<5%).

Disclosure No significant relationships.

006.4 EFFICACY AND COST-EFFECTIVENESS OF QHPV VACCINE WITH IMIQUIMOD OR PODOPHYLLOTOXIN FOR PATIENTS WITH ANOGENITAL WARTS (HIPVAC)

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10.1136/sextrans-2019-sti.137

Background The comparative efficacy, and cost-effectiveness, of imiquimod (IMI) or podophyllotoxin (PDX) cream, either alone or in combination with the quadrivalent HPV vaccine (Gardasil®, Merck) in the treatment and prevention of recurrence of anogenital warts is unknown.

Methods A randomised, controlled, multi-centre, partially-blinded factorial trial with an economic evaluation. Participants had new or recurrent warts; not treated within 3 months; no qHPV-vaccination. Randomisation, stratified by gender,

previous warts, HIV status to IMIQ 5% (16W), or PDX 0.15% cream (4W, extended to 16W if warts persist). Simultaneous blinded randomisation to Gardasil® or saline control (0–6 months). Composite primary outcome of wart clearance at 16W and remaining clear to 48W; analysis by logistic regression with multiple imputation for missing follow-up values. Economic evaluation considered the costs per quality-adjusted life year (QALY) for the National Health Service in England.

Results 503 participants enrolled; mean age 31 years; 66% male (20% of males MSM); 50% previous warts; 2% known HIV+. Adjusted OR (95%CI) for IMIQ relative to PDX 0.81 (0.54, 1.23); vaccine relative to placebo 1.46 (0.97, 2.20). aOR for primary outcome components (same comparators) of wart-free at W16 0.77 (0.52,1.14) and 1.30 (0.89,1.91) and remaining wart-free at 48W (in those wart-free at W16) 0.98 (0.54,1.78) and 1.39 (0.73,2.63) respectively. PDX without qHPV vaccine had the highest probability of being cost-effective across willingness-to-pay thresholds of GBP0–50,000/QALY. Adding qHPV vaccine to PDX exceeded GBP80,000/QALY.

Conclusion Though the effect of vaccine was not statistically significant, the odds of clearance at 16W+48W (primary outcome) were 46% higher with vaccine, consistent with the effects seen in component outcomes, wart-free at 16W, and 48W. IMIQ and PDX had similar efficacy; there was no evidence of a lower recurrence with IMIQ. PDX without qHPV vaccine is likely most cost-effective at the current qHPV price, but addition of qHPV may become cost-effective with reduced pricing.

Disclosure No significant relationships.

006.5 DO TREATMENT RATES SUFFER IN A LOW-TOUCH SCREENING MODEL? NEW YORK CITY SEXUAL HEALTH CLINICS, 2017–2018

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Background Low-touch (i.e. limited staff interaction) models for asymptomatic STI screening have been widely adopted in sexual health clinics (SHCs) and can improve clinic flow and patients' experience. In New York City SHCs, asymptomatic patients who do not report contact to STI screen for urogenital and extragenital bacterial STI using self-collected specimens without a medical encounter. We evaluated treatment rates for *Neisseria gonorrhoea* (GC) cases detected by this low-touch, self-screening model.

Methods We identified men-who-have-sex-with-men (MSM) who tested GC-positive by urogenital or extragenital nucleic acid amplification testing at any visit type (self-screening or standard clinician) during 01/2017–06/2018. Among GC cases that had not been presumptively treated, we assessed the number and percent of asymptomatic cases that returned for

treatment within 30 days, and HIV pre-exposure prophylaxis (PrEP) use. We used Kaplan-Meier methods to examine time-to-treatment by visit type.

Results Of 3,944 GC cases, 2,268 were presumptively treated and 1,676 needed to return for treatment. Among returning patients, median time-to-treatment was 6 days (IQR: 4–8). Cases detected at self-screening visits had shorter time-to-treatment than those detected at standard visits ($p=0.008$). Among GC cases detected at self-screening visits, 85% (454/534) were treated ≤ 14 days, and 90% (480/534) ≤ 30 days, compared to 80% (917/1,142) of standard cases treated ≤ 14 days, and 87% (991/1,142) ≤ 30 days after the visit. HIV-negative men with rectal GC had shorter time-to-treatment following self-screening versus standard visits ($p=0.007$), and fewer remained untreated by 30 days (self-screening: 7% versus standard: 13%; $p=0.02$). Of 76 HIV-negative men with rectal GC who were lost to follow-up, 22 (29%) were documented to be taking HIV PrEP at time of testing/screening.

Conclusion Among HIV-negative MSM with rectal GC, a group for whom delayed treatment may increase risk for HIV acquisition, a low-touch/self-screening model results in overall treatment rates and times-to-treatment that compare favorably to a standard clinician model.

Disclosure No significant relationships.

006.6 REDUCTION IN ADHERENCE TO ANTIRETROVIRAL THERAPY DURING POSTPARTUM: FINDINGS FROM A PROSPECTIVE COHORT STUDY

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10.1136/sextrans-2019-sti.139

Background The WHO recommended breastfeeding as the best feeding option for women with HIV in sub-Saharan Africa. Adherence to antiretroviral therapy is important for breastfeeding mothers to prevent vertical transmission of HIV. There is evidence that pregnancy tends to drive adherence of antiretroviral therapy among women living with HIV, however it is unclear whether they maintain the level of adherence at pregnancy during the postpartum period. This study assesses the rate of drop-off in adherence in the post-partum period from the prospective cohort study of mother-infant pairs in Eastern Cape, South Africa.

Methods We conducted a follow up study on 485 mothers with HIV at 18 months post delivery to elucidate on their adherence to ART during their postpartum period. We obtained relevant items on demographic, lifestyle and self-reported adherence to ART. Adherence was measured using 7-items questions to probe adherence to ART since birth of their child to the previous night of the survey. Logistic regression (model) analysis was fitted to determine the predictors of good adherence in the cohort.

Results The mean age of the participants was 32.91 years (Standard Deviation 5.74). About 64% of the women reported complete adherence to ART representing a 5% percentage drop-off in adherence compared to the rate recorded during pregnancy. In the adjusted model, alcohol use in the last 12

months [AOR:2.36; CI:1.57–3.55], younger age [AOR:3.32, CI:1.45–7.63], cohabiting marital status [AOR:2.71, CI:1.10–6.72], not knowing partners' status [AOR:2.11, CI: 1.28–3.48], unemployed [AOR:1.70; CI:1.09–2.68] were associated with a higher likelihood of non-adherence to ART.

Conclusion Drop-off in the postpartum adherence are linked to lifestyle behaviours in the study setting. Targeted screening of these lifestyle behaviours among reproductive age women for intervention would be crucial to prevention of breastfeeding and partner transmission of HIV.

Disclosure No significant relationships.

007 – BUGS, BEHAVIOUR AND BEYOND: NEW CHALLENGES FOR STI CONTROL AMONG GAY, BISEXUAL AND OTHER MEN WHO HAVE SEX WITH MEN

Monday, July 15, 2019 4:15 PM – 5:45 PM

007.1 MULTIPLE LINEAGES OF MULTIRESTANT *SHIGELLA* IN AUSTRALIA

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Background In developed countries, the burden of shigellosis is either in returning travellers, or in men who have sex with men (MSM). Here, we combine genomic data with comprehensive epidemiological data on sexual exposure and travel to describe the spread of multidrug-resistant *Shigella* lineages in an urban centre in Australia.

Methods We undertook a population-level study of all cultured *Shigella* isolates in the state of Victoria, Australia between 1 January 2016 through to 31 December 2018. Antimicrobial susceptibility testing, whole genome sequencing (WGS) and bioinformatic analysis of 610 *Shigella* isolates was performed on all isolates, and long-read sequencing was performed on representative isolates. Risk factor data on travel and sexual exposure were collected through enhanced surveillance forms or by interview.

Results Rates of antimicrobial resistance were high in both *S. sonnei* and *S. flexneri*, particularly to ciprofloxacin and azithromycin. There were strong associations between antimicrobial resistance, phylogeny and epidemiology; specifically, two major MSM-associated lineages were identified, a *S. sonnei* lineage and a *S. flexneri* 2a lineage. Of concern, the majority of isolates within the *S. sonnei* MSM-associated lineage harboured mutations associated with reduced susceptibility to recommended oral antimicrobials, namely ciprofloxacin, trimethoprim-sulfamethoxazole and azithromycin. Long-read sequencing demonstrated global dissemination of multidrug-resistant plasmids across *Shigella* species and lineage, but

predominantly associated with MSM isolates. A global analysis demonstrated the presence of these plasmids in *Shigella* from both Europe and South-East Asia.

Conclusion Our contemporary data highlight the ongoing public health threat posed by multidrug-resistant *Shigella*, both in Australia and globally, and further highlights the 'collateral damage' caused by azithromycin. Urgent multidisciplinary public health measures are required to interrupt transmission and prevent infection.

Disclosure No significant relationships.

007.2 USE OF WHOLE-GENOME SEQUENCING TO IDENTIFY SEXUAL TRANSMISSION OF *SHIGELLA* IN MEN WHO HAVE SEX WITH MEN IN ENGLAND

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10.1136/sextrans-2019-sti.141

Background In 2015, routine whole-genome sequencing (WGS) of *Shigella* spp. was introduced by Public Health England (PHE) to identify transmission clusters, but limited behavioural information hampers interpretation. We investigated whether WGS can distinguish between clusters of sexual transmission among men who have sex with men (MSM) and other modes of transmission.

Methods WGS data for non-*sonnei* *Shigella* were sorted into clusters based on single nucleotide polymorphism (SNP) typing at various SNP distances (standard is 10-SNPs). Clusters were defined as 'household', 'travel-associated', 'community' or 'adult male' using data submitted with laboratory isolates (age, gender and foreign travel). PHE contacted cases to pilot a new exposure questionnaire, including information on sexual behaviour, from July 2015-March 2017. Questionnaire data were used to validate whether 'adult male' clusters represented likely sexual transmission between men.

Results 201 isolates had questionnaire and linked WGS data, of which 106 clustered with at least one other isolate (10-SNPs). 95.1% (77/81) of self-reported MSM belonged to an 'adult male' cluster and 4.9% (4/81) to a 'community' cluster; most (74.1%; 60/81) reported recent same-sex sexual contact. 70.6% (12/17) of non-MSM belonged to a 'community' cluster, 23.5% (4/17) to an 'adult male' cluster and 5.9% (1/17) to a 'travel-associated' cluster. 73.2% (71/97) of all MSM isolates belonged to the same phylogenetic lineage; for which 10-SNP clustering identified multiple discrete clusters (7 'adult male'; 2 'community') suggesting they should be re-classified as a single 'adult male' cluster. Genetic markers of azithromycin resistance were detected in 84.7% (304/359) of 'adult male' and 20.5% (9/44) of other clusters.

Conclusion Our study suggests that SNP clustering can be used to identify *Shigella* transmission in MSM with high precision to inform infection control. Defining clusters requires a flexible approach in terms of genetic relatedness to avoid misclassification or unnecessary follow-up of clusters that may belong to the same transmission network.

Disclosure No significant relationships.

007.3 SEXUALLY TRANSMISSIBLE ENTERIC INFECTIONS IN MEN WHO HAVE SEX WITH MEN: PRELIMINARY FINDINGS FROM A CROSS-SECTIONAL STUDY

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10.1136/sextrans-2019-sti.142

Background Increasing rates of sexually transmissible enteric infections (STEs) in men who have sex with men (MSM), often associated with antimicrobial resistance, are a growing public health concern. There is a need to better understand the characteristics and burden of STEs to improve control measures.

Methods We conducted a cross-sectional study at a large London sexual health clinic (SHC) from December 2017 to February 2018. Residual rectal swabs collected from consecutive MSM attending for routine chlamydia/gonorrhoea testing (80% from asymptomatic screening), were anonymously tested for *Shigella*, *Campylobacter*, *Salmonella* and *Escherichia coli* by PCR. We generated STEI prevalence estimates and explored factors associated with STEs using linked socio-demographic, behavioural and clinical data from electronic health records.

Results Of 2,138 specimens tested, overall STEI prevalence was 9.9% (95% CI: 8.6%-11.2%), ranging from 0.7% (95% CI: 0.4%-1.2%) for *Shigella* to 5.0% (95% CI: 4.1%-6.0%) for enteroaggregative *E. coli*. *Salmonella* was not detected. MSM with an STEI-positive specimen were more likely to be co-infected with gonorrhoea (23.7% vs 16.2%, $p=0.006$), to have a previous bacterial STI diagnosis (past year) (48.3% vs 37.4%, $p<0.002$), to report an 'interest in high-risk sexual behaviours' (e.g. Chemsex) (47.9% vs 38.7%, $p=0.02$), to report higher partner numbers (past 3 months) (median 6 vs 4, $p<0.001$), and among HIV-negative MSM, to report current use of HIV pre-exposure prophylaxis (PrEP) (54.7% vs 35.6%, $p<0.001$). Rectal or gastrointestinal symptoms were reported by 1.9% (39/2,098) of MSM, and this was not associated with overall STEI test result.

Conclusion Nearly one in ten MSM attending a London SHC had a rectal STEI detected. The association with higher-risk sexual behaviour and STIs strengthens the evidence that these pathogens are sexually transmitted. STEIs might be widely underdiagnosed in MSM and sub-clinical infection may support sustained transmission, suggesting the need for well-considered clinical and public health responses.

Disclosure No significant relationships.

007.4 INCIDENCE OF SEXUAL BEHAVIORS AND RELATIONSHIP TO THE URETHRAL MICROBIOTA AMONG MEN WHO HAVE SEX WITH MEN (MSM) IN SEATTLE

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10.1136/sextrans-2019-sti.143

Background Studies suggest that sexual behavior influences the composition of the male urethral microbiota, but this hypothesis has not been tested.

Methods From 12/2014–5/2018, we enrolled MSM with NGU attending an STD clinic into a cohort study. Men attended five in-clinic visits at 3-week intervals, collected weekly urine specimens at home, and reported daily antibiotics and sex on weekly diaries. We applied broad-range 16S rRNA gene PCR with deep sequencing to urine. We estimated incidence of insertive oral sex (IOS) only, condomless insertive anal intercourse (CIAI) only, and IOS with CIAI (IOS+CIAI) after NGU diagnosis using Poisson regression with robust standard errors. We estimated the association between urethral sexual exposures (referent group=none) in seven 3-day time windows before specimen collection and Shannon Index (diversity) and log₁₀ number of bacterial species (richness) using generalized estimating equations, adjusting for recent antibiotics, age, race/ethnicity, HIV status, and PrEP use. For each exposure category, we tested whether all seven window coefficients were equal to zero (i.e., no overall association) using a Wald test.

Results Among 92 MSM with NGU, median age was 31 (interquartile range [IQR]=28–40); 55% were non-Hispanic white. They contributed 1,095 person-weeks of behavioral data (median=12 diaries/man, IQR=12–13). Incidence of any sex, IOS only, CIAI only, and IOS+CIAI were 1.07 (95% confidence interval [CI]=0.93–1.24), 0.40 (95%CI=0.32–0.49), 0.10 (95%CI=0.07–0.15), and 0.40 (95%CI=0.30–0.52) episodes per person-week, respectively. Among 894 urine specimens (median=10 specimens/man, IQR=8–12), median diversity was 1.33 (IQR=0.76–1.99), and median richness was 14 species (IQR=9–23). Overall, CIAI only ($P<0.01$ in each model) but not IOS only or IOS+CIAI in the prior 21 days was associated with diversity and log₁₀-richness. Diversity and log₁₀-richness were lower 1–3 days after and higher 16–18 days after CIAI only.

Conclusion Among MSM after NGU, CIAI only in the prior 21 days was independently associated with diversity and richness of the urethral microbiota.

Disclosure No significant relationships.

007.5 THE INDEX CASE'S PARTNERSHIP STATUS IS IMPORTANT IN PREDICTING THE LIKELIHOOD OF PERSISTENCE OF INTRODUCED XDR NG AMONG MSM

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10.1136/sextrans-2019-sti.144

Background Extensively drug resistant (XDR) *Neisseria gonorrhoeae* (NG) strains have recently been isolated in the UK and Australia. We use a mathematical model to assess the importance of the index cases' partnership status in predicting the probability that an introduced XDR NG strain will persist in a population of men who have sex with men (MSM).

Methods We developed an individual-based, anatomical site-specific model of NG transmission in an urban MSM population in Australia. We assume an XDR NG strain is introduced into a population where treatment-sensitive NG is already endemic. We define the index case as the individual initially infected with an introduced XDR NG strain, and their partnership preferences as seeking regular partnerships only, seeking casual partnerships only, or unrestricted. We ran around 1000 simulations for each preference in relation to the index case and recorded the length of time XDR NG persists in the population.

Results In simulations where index cases only have regular partners, XDR NG persists for more than 0.5 years in 37% of simulations. In simulations where index cases only have casual partners, XDR NG persists for more than 0.5 years in 33% of simulations, and in 95% of these the index cases had 5+ casual partners in the past 6 months. In simulations where the index cases have both regular and casual partners, XDR NG persists for more than 0.5 years in 50% of simulations, and in 86% of these the index cases had 5+ casual partners in the past 6 months.

Conclusion Our modelling suggests that an introduced XDR NG is more likely to persist if the index case has a regular partner and is likely to have frequent casual partnerships. These results emphasise the need to identify and treat such individuals and their partners to prevent the initial spread of XDR NG.

Disclosure No significant relationships.

007.6 A RCT TO FACILITATE PSYCHOSOCIAL CARE AMONG HIGH RISK MSM IN AMSTERDAM, A SYNDemic BASED INTERVENTION (SYN.BAS.IN STUDY)

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10.1136/sextrans-2019-sti.145

Background Men who have sex with men (MSM) constitute a risk group for sexual transmitted infections (STI). Syndemic theory holds that psychosocial problems often co-occur, interact and mutually reinforce each other, thereby increasing risk behavior. We studied the prevalence of psychosocial problems and whether raising awareness of these psychosocial problems increases help seeking behavior.

Methods An open-label randomized controlled trial was conducted among MSM with high risk behavior recruited from the STI clinic of Amsterdam (NCT02859935). Inclusion criteria were: either two STI or PEP treatment for HIV negative MSM or one STI for HIV positive MSM in the last 24 months. The following syndemic domains were explored: alcohol, drugs and sex addiction (AUDIT, DUDIT, SCS), anxiety disorder (HADS), depression (HADS), childhood sexual abuse and partner violence. Participants received trimonthly standard STI care for one year. Additionally, the intervention group received face-to-face feedback on syndemic questionnaires.

Results Between September 2016 and August 2017 155 MSM were included. Median age was 43 (IQR [34–51]), and 103/155 (66%) were HIV positive. At baseline, 37/155 (24%) tested positive for chlamydia, gonorrhoea or syphilis, 1/52 (2%) for HIV, 138/148 (93%) reported using drugs during sex in the preceding 3 months, and 51/155 (33%) self-reported help seeking behavior. In total, 114/155 (75%) scored positive for at least 1 questionnaire: 47/154 (31%) for alcohol use disorder, 76/154 (49%) for drug use disorder, 28/154 (18%) for sexual compulsivity, 47/154 (30%) for anxiety disorder, 26/154 (17%) for depression, 17/154 (11%) for sexual abuse and 12/154 (8%) for partner violence. Between the intervention and control group, we found no significant difference in self-reported help seeking behavior (35% vs 24% $p=0.168$), or in number of partners (13 IQR [5.5–30] vs 8.5 IQR [5–15] respectively, $p=0.128$).

Conclusion Psychosocial and addiction related problems are alarmingly high in high risk MSM, and a syndemic approach seems necessary. Preliminary results indicate that our intervention did not increase self-reported help seeking behavior. Data collection on confirmed help seeking is ongoing.

Disclosure No significant relationships.

008 – GETTING REAL WITH IMPLEMENTING PREP 1: GAY, BISEXUAL AND OTHER MEN WHO HAVE SEX WITH MEN

Tuesday, July 16, 2019
10:45 AM – 12:15 PM

008.1 PRE-EXPOSURE PROPHYLAXIS IN BRAZIL: OPPORTUNITIES AND CHALLENGES FOR MEN WHO HAVE SEX WITH MEN, BRAZIL, 2018

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10.1136/sextrans-2019-sti.146

Background In Brazil Pre-exposure prophylaxis (PrEP) free-of-charge at the public health system has gained a central role in combination prevention of HIV infection. PrEP is recommended for HIV prevention for most at-risk MSM by the Public Health System (SUS). The aim of this study is to report the profile and characteristics of MSM using PrEP.

Methods Programmatic PrEP data from three forms for PrEP monitoring were analyzed for this study: First Service Record, First Return Record, and Clinical Monitoring Record, as well as the sociodemographic data collected from PrEP user

registration from the Medicine Logistic Control System (Siclom), collected from January 1st to October 31st, 2018.

Results Out of the 5,559 PrEP users in October 2018, 82% (4,535) were MSM. A similar distribution pattern is noted in most all cities of Brazil where PrEP is implemented, having MSM as the majority of users. 19% were between 18 to 29 yo and 37% were 30 to 39 yo. Approximately 59% self declared themselves as white and 41% as black. Considering education, 84% of the MSM have at least 12 years of study. Regarding sexual practices, 47% reported a decrease in the number of partnerships and 24% reported an increase in condom use.

Conclusion Free-of-charge PrEP in public health system can reach a large number of MSM, but access also needs to be equitable considering intersectional risk factors. Our analyses suggest the need to invest for community-based led strategies to increase the reach of PrEP among younger, black and less educated MSM.

Disclosure No significant relationships.

008.2 SEXUAL BEHAVIOUR, RISK AND SEXUALLY TRANSMITTED INFECTIONS BEFORE AND AFTER THE INTRODUCTION OF THE PREP IMPACT TRIAL

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10.1136/sextrans-2019-sti.147

Background There is currently considerable interest the complex relationship between PrEP and STI incidence. Our Challenges and Opportunities of PrEP (CHOP) study uses qualitative and quantitative methods to ascertain the changes in behaviour and STI rates in high risk men/transgender/nonbinary persons who have sex with men (MSM/TPSM) before and after commencement of the PrEP Impact trial ('Impact') in our clinic (01/12/2017).

Methods We performed retrospective data analysis of clinic and laboratory records for MSM/TPSM attendees who attended a British sexual health clinic in a large urban area between 01/12/2016 and 28/02/2019.

We used logistic regression to compare STI diagnoses (chlamydia, gonorrhoea and syphilis at any site) and sexual risk score in two time periods (1: 01/12/2016 – 31/11/17 and 2: 01/12/2017 to 28/02/2019).

Results Of 72,667 attendances, 10,918 were MSM/TPSM and, excluding duplicate entries (164) and those who were already HIV positive (236), this left 3,407 individuals with 10,518 attendances: 4,378 (period 1) and 6,140 (period 2).

Mean HIV acquisition risk score at first visit in period 1 was 5.8 and 5.4 in period 2.

In period 1 at first visit 13.5% (266/1,975) had one or more STI compared with 20.2% (289/1143) in period 2, a rise of 6.7%. Logistic regression showed OR1.6 ($p < 0.001$, 95%CI 1.35–1.95).

STI diagnoses for subsequent visits in period 1, 6.3% (151/2403) attendances had one or more STIs diagnosed, and in period 2 10.9% (513/4708). This is a rise of 4.6% (OR 1.8 ($p < 0.001$ 95%CI 1.51–2.20)).

Conclusion Although risk score was similar during both time periods, STI rates were significantly higher both at first visit and at subsequent visits. The qualitative aspect of this study will explore whether this reflects attracting more high risk MSM/TPSM into the service or whether use of PrEP increases risk-taking behaviour.

Disclosure No significant relationships.

008.3 RATES OF CHLAMYDIA AND GONORRHEA TESTING AND POSITIVITY BEFORE AND AFTER INITIATION OF PREP AMONG MSM IN US PRIVATE SETTINGS

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10.1136/sextrans-2019-sti.148

Background The Centers for Disease Control and Prevention (CDC) recommends initial and follow-up STD and HIV testing when taking HIV pre-exposure prophylaxis (PrEP). We assessed frequencies of STD and HIV testing and rates of STDs among men who have sex with men (MSM) taking PrEP.

Methods We used the OptumLabs® Data Warehouse (OLDW) a comprehensive, longitudinal, real-world data asset with de-identified people from a national U.S. insurance plan. Male patients aged ≥ 18 years were identified as MSM if patients had rectal chlamydia or gonorrhoea tests or had an ICD-10 code for high-risk homosexual or bisexual behavior in 2016–2017. Initiation of PrEP was defined as the first date of tenofovir plus emtricitabine (Truvada) prescription in 2016–2017 if they had no previous HIV or HBV infection and had no PrEP prescription before 2016. Continuous use of PrEP was defined if there were no 14 day gaps between prescriptions. We measured STD and HIV testing in MSM who continuously used PrEP for ≥ 180 days.

Results Of 682 MSM who initiated PrEP in 2016–2017 and continuously used PrEP for ≥ 180 days, chlamydia, gonorrhoea, and HIV testing was 61.4%, 61.4%, and 51.3%, respectively, at 6 month follow-up. These percentages were significantly lower than testing in the same patients at PrEP initiation (67.6%, 67.6%, and 57.2%, respectively, $p < 0.01$). Chlamydia and gonorrhoea positivity in MSM who were tested at 6 month follow-up was 10.0% and 9.5%, respectively, versus 6.1% and 6.7%, respectively, at PrEP initiation.

Conclusion MSM on PrEP are at high risk for chlamydia and gonorrhoea. STD testing at 6 month follow-up for MSM who are continuously enrolled on PrEP is sub-optimal, but that STD positivity increases versus the baseline, suggesting elevated risk. Interventions to improve provider adherence to screening recommendations in the CDC STD treatment guidelines for MSM on PrEP are urgently needed.

Disclosure No significant relationships.

008.4 INFLUENCE OF HIV-STATUS AND PREP USE ON HIGH STI PREVALENCES IN MSM IN GERMANY, 2018

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10.1136/sextrans-2019-sti.149

Background HIV-positive (HIV+) MSM often show higher STI-prevalence than HIV-negative MSM (HIV-). Approval of HIV pre-exposure prophylaxis (PrEP) in Germany might have influenced sexual behaviour and STI-prevalence of HIV- MSM. We estimated STI-prevalence and risk factors amongst HIV- and HIV+ MSM in Germany to plan effective interventions.

Methods We conducted a nationwide, cross-sectional study between February and July 2018. Thirteen MSM-friendly STI-clinics screened MSM for *Chlamydia trachomatis* (CT), *Mycoplasma genitalium* (MG), *Neisseria gonorrhoea* (NG), and *Trichomonas vaginalis* (TV) using self-collected rectal and pharyngeal swabs, and urine samples, and APTIMA[®] STI-assays. We oversampled HIV+ MSM. We collected information on sociodemographics, HIV-status, clinical symptoms, sexual behaviour within last 6 months, and PrEP-use. We combined HIV status and PrEP use for defining risk groups, and used multivariate logistic regression to identify risk factors for STI.

Results 2,303 MSM were included: 50.5% HIV+, median age 39 years. Median number of male sex partners was 5. 57.2% reported unprotected receptive anal intercourse (URAI), 43.0% use of party drugs. 78.9% had a STI history, 32.1% of STI+ MSM reported STI-related symptoms. 27.6% of HIV- MSM used PrEP. Overall STI-prevalence was 25.0% in HIV-/PrEP-MSM (CT:7.2%; MG:14.2%; NG:7.4%; TV:0%), 40.3% in HIV-/PrEP+ MSM (CT:13.8%; MG:19.4%; NG:14.9%; TV:0.4%), and 30.8% in HIV+ MSM (CT:10.1%; MG:18.4%; NG:8.6%; TV:0.1%). Independent risk factors were HIV/PrEP-status (HIV-/PrEP+ OR:1.4; 95%-CI:1.0–2.0; HIV+ OR:1.5; 95%-CI:1.1–1.9), >5 sex partners (OR:1.5; 95%-CI:1.2–1.9), URAI (OR:2.0; 95%-CI:1.5–2.6), and use of party drugs (OR:1.5; 95%-CI:1.2–2.0).

Conclusion We found a high STI-prevalence in MSM in Germany, especially in PrEP users, frequently being asymptomatic. Higher STI prevalence in PrEP users than in HIV+ MSM was partly explained by differences in risk behaviour. As a relevant proportion of PrEP users will not use a condom while using PrEP, counselling and comprehensive STI screening is essential. Counselling of PrEP users should address condom use and party drugs.

Disclosure No significant relationships.

008.5 TRENDS IN BACTERIAL STI INCIDENCE AND IMPACT OF PREP USE AMONG MSM ATTENDING WESTERN SYDNEY SEXUAL HEALTH CENTRE (2013–2018)

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10.1136/sextrans-2019-sti.150

Background Bacterial sexually transmitted infections (STI) are rising among men-who-have-sex-with-men (MSM) in many

urban settings. Western Sydney Sexual Health Centre (WSSHC) provides HIV/STI services for a culturally and linguistically diverse MSM population; many have commenced HIV pre-exposure prophylaxis (PrEP) since 2016. The study analyses changes in the incidence of chlamydia, gonorrhoea and syphilis among this MSM population around a period of transition to PrEP provision.

Methods Data were extracted from WSSHC's Specialised Health Information Program database for men providing anorectal/oropharyngeal samples for chlamydia/gonorrhoea testing during two time periods (2013–2015, 'pre-PrEP era'; 2016–2018, 'PrEP era'). Extracted variables included age at visit, country of birth, STI diagnosis date and site of chlamydia/gonorrhoea infection. Analyses used population-average panel-data models based on generalised estimation equations (5% cut-off level of error, $p=0.05$). Logistical regression analyses accounted for the number of clinic visits; a multivariate model adjusted for age group, year and PrEP use.

Results Data were extracted for 6,734 STI testing visits by 2,796 MSM. There were 1,121 (16.7%) gonorrhoea cases, 1,144 (17.0%) chlamydia cases and 257 syphilis cases (199 with early syphilis). Chlamydia (OR:1.08; 95%CI:1.04–1.13) and gonorrhoea incidence (OR:1.06; 95%CI:1.02–1.11) increased over time; syphilis incidence did not. There was no significant trend differences in bacterial STI incidence by country of birth. In multivariate analyses, the incidence of chlamydial and gonococcal cases was much higher among PrEP users: any chlamydial infection (aOR:2.35; 95%CI 1.96–2.81), anorectal chlamydia (aOR:2.60; 95%CI 1.93–3.52), any gonorrhoea (aOR:2.13; 95%CI 1.65–2.76), anorectal gonorrhoea (aOR:2.00; 95%CI 1.38–2.90). There were no significant differences in syphilis incidence between PrEP users and non-PrEP users.

Conclusion Incident chlamydial and gonococcal infections, but not syphilis, significantly increased over time in MSM attending WSSHC and PrEP use was the major determinant of these observations. Data analyses at clinic level are important for informing local health service planning and health promotion activities.

Disclosure No significant relationships.

008.6 FREQUENCY AND DETERMINANTS OF SWITCHING BETWEEN DAILY OR EVENT-DRIVEN PREP AND DISCONTINUING EACH REGIMEN IN AMSTERDAM MSM

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10.1136/sextrans-2019-sti.151

Background Optimizing HIV pre-exposure prophylaxis (PrEP) roll-out requires insight in dosing regimen preferences, frequency and determinants of regimen switches, and PrEP discontinuation. We assessed user-initiated switches and factors associated with switching or stopping daily (dPrEP) or event-driven (edPrEP) PrEP regimens among men who have sex with men (MSM) participating in a PrEP demonstration project in Amsterdam.

Methods At enrolment, participants could choose either dPrEP or edPrEP. Participants were able to switch regimens at each quarterly study visit. We evaluated transition intensities (TI) and (time-varying) factors associated with switching (i) between

edPrEP and dPrEP and (ii) from either PrEP regimen to discontinuing PrEP, using a continuous-time, multi-state Markov model.

Results Of 367 enrolled participants with follow-up, 73.3% chose dPrEP and 26.7% edPrEP at enrolment. During a median follow-up of 2.6 years (IQR=2.4–2.7), 114 (cumulative proportion=36.5%) switched their PrEP regimen at least once. In total, 85 switches from edPrEP to dPrEP (TI=0.41, 95%CI=0.33–0.50) and 98 from dPrEP to edPrEP (TI=0.17, 95%CI=0.14–0.20) occurred, with transitions from edPrEP to dPrEP 2.43-times more likely (95%CI=1.84–3.22) than *vice versa*. In multi-variable analysis, switching from edPrEP to dPrEP was associated with lower age, higher number of sex acts with casual partners, chemsex and living alone, whereas switching from dPrEP to edPrEP was associated with lower age, lower number of casual partners, higher number of sex acts with casual partners and lower score on the New Sexual Satisfaction Scale. A total of 61 individuals discontinued PrEP, with no difference from which regimen: edPrEP (n=22, TI=0.10, 95%CI=0.06–0.15) and dPrEP (n=39, TI=0.06, 95%CI=0.04–0.08). PrEP discontinuation was only associated with lower age (from dPrEP).

Conclusion Switching between PrEP regimens is common and more frequent among younger MSM and MSM with higher number of sex acts, who may benefit from client-centered counseling. Rates of PrEP discontinuation are low and are linked to younger age.

Disclosure No significant relationships.

009 – EPIDEMIOLOGY AND SURVEILLANCE TO INFORM PRACTICE AND POLICY

Tuesday, July 16, 2019

10:45 AM – 12:15 PM

009.1 THE NETHERLANDS CHLAMYDIA COHORT STUDY: PREGNANCIES IN WOMEN WITH AND WITHOUT A PREVIOUS CHLAMYDIA INFECTION

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10.1136/sextrans-2019-sti.152

Background Studies have shown an association between *Chlamydia trachomatis* infection (chlamydia) and an increased risk for tubal factor infertility (TFI) in women. To assess if this association also result in fewer pregnancies, we aimed to investigate the proportion of pregnancies in women with and without a previous chlamydia infection in women participating in the Netherlands Chlamydia Cohort Study (NECCST).

Methods NECCST is a cohort of 5704 women of reproductive age all tested for chlamydia by PCR in a chlamydia screening study between 2008–11. Women were re-invited for NECCST in 2015–16. Chlamydia-status (positive/negative) was defined using results from the screening, chlamydia IgG presence in serum and/or self-reported chlamydia infections. Data on pregnancies was collected via questionnaires in 2015–16 and 2017–18. Pregnancies, intended and unintended, were

compared between chlamydia positive and chlamydia negative women who ever tried to become pregnant using logistic regression analyses.

Results Of 5704 women enrolled, 1717 (30.1%) were chlamydia positive and 3146 (55.2%) tried to become pregnant or had been pregnant at least once. In preliminary results, of those 3146 women, 980 (31.2%) were CT positive and 2166 (68.8%) were CT negative. Of CT positive women, 90% (n=882) got pregnant compared to 91% (n=1973) of CT negative women, p=0.329. Excluding unintended pregnancies, CT positive women got pregnant less often (82% versus 89%, p<0.001) and aOR 0.56 (95%CI 0.42–0.74, p<0.001) corrected for age.

Conclusion The proportion of women who were ever pregnant did not differ between chlamydia positive and negative women. However, an intended pregnancy was less common in women with a previous chlamydia infection.

Disclosure No significant relationships.

009.2 DECLINES IN CHLAMYDIA-ASSOCIATED PID AT SSHS IN ENGLAND SINCE 2007: WHAT MIGHT THIS TELL US ABOUT CHLAMYDIA CONTROL?

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10.1136/sextrans-2019-sti.153

Background In 1998 the United Kingdom Chief Medical Officer recommended action to reduce the prevalence and morbidity associated with chlamydial infection. The introduction of NAAT testing from 2003 and the roll-out of the National Chlamydia Screening Programme (NCSP) in England from 2004 to 2008 (all regions participating) resulted in large increases in chlamydia screening and diagnoses: 2.3 million tests were reported in 2010 among 15 to 24 year-olds, equivalent to 44% of women and 24% of men in this age group. We investigated rates of diagnoses of pelvic inflammatory disease (PID) in women attending specialist sexual health services (SSHS) since 2007.

Methods Data were extracted from the GUMCAD surveillance system from 2007–2017. To explore the effect of changes in access to SSHS over this time, total number of attendances were also extracted and changes in PID diagnoses were compared to those of a symptomatic clinical presentation with no active control programme, vaginosis/vaginitis (bacterial vaginosis, candidiasis, trichomoniasis).

Results Between 2007 and 2017 PID diagnoses decreased by 18%. Chlamydia-associated-PID (CT-PID) diagnoses decreased by 46%, and the% of PIDs associated with CT fell from 14.7% (~2,400) to 9.7% (~1,300). GC-associated-PID increased 34% (to ~300). Decreases were greater in under 25s and in years up to 2011/12. Attendances by women under 25 increased over this time, and there was a 6% increase in diagnoses of vaginitis/vaginosis, with CT-PID decreasing by 49% relative to vaginitis/vaginosis.

Conclusion There has been a marked decline in diagnoses of CT-PID, and all PID, at SSHS subsequent to the introduction of wide-spread chlamydia screening. This has occurred despite an increase in attendances at SSHS and access for symptomatic women (vaginosis/vaginitis). Further work will explore trends by region and in general practice, and will determine whether CT-PID rates might be a metric for the success of chlamydia control.

Disclosure No significant relationships.

009.3 POTENTIAL *NEISSERIA GONORRHOEAE* OUTBREAK IN HETEROSEXUALS YOUNGER THAN 25 REVEALED THREE CLUSTERS BY CULTURE-FREE GENOTYPING

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10.1136/sextrans-2019-sti.154

Background Surveillance of *Neisseria gonorrhoeae* (NG) is important to monitor antimicrobial resistance and detect outbreaks but is limited by the low NG culture success rate. Recently, we developed a culture-free NG multi-antigen sequence typing (NG-MAST) method. In 2018, an increase of 155% of genital NG cases in heterosexual men and women younger than 25 was observed in South Limburg, the Netherlands. We investigated the genetic relatedness of the NG strains with culture-free NG-MAST to characterize the 2018 increase and compared this with NG cases of heterosexual men and women younger than 25 in 2016 and 2017.

Methods Residual routine nucleic acid amplification test diagnostic sample material was retrieved for 53/56 NG cases in 2018 (13 male urine and 40 vaginal swabs) and 36/38 control cases in 2016–2017 (13 male urine and 23 vaginal swabs). Total DNA was isolated and NG was genotyped using the culture-free NG-MAST protocol. Sanger sequence data was used to construct a phylogenetic tree.

Results A total of 48/53 cases were genotyped of the 2018 increase, two failed and three samples showed a potentially mixed strain infection. We identified three clusters of closely related NG strains, a novel sequence type (n=15), G2 (n=14) and G13113 (n=10) respectively. No large clusters (n<5 cases) were observed in 2016 and 2017 cases and hardly any overlap with 2018 cases. Half of the samples (26/53) were subjected to culture as part of routine procedures and 11/26 were culture positive. Therefore, only 4/39 samples of the three clusters could have been characterized with culture-dependent methods.

Conclusion We observed a potential NG outbreak in South Limburg using culture-free NG-MAST and identified three clusters of closely related strains. Using current culture-dependent surveillance methods we would not have identified the three clusters to enable intervention assessment.

Disclosure No significant relationships.

009.4 HIV AND HCV AMONG CLIENTS OF FEMALE SEX WORKERS IN DNIPRO, UKRAINE

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10.1136/sextrans-2019-sti.155

Background Ukraine has the highest HIV and HCV rates in Europe. Initially driven by unsafe injection use, more recent studies have documented the ongoing transmission of HIV via unprotected sex work. This paper describes the profile of clients of female sex workers (FSWs) in eastern Ukraine and their HIV and HCV prevalence and risk factors.

Methods We conducted a cross-sectional bio-behavioural survey of clients of FSWS recruited from sex worker hotspots in Dnipro, Ukraine. Inclusion criteria was men aged 18 and older who purchased sex services from a FSW (N = 370). The prevalence of HIV and HCV among clients was determined by serology from dried blood spots. Descriptive statistics of socio-demographic and sexual behavior are presented with univariate analysis for association.

Results The median age of clients was 32 (IQR 27–38) and the median age at first purchase of sex was 22 (IQR 19–27). Thirty-three percent of respondents were living with a regular sex partner. The mean number of sex services purchased in the past 6 months was 4.85 (SD 3.50), from 4.11 (SD 2.95) different FSWS. A mean of 2.1 hotspots were visited in the past 12 months (SD 1.6). Fourteen (3.8%) respondents reported ever injecting drugs. Two hundred and eight (56.2%) clients had ever tested for HIV. HIV and HCV prevalence was 2.4% (9) and 6.5% (24) respectively, yet only 33% (3/9) of people living with HIV reported knowing their status. Binge drinking was associated with both HIV and HCV prevalence; 8.2% of widowed/divorced respondents tested positive for HIV (p=0.003).

Conclusion The HIV prevalence among clients is almost three times the general population in Ukraine. Further, the frequency of sex work visits and the high number of sex workers visited, suggests a diffuse network with potential for wide transmission of HIV and HCV.

Disclosure No significant relationships.

009.5 HEPATITIS C INCIDENCE RATE AMONG PEOPLE WHO INJECT DRUG (PWID) IN BRITISH COLUMBIA FROM 2000 TO 2015

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10.1136/sextrans-2019-sti.156

Background Global Health Sector Strategy on Viral Hepatitis aims to reduce new hepatitis C virus (HCV) infections by 80% by 2030. However, countries lack systems to monitor incidence of HCV. We estimated the HCV incidence over time among people who inject drugs (PWID) at population level to provide proof of concept for incidence monitoring.

Methods This study utilized data from the BC Hepatitis Testers Cohort (BC-HTC). Incidence was defined as a positive anti-HCV, RNA, or genotype test following a negative anti-HCV test among PWID, assessed based on a previously validated algorithm using administrative data. Annual incidence rates for HCV primary infection from 2000 to 2015 were estimated using a log-binomial regression model and were stratified by birth cohorts (<1965, 1965–1974, >1974) to observe change in risk over time. Adjusted incidence rates (aIR) were calculated controlling for risk factors.

Results Of the 42,568 participants identified, 4,066 HCV seroconversions occurred over 318,613 person-years (PY) of follow-up. The overall incidence rate was 1.28/100PY. Between 2000 and 2011, the annual aIR decreased steadily from 4.01 to 1.00/100PY. The aIR then rose to 1.49/100PY in 2015. Factors associated with elevated risk of infection include: younger birth cohort (1965–1974: RR:1.9, 95%CI: 1.02,3.6), history of illicit opioid use (RR:2.5, 95%CI: 2.3,2.7), stimulant misuse (RR:1.77, 95%CI: 1.7,1.9), HIV coinfection (RR:3.6, 95%CI: 3.1,4.1), HBV coinfection (RR:1.9, 95%CI: 1.6,2.2), material deprivation (RR:1.5, 95%CI: 1.4,1.7) and social deprivation (RR:1.6, 95%CI: 1.4,1.8).

Conclusion A slight increase in HCV incidence rate since 2011 was mainly driven by the younger birth cohort and introduction of enhanced testing in 2010. People with HIV or HBV coinfection, opioid and stimulant misuse, social and material deprivation are at higher risk of HCV infection. HCV treatment and prevention programs need to address comorbidities and include harm reduction strategies like opioid substitution therapy and access to social services to achieve HCV elimination goals.

Disclosure No significant relationships.

009.6 DEVELOPMENT OF AN INTEGRATED DATA MART FOR SURVEILLANCE OF SEXUALLY TRANSMITTED AND BLOODBORNE INFECTIONS (STIBBI)

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10.1136/sextrans-2019-sti.157

Background Routine surveillance for sexually transmitted and bloodborne infections (STIBBI) are generally based on case reports. Additional data sources are needed to understand STIBBI syndemics, such co-infections, testing patterns, and timing of infections. We developed a STIBBI Data Mart that integrates laboratory and case information to better understand the context of STIBBI.

Methods In British Columbia (BC), Canada, the BC Centre for Disease Control Public Health Laboratory (BC-PHL) performs about 30% of all chlamydia/gonorrhoea and >95% of all syphilis, HIV, and hepatitis C (HCV) tests. These data were integrated with case reports of all STIBBI into a STIBBI Data Mart using a probabilistic patient matching algorithm based on first name, last name, date of birth, sex, and provincial health number. Testing episodes were created to account for multiple tests related to the same disease event (e.g. anti-HIV, p24, and Western Blot testing) based on clinical input and testing pattern analysis. Additional algorithms were developed and applied to improve geographic attribution and flag tests performed as part of prenatal care.

Results The STIBBI Data Mart now produces indicators for co-testing and co-infection (e.g. HIV/HCV, HIV/syphilis) and testing patterns (e.g. HCV incidence among repeat testers, time since last negative HIV test for new diagnoses, syphilis screening during pregnancy) that could not previously be reported and which have become standard indicators.

Conclusion Indicators from the STIBBI Data Mart improve understanding of syndemics and better characterize subpopulations for optimal follow-up and care. Work is currently underway to integrate additional data sources that make up the balance of STIBBI tests to allow for monitoring at the population-level.

Disclosure No significant relationships.

010 – GETTING REAL WITH IMPLEMENTING PREP 2

Tuesday, July 16, 2019 4:15 PM – 5:45 PM

010.1 HIV PRE-EXPOSURE PROPHYLAXIS (PREP) INDICATIONS AND UPTAKE VARY BY RACE, GENDER, AND INSURANCE IN A LARGE CLINIC NETWORK

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10.1136/sextrans-2019-sti.158

Background Providers face challenges identifying patients to benefit from PrEP, while disparities remain in PrEP access. We examine gaps in identification of PrEP candidates, uptake, and use of PrEP by populations at high HIV risk within a large federally qualified health center with a lesbian/gay/bisexual/transgender/queer (LGBTQ) focus.

Methods An established PrEP:Need ratio was calculated to examine differences in PrEP use across race, age, gender, and insurance. Two new measures were developed to determine gaps in identifying candidates and uptake - Identification:Need and PrEP:Identification. Patients were identified through electronic health records who had a documented indication for PrEP according to CDC guidelines, whether patients had a

PrEP prescription, and if they seroconverted, from 2015–2018.

Results Over 50,000 unique patients were included, with median age 30.5; patients were 48% White, 47% men who have sex with men (MSM), and 7% transwomen. Overall, there were 14.6 patients on PrEP for each incident HIV infection (PrEP:Need). PrEP:Need was 24.5 among White patients, compared to 6.6 among Black patients. PrEP:Need was low for Medicaid/Medicare patients (7.9), transwomen (10.0), and particularly Black transwomen (4.6). Low PrEP:Need ratios were usually driven by low Identification:Need ratios, with large differences: among MSM, 23.2 patients were indicated for PrEP per incident infection compared to 7.2 among transwomen. Uptake, measured by PrEP:Identification ratios, were lowest among patients without insurance and highest among those with private insurance.

Conclusion We found high variation in PrEP:Need ratios across race, gender, and insurance status. This may be due to a poor fit between current PrEP indications and actual HIV incidence in key populations; there may also be gaps in patient-provider communication and documentation of PrEP indications in certain populations. We also found evidence of barriers to uptake, particularly related to insurance status. We will discuss ways to improve PrEP detection and uptake, which attendees can apply to their practice.

Disclosure No significant relationships.

010.2 IMPACT OF HIV-PREP FOR FEMALE SEX WORKERS ON COMMUNITY-WIDE AWARENESS, UPTAKE, AND PERCEPTIONS IN A RURAL-AREA KWAZULU-NATAL

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10.1136/sextrans-2019-sti.159

Background Between 2016–2018 a targeted roll-out of pre-exposure prophylaxis (PrEP) for 15–24-year-old female-sex-workers (FSW) was conducted in a sub-district of rural KwaZulu-Natal, South Africa where antenatal HIV-prevalence is 40%. We use an HIV-prevention cascade framework to understand how implementation impacted the first two steps at a population-level, i.e. demand for, access to and community members' attitudes towards PrEP.

Methods We conducted participatory community mapping of four purposively sampled communities and enrolled a representative nested cohort of adolescent girls and young women (AGYW) aged 13–22 in 2017–2018. We conducted group discussions (14), key-informant interviews (9), in-depth interviews (94) and participatory observations (4). All interviews were recorded, transcribed and analysed using thematic content analysis.

Results Among n=2184 AGYW in the nested cohort, n=965 reported being sexually active, of whom 13.4% reported transactional-sex and 10.6% sex-for-money (therefore PrEP-eligible). PrEP awareness significantly increased from 2% in 2017 to 9% in 2018 ($p < 0.001$). Among PrEP-eligible AGYWs

(n=194), 11.3% were aware of, and <1% had used PrEP. Interview respondents were generally unaware of PrEP but imagined it would benefit young people, discordant couples and those with long-distance partners. Condoms were described by young people as undesirable, 'killing your babies' or 'eating sweets in a wrapper', in contrast to PrEP which '...will be in their system' so not act as a barrier. Teachers and healthcare providers were apprehensive: while acknowledging PrEP's effectiveness, they worried it would lower personal responsibility for sexual health (e.g., abstinence, condoms). Targeting FSWs was portrayed as further stigmatizing PrEP, already tarnished by association with HIV.

Conclusion The narrow focus of public-sector PrEP contributed to implementation challenges in this high HIV-prevalence setting. PrEP reach was low, even amongst self-identifying eligible FSW. Community-based approaches to PrEP education and provision, including engagement of youth and key stakeholders, may help improve demand for, access to, and optimise the PrEP cascade.

Disclosure No significant relationships.

010.3 HIGH CURABLE STI PREVALENCE AND INCIDENCE AMONG YOUNG AFRICAN WOMEN INITIATING PREP IN HPTN 082

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10.1136/sextrans-2019-sti.160

Background African women face overlapping HIV and STI risks. PrEP programs among men who have sex with men have seen high STI incidence, but few data from African women taking PrEP are available

Methods HPTN 082 was conducted in Cape Town, Johannesburg (South Africa) and Harare (Zimbabwe) to evaluate uptake and adherence to daily oral PrEP in young African women. Sexually active HIV-negative women ages 16–25 were enrolled. Enrollment vaginal swabs were tested for gonorrhoea (GC) and chlamydia (CT) by nucleic acid amplification, and trichomonas (TV) by rapid test. Syphilis serology was assessed. All women with positive test results received treatment. Repeat testing was conducted at 6 and 12 months.

Results Of the 412 women who initiated PrEP, median age was 21 years, 84% reported a primary sex partner and a median of 4 vaginal sex acts (IQR 2,8) in the prior month; 35% reported that they never or rarely used condoms. At enrollment 29% of women had CT, 8% GC, 7% TV and 2% reactive syphilis serology. STI incidence was 29.6 per 100 person-years (py) for CT (95% CI 24.3, 35.4), 11.8 per 100 py for GC (95% CI 8.7, 15.7), and 7.1 per 100 py for TV

(95% CI 4.7, 10.2). The majority of incident STIs were new infections: 79 of 119 CT infections, 41 of 48 GC infections, and 23 of 29 TV infections diagnosed were in women who did not have these infections at enrollment. The majority of these infections were asymptomatic.

Conclusion The prevalence and incidence of treatable STIs were high among young African women initiating PrEP. Diagnostic STI testing is important and innovative strategies that reduce STI acquisition, complications, and their potential impact on future fertility, need evaluation within the context of PrEP services where currently syndromic STI management is the standard of care.

Disclosure No significant relationships.

010.4 SCALING UP HCV SCREENING AND TREATMENT FOR ELIMINATING HCV AMONG MSM IN UK IN THE ERA OF HIV PRE-EXPOSURE PROPHYLAXIS

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10.1136/sextrans-2019-sti.161

Background Routine HIV pre-exposure prophylaxis (PrEP) and HIV care appointments provide opportunities for screening men who have sex with men (MSM) for hepatitis C virus infection (HCV). However, levels of screening required for achieving the WHO elimination target of reducing HCV incidence by 90% by 2030 among all MSM are unknown.

Methods An HCV/HIV transmission model was calibrated to UK prevalence of HIV (5.9%) and chronic HCV infection among HIV-positive MSM (10.0%). Assuming 12.5% coverage of PrEP among HIV-negative MSM, we evaluated the impact on HCV incidence (2018–2030) of HCV screening every 12/6/3-months (and completing treatment within 6 months of diagnosis) in PrEP users and/or HIV-diagnosed MSM. We then estimated the additional screening required among HIV-negative non-PrEP users to achieve a 90% reduction in overall incidence by 2025/2030. The effect of a 50% reduction in condom use among PrEP users (risk compensation) was estimated.

Results Without risk compensation, PrEP scale-up decreases HCV incidence by 9.5% by 2030, whereas it increases by 26.5% with risk compensation. Screening and treating PrEP users for HCV every 12/6/3-months decreases HCV incidence by 41/46/48%, respectively, increasing to 74/81/83% if HIV-diagnosed MSM are also screened at the same frequencies. Risk compensation reduces these latter projections by <5%. To achieve a 90% reduction in HCV incidence by 2030 (values in bracket are with risk compensation), HIV-negative MSM not on PrEP require screening every 5.2 (4.5) years if MSM on PrEP and HIV-diagnosed MSM are screened every 6-months, decreasing to every 2.6 (2.3) years for the 2025 target. For 25% PrEP coverage, then the 2030 HCV

elimination target may be reached without screening HIV-negative MSM not on PrEP.

Conclusion Increased screening of all MSM (particularly HIV-diagnosed MSM and MSM on PrEP) is required to achieve the WHO HCV-elimination targets for MSM in the UK.

Disclosure No significant relationships.

010.5 PATTERNS OF HIV PRE-EXPOSURE PROPHYLAXIS CARE ONE YEAR AFTER INITIATING PREP, BALTIMORE CITY, MARYLAND 2015–2018

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10.1136/sextrans-2019-sti.162

Background Persistent HIV pre-exposure prophylaxis (PrEP) use is critical to preventing HIV acquisition. U.S. Centers for Disease Control and Prevention (CDC) recommends quarterly clinical evaluation for individuals using PrEP. Individual-level adherence to quarterly PrEP-care visits is largely unknown. Our objective was to describe patterns of quarterly PrEP-care visit attendance among individuals enrolled in a large demonstration project to increase PrEP delivery in Baltimore City, Maryland.

Methods The project was a collaboration between a city health department, an academic evaluation partner, 6 clinical sites and one community based organization (CBO). Demographic and quarterly PrEP-care visit information from individuals initiating PrEP between October 1, 2015 and August 31, 2017 was abstracted from medical records using standardized forms. Participants were followed for one year. PrEP-care was categorized as ‘Persistent’ (attending all quarterly PrEP-care visits), ‘Episodic’ (missing ≥ 1 PrEP-care visit and re-engaging PrEP-care visit), or ‘Discontinued’ (lost to follow-up after missing ≥ 1 PrEP-care visit).

Results During the study period, 333 individuals initiated PrEP, among whom 52.9% (176) were Black/African-American, 82.3% (274) cisgender male, 73.6% (245) men who have sex with men (MSM), and 47.7% (159) aged 25–24 years. 9.0% (30), 40.5% (135), and 50.5% (168) were persistent, episodic and discontinued PrEP-care users, respectively. Over half (51.1%, 69/135) of episodic users missed the first quarterly visit; mean time to PrEP re-engaging was 6.3 months (SD: 2.18). About half (45.2%, 76/168) of those discontinuing PrEP-care did so within 3-months.

Conclusion Over one year, < 10% of individuals initiating PrEP were persistently in PrEP-care, and half discontinued PrEP-care completely. This suggests PrEP’s effectiveness in

reducing HIV transmission in Baltimore City may be limited. Future work should focus on identifying individual and structural barriers and facilitators to discontinuing PrEP-care and factors associated with re-engaging PrEP-care to inform interventions to improve persistent PrEP-care, and decrease ongoing HIV transmission.

Disclosure No significant relationships.

010.6 A LONGITUDINAL ANALYSIS OF MEN WHO HAVE SEX WITH MEN'S CONDOM USE AND ATTITUDES DURING HIV ANTIRETROVIRAL PREVENTION SCALE-UP

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10.1136/sextrans-2019-sti.163

Background Within British Columbia, men who have sex with men (MSM) comprise an increasing proportion of new HIV diagnoses (60% in 2016). We sought to identify temporal trends in condom-use and condom-related attitudes among MSM, especially in relation to antiretroviral-based prevention scale-up.

Methods A prospective biobehavioural cohort of sexually-active MSM in Metro Vancouver were recruited using respondent-driven sampling (RDS). Every six months, participants self-completed questionnaires. We analyzed temporal trends (6-month periods) in condomless sex (binary outcome) and condom-related attitudes (continuous outcomes) using 3-level generalized linear mixed model (visit; participant; RDS chain). Statistical interactions were tested between time and antiretroviral treatment/pre-exposure prophylaxis (PrEP) use.

Results Between 03/2015–02/2018, 520 participants (32.1% HIV-positive) completed 1861 study visits. Over time, reporting any condomless anal sex with an unknown/opposite status partner increased for HIV-negative men (OR=1.20, 95% CI:1.03–1.40) and decreased for HIV-positive men (OR=0.83, 95%CI:0.73–0.94). Correct Condom Use Self-Efficacy scale scores decreased among HIV-positive men (B=-0.296, p<0.001) but remained unchanged among HIV-negative men (p=0.167). Overall, Condom Barriers Experience subscale scores decreased, indicating more problems over time (B=-0.236, p<0.001). Other individual items indicated that fewer men reported they 'can always get condoms' (B=-0.023, p=0.003), 'always have condoms when I have sex' (B=-0.028, p=0.006), and 'can always ask sexual partners to use condoms' (B=-0.027, p=0.002). Over time, the ability to 'say no' to condomless sex increased among HIV-negative men using PrEP (B=0.172, p=0.023), but decreased among HIV-negative men not using PrEP (B=-0.049, p=0.001) (interaction, p=0.004).

Conclusion MSM reported changing condom experiences over time, including decreased condom access, availability, and norms. HIV-positive men had less condomless sex with serodiscordant partners and reported more difficulties using condoms over time. PrEP-using men reported greater agency to decline condomless sex; the opposite was true for other HIV-

negative men. Innovations in individual and community-level condom promotion and interventions are needed, especially for HIV-negative men not using PrEP.

Disclosure No significant relationships.

011 – IMPROVING THE EQUITY AND EFFECTIVENESS OF SEXUAL HEALTH CARE

Tuesday, July 16, 2019 4:15 PM – 5:45 PM

011.1 AN UPDATE ON THE PERFORMANCE OF STI SERVICES FOR GAY AND BISEXUAL MEN ACROSS 40 CITIES: PRELIMINARY RESULTS FROM EMIS-2017

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Background Rectal manifestations of sexually transmitted infections (STIs) compromise the health of gay and bisexual men. In 2010 across 40 cities among men-who-have-sex-with-men (MSM) screened for STIs, anal swabbing was highest in London and Amsterdam with rates of more than 72%, but low across most other European cities. We repeated the comparison of diagnostic procedures for MSM across the same European cities, in order to see if in 2017 the gap between London/Amsterdam and other European cities has narrowed.

Methods We used data from the European MSM Internet Survey (EMIS-2017), a sexual health survey that was accessible online in 33 languages from 10/2017 to 01/2018. As sexual healthcare for MSM in most countries is organised locally, we chose cities for comparison and focus on a subsample of 38,439 men living the same 40 European cities. We applied multivariable regression models to compare the odds of having received anal swabbing in the 12 months, controlling for age, HIV diagnosis, and the number of sexual partners.

Results In 2017, the proportion of respondents tested for STIs in the previous 12 months in the absence of symptoms ranged from 19% in Belgrade to 59% in London. At individual level, compared to London, the Adjusted Odds Ratio (AOR) for having received anal swabbing ranged from 0.02 in Belgrade, Bucharest, and Istanbul (p<0.001) to 0.80 in Oslo (p<0.05), while no statistical significant difference was seen for Amsterdam and Dublin. Many Western European cities (Barcelona, Berlin, Brussels, Hamburg, Lisbon, Munich, Paris, Porto, Prague, Valencia, Zurich) have substantially narrowed their performance distance to London, but many Eastern European cities (Kiev, Riga, Sofia, St.Petersburg, Tallinn) have moved even further away since 2010.

Conclusion Although comprehensive STI-screening in gay and other MSM has increased across many European cities, rectal STIs continue to be under-diagnosed, particularly in Eastern Europe.

Disclosure No significant relationships.

011.2 HOW DO THE SEXUAL NETWORKS OF MEN WHO HAVE SEX WITH MEN (MSM) IN ONE MID-ATLANTIC CITY DIFFER BY RACE/ETHNICITY?

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Background The HIV epidemic disproportionately affects black men who have sex with men (BMSM). Individual-level sexual risk behaviors fail to explain observed racial disparities in HIV acquisition rates. Research suggests that the sexual networks and their associated characteristics of BMSM (versus non-BMSM) contribute to increased risk for HIV. The objective of this analysis was to compare sexual network characteristics by race in one mid-Atlantic U.S. city with an established HIV epidemic.

Methods Data came from the Understanding Sexual Health in Networks Study (USHINE), an ongoing longitudinal cohort study enrolling MSM between the ages of 18–45. Participants completed an egocentric sexual network survey with questions about sex partners in the past 3 months. Summary statistics, chi-squared tests, and t-tests were used to compare sexual network characteristics by race.

Results 163 men completed the sexual network survey and nominated 692 sex partners. The mean age of participants was 29.4 (± 5.96) and 63.2%(103) identified as black. 28.8% (47), 69.9%(114) and 1.2%(2) were HIV-positive, HIV-negative, and unknown-HIV status respectively. The mean sexual network size was 4.3 (± 5.29) and did not significantly differ by race. Using partner-level data, BMSM were more likely to report condom use at last sex, compared to non-black MSM (40.53% vs. 27.34%, p -value = 0.013). BMSM had more HIV-positive partners (23.56% vs. 11.51%, p -value < 0.001) and unknown-status partners (24.0% vs. 5.76%, p -value < 0.001), compared to non-BMSM. While not statistically significant, higher proportions of BMSM reported not knowing if HIV-positive partners were on ARTs (31.1% vs. 6.3%, p -value = 0.09) and if HIV-negative partners were taking PrEP (43.0% vs. 33.9%, p -value = 0.08).

Conclusion HIV status of sex partners differed significantly by race, with BMSM reporting more HIV-positive and status-unknown partners. These findings highlight the importance of network factors in racial disparities in HIV transmission and suggest the need to develop interventions that perpetuate condom use and encourage discussion of HIV status and PrEP use among BMSM.

Disclosure No significant relationships.

011.3 'YOU FEEL INVISIBLE': A QUALITATIVE EXPLORATION OF YOUNG LGBT+ PEOPLE'S ATTITUDES TOWARDS STI/HIV TESTING IN PRIMARY CARE

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10.1136/sextrans-2019-sti.166

Background Young gay, lesbian, bisexual, transgender, and other sexuality/gender minority identities (LGBT+) exhibit poor sexual health outcomes (e.g., higher STI/HIV rates). In the UK, there is currently an effort to shift high-volume, low-cost testing (i.e., asymptomatic STI testing) away from expensive specialist settings and into primary care. The aim of this study was to explore young LGBT+ people's experiences and attitudes towards STI/HIV testing in primary care.

Methods 39 individual-interviews were conducted with young LGBT+ people (16–24 years; N=19 transgender). Study materials were developed through expert and lay consultation. Participants were recruited via LGBT+ organisations and social media websites. Data were analysed using an inductive thematic analysis.

Results Many participants preferred sexual health clinics to primary care for STI/HIV testing due to expectations of stigma, fear of judgement, heteronormative assumptions, and experiences of misgendering. Some lesbian participants were concerned over receiving relevant STI tests - many felt they had little knowledge regarding protection against STIs; their discussions around sexual health with general practitioners rarely surpassed contraception. Some transgender participants reported body dysphoria feelings and perceived STI testing as invasive making physical examinations difficult. Others felt primary care services were too restrictive for transgender patients with some tests unavailable for those registered as being a specific gender. Potential strategies to improve STI/HIV testing in primary care were suggested, such as increased awareness of minority identities in health-care settings (e.g., leaflets/posters in waiting and consultation rooms) and staff sensitivity training (e.g., use of inclusive language).

Conclusion Barriers to STI/HIV testing in primary care (at individual, interpersonal, and structural levels) were identified for young LGBT+ people. Healthcare professionals and policy makers must consider patient diversity to ensure healthcare is both optimal and inclusive. Addressing the health issues affecting this population is a crucial part of improving national public health and eliminating HIV/STIs.

Disclosure No significant relationships.

011.4 TRANS AND GENDER DIVERSE PEOPLE'S EXPERIENCES OF SEXUAL HEALTH CARE ARE ASSOCIATED WITH SEXUAL HEALTH SCREENING UPTAKE

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10.1136/sextrans-2019-sti.167

Background Transgender and gender non-binary people have unique sexual health needs and rates of HIV and other sexually transmissible infections that outstrip the general population. Very little is known, however, about their experiences of sexual health care, including how those experiences might affect sexual health screening practices.

Methods Using data collected via a national survey of transgender and non-binary people in Australia (n=1,636), responses to four items on sexual health care experiences were summed to create a scale from 0 (gender-sensitive) to 4 (gender-insensitive). Bivariate and multivariate analyses compared scale scores and assessed associations with sexual health screening.

Results In total, 50% of trans and non-binary participants were uncomfortable disclosing their gender during sexual health care, 68% reported that intake paperwork did not allow accurate gender descriptions, 74% felt staff made assumptions about their bodies or sex lives, and 40% did not receive sexual health care that was sensitive to their needs. On average, non-binary participants experienced the greatest degree of gender-insensitivity (M=2.3) compared with transgender men (M=1.8) and women (M=1.6, p<0.001). Gender insensitivity was most common in hospitals (M=2.9) followed by general practice clinics (M=2.1) and least common in sexual health clinics (M=1.6) and community-lead sexual health services (M=1.3, p<0.001). Among sexually active participants, 51% had received a sexual health screen in the previous year. After controlling for confounders (age, education, income, monogamy, condom use), transgender and non-binary people with more gender-insensitive experiences of sexual health care were less likely to report a recent sexual health screen (adjusted odds ratio=1.3, 95% confidence interval:1.1–1.5, p<0.001).

Conclusion Transgender and, in particular, non-binary people experience gender insensitivity when receiving sexual health care, most notably in hospital settings. This insensitivity is associated with delaying sexual health screens among the sexually active. Educating health providers on gender sensitive sexual health care could improve screening uptake.

Disclosure No significant relationships.

011.5 IMPACT OF HIV SELF-TESTING ON THE PROMOTION OF HIV TESTING AMONG MEN WHO HAVE SEX WITH MEN IN CHINA: A RANDOMIZED CONTROLLED TRIAL

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10.1136/sextrans-2019-sti.168

Background HIV self-testing offers a novel opportunity to increase HIV testing among MSM in China. We conducted a randomized controlled trial to evaluate if access to HIV self-testing materials would increase testing behavior among MSM in China.

Methods We randomized 491 HIV-negative MSM into either an intervention (n=250) or control group (n=241). The intervention group received free self-testing materials, while the control group was refer to test at local facilities. Both groups then received HIV testing reminders three and six months every three months. HIV testing results were verified via the HIV testing database in Guangzhou. Completed-records analyses and intention-to-treat with multiple imputation were used to determine the efficacy of self-testing in promoting HIV testing. Sensitivity analyses were further performed to exclude individuals from the control group who had used a self-test since randomization to reduce spurious findings.

Results HIV testing results were obtained for 91.2% of the sample (n = 448), with information obtained for 88.4% (n = 213) of the control group and 94.0% (n = 235) of the intervention group. Within the final sample, 73.7% (n = 330) had received an HIV test within the period of assessment, with 27.7% (n = 124) of the sample reporting use of an HIV self-test (35.7% in the intervention group versus 18.8% in the control group, $\chi^2=12.73$, $P<0.001$). HIV Self-testing produced a 24.8% (95%CI: 10.0, 39.7.) increase in HIV testing in intervention group compare with control group. Likewise, individuals in the intervention group were 3.10 (95%CI: 2.06, 4.65) times more likely to receive an HIV test than control group participants.

Conclusion HIV self-testing as a supplement to existing facility-based testing services is useful in increasing HIV testing among MSM in China. More research is necessary to assess the long-term feasibility of providing HIV self-testing materials to MSM in China as an effective HIV prevention tool.

Disclosure No significant relationships.

011.6 TRENDS IN CHLAMYDIA SCREENING AND PAP TESTING AMONG US FEMALES BY AGE AND RACE, NATIONAL SURVEY OF FAMILY GROWTH, 2006–2017

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10.1136/sextrans-2019-sti.169

Background From 2010 to 2017, rates of chlamydia declined among young black women in the United States but increased among all white women. Around the same time, the recommended age for cervical cancer screening was raised to ≥ 21 years. Changes in reported chlamydia may be due to changes in screening. We examined trends in chlamydia screening and Pap screening among women by age and race.

Methods Data are from the four most recent waves of the National Survey of Family Growth (2006–2010, 2011–2013, 2013–2015, 2015–2017). To assess trends in chlamydia screening and Pap tests, we used chi-square and logistic regression analysis to examine self-reported screening in the past 12 months among sexually active women (oral, vaginal, and/or anal sex with a male partner in the past 12 months) by age (15–24, 25–44 years), race (non-Hispanic black, white), and lifetime number of male sex partners (1, 2–4, 5+).

Results There were 23,171 sexually active women. Self-reports of Pap testing in the past 12 months decreased for young women (black: 72.5–53.6%, $p < 0.01$; white: 67.9–42.2%, $p < 0.0001$) and older white women (71.5–61.9%, $p < 0.001$) from 2006–2010 to 2015–2017. Self-reports of chlamydia screening did not significantly decrease for younger women (black: 57.6–54.2%, $p = 0.9040$; white: 37.4–34.4%, $p = 0.1716$) and increased for older women (black: 37.6–50.6%, $p < 0.01$; white: 15.4–24.3%, $p < 0.0001$). Overall, women who were younger (RR=2.3, 95%CI: 2.1, 2.5), non-Hispanic black (RR=2.0, 95%CI: 1.9, 2.2), had more than one lifetime male sex partner (2–4: RR=1.7, 95%CI: 1.4, 2.0; 5+: AOR=3.0, 95%CI: 2.5, 3.6), and received a Pap test in the past 12 months (RR=3.4, 95%CI: 3.0, 3.8) were more likely to be screened for chlamydia in the past 12 months.

Conclusion Self-reports of cervical cancer screening decreased but self-reports of chlamydia screening remained stable in young women and increased in women ≥ 25 years. Chlamydia screening remains below national recommendations, especially for young women.

Disclosure No significant relationships.

012 – UNDERSTANDING RELATIONSHIPS AND PARTNER STRATEGIES FOR STI CONTROL

Tuesday, July 16, 2019

4:15 PM – 5:45 PM

012.1 EXPLORING RELATIONSHIP DURATION AMONG GAY AND BISEXUAL MEN: A LONGITUDINAL EVENT-LEVEL ANALYSIS

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10.1136/sextrans-2019-sti.170

Background We characterized event-level relationship patterns of gay and bisexual men (gbMSM)'s long- and short-term with the goal of improving intimacy, well-being, and the control of sexually transmitted infections.

Methods Between 2012–2015, sexually-active gbMSM, aged ≥ 16 , were recruited in Metro Vancouver using respondent-driven sampling. Participants completed computer-assisted self-interviews at six-month intervals for up to 12 visits. At each visit, participants described their last sexual encounter with up to five of their most recent partners. Relationship duration was measured as the months between their first and most recent sexual encounter with each partner. Multivariable generalized estimating equations with RDS-chain, participant, and visit effects were used to identify sociodemographic, psychosocial, and behavioural factors associated with relationship duration.

Results A total of 10,424 events were reported by 762 gbMSM (median=13/person, Q_1 - Q_3 :5–24). Median relationship duration was < 1 month (Q_1 - Q_3 : 0–3) and the median number of sex events between partners was 1 (Q_1 - Q_3 : 1–1). Analyses indicate that longer relationship duration was

associated with increasing age of participants ($p < 0.001$); indigenous ethnicity (versus White; $p = 0.003$); marijuana use before/during sex ($p = 0.014$); and having met at a bathhouse ($p = 0.004$), bar/club ($p < 0.001$), through friends ($p < 0.001$), or at another location ($p = 0.002$; versus 'online'). Shorter relationship duration was associated with higher communal altruism ($p = 0.019$); bisexual identity (versus gay; $p = 0.004$); Latin American ethnicity (versus White; $p = 0.028$); living with HIV ($p = 0.0004$); not knowing the event-level partner's serostatus ($p < 0.001$); engaging in insertive condom-protected anal sex with even-level partner ($p = 0.031$); engaging in event-level group sex ($p = 0.001$); and having sex at a park ($p = 0.004$), hotel ($p = 0.043$), private sex party ($p = 0.019$), or other location ($p = 0.002$; versus 'home').

Conclusion Partner meeting location, personal identity, and risk management behaviours are key correlates of relationship duration – with shorter, often one-time, relationships being characterized by both risk (e.g., group sex, public sex, unknown partner serostatus) and risk management (e.g., condom use).

Disclosure No significant relationships.

012.2 PARTNERSHIP CONTEXT AND CONSISTENT CONDOM USE AMONG YOUNG AFRICAN AMERICAN MEN

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10.1136/sextrans-2019-sti.171

Background Young African American (AA) heterosexual men have high rates of sexually transmitted infections (STIs). Consistent condom use effectively prevents STIs, but condom use decisions are made in the context of individual sexual relationships. This analysis describes partnership characteristics and condom use among young AA men.

Methods AA men aged 15–24 who lived or spent most of their time in New Orleans, Louisiana and had vaginal sex in the past 2 months were screened at non-clinical venues for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC) using nucleic acid amplification testing. Men provided information on sexual partnerships including perception of risk behaviors on an audio computer-assisted self-interview. Generalized estimating equation is used to fit a marginal model to account for multiple partnerships.

Results Participants ($n = 1152$) reported characteristics of 1733 partnerships. In partnerships where condoms were not always used, men were more likely to be committed to the partner (47% vs 28%, $p < 0.01$), plan to have sex with her again (72% vs 56, $p < 0.01$), able to re-contact her (87% vs 78, $p < 0.01$), already have a child (11% vs 3%, $p < 0.01$), financially support her (27% vs 20%, $p < 0.01$), and feel closer to her (median 8 vs 6, $p < 0.01$), compared to partnerships where condoms were always used. Men not always using condoms were also more likely to have sex while drunk/high (52% vs 31%, $p < 0.01$). Rates in men were 10% for CT and 1% for GC; men with CT and/or GC were less likely to always use condoms (44% vs 60%, $p < 0.01$) compared to men negative for CT and/or GC.

Conclusion STI rates are high, especially for those in partnerships where condoms are not always used. Consistent condom use is lower in committed, closer partnerships, suggesting that

prevention interventions should focus on condom use among this group.

Disclosure No significant relationships.

012.3 EPIDEMIOLOGICAL IMPACT OF EXPEDITED PARTNER THERAPY FOR MEN WHO HAVE SEX WITH MEN: A MODELING STUDY

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10.1136/sextrans-2019-sti.172

Background Expedited partner therapy (EPT) is an intervention for patients with gonorrhea (NG) or chlamydia (CT), through which index patients are provided with medication to give to their partner. While EPT is recommended for heterosexuals, EPT is not recommended for men who have sex with men (MSM), partially due to concerns about overtreatment of uninfected partners and missed opportunities for HIV diagnosis. In this study, we used modeling to investigate the potential impact of EPT implementation on STI incidence among MSM in the United States.

Methods We extended our stochastic network-based mathematical model of HIV, NG, and CT among MSM to include partner-delivered EPT for NG and CT. EPT implementation was simulated for 10 years. Counterfactual scenarios varied EPT coverage, provision, uptake, and partnership window duration. We estimated STI incidence, percent of infections averted (PIA), and process outcomes under each scenario, compared to a reference scenario that included routine and symptoms-based STI screening at current empirical levels among US MSM.

Results Delivery of EPT to 20% of eligible MSM index patients (coverage) was projected to reduce cumulative STI infections among MSM by 22% over 10 years compared to current estimated STI screening levels. A 20% increase in providing medication to non-index partners (provision) averted 29% of STI infections compared to STI screening. By partnership type, intervention benefits were greatest when EPT was restricted to casual partners. The proportion of partners given medication who had no current STI varied from 55% to 65%, depending on coverage. The proportion of partners given medication with undiagnosed HIV infection was 4%.

Conclusion EPT could substantially reduce bacterial STI incidence for MSM. However, this intervention could result in a substantial increase in unnecessary use of antibiotic medication by STI-uninfected MSM, raising concerns about cost and antimicrobial resistance in absence of additional medical evaluation.

Disclosure No significant relationships.

012.4 EFFECTS OF ENHANCED STI PARTNER NOTIFICATION COUNSELING IN CAPE TOWN: RANDOMIZED CONTROLLED TRIAL

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10.1136/sextrans-2019-sti.173

Background People who contract STI in high-HIV prevalence settings such as South Africa are among the highest risk populations for HIV. Single-session behavioural interventions can reduce a person's risk for STI with added HIV prevention benefits, but promising prevention effects are undermined by untested, untreated partners with persistent STI. We tested a theory-based, single session behavioural risk reduction intervention with enhanced partner notification (ePN) counselling among people diagnosed with an STI, in Cape Town, South Africa.

Methods Participants were 1050 consenting adults diagnosed with STI at a community clinic. After the standard STI/HIV consultation and treatment, participants were randomly allocated to: (a) 20 minutes health education; (b) 45 minutes risk reduction skills counseling; or (c) 45 minutes risk reduction and ePN communication skills counseling. We measured participants' reports of PN to potentially exposed partners two weeks after diagnosis.

Results Participants were 527 men and 523 women, 20% HIV positive, enrolled between 2014 and 2017. There were no significant baseline differences between trial arms in number of reported main or casual sex partners. Two weeks after STI diagnosis (n=890, 85% retained), 77% of participants had notified a main partner of their STI and 57% had notified a casual partner. Conditions did not differ in rates of notifying main partners. However, participants receiving the ePN counseling (57%) were significantly more likely to have notified a casual partner compared to those in the health education (41%) and the risk reduction counseling (41%) arms, OR = 1.87, p < 0.05. This pattern of differences did not differ by gender, with intervention effects significant for both men and women.

Conclusion The ePN intervention was effective at improving PN with casual partners. Although partner linkage to care was not measured, future analyses will determine whether there was a reduction in repeat STIs in index cases.

Disclosure No significant relationships.

012.5 PARTNER NOTIFICATION OUTCOMES FOR CHLAMYDIA/ GONORRHEA CASES DIAGNOSED THROUGH CLINICS VS GETCHECKEDONLINE IN BRITISH COLUMBIA

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10.1136/sextrans-2019-sti.174

Background GetCheckedOnline (GCO) is an internet-based testing service for sexually transmitted and blood-borne

infections in British Columbia (BC), Canada that is highly accepted by clients. The literature has not addressed whether treatment and partner notification (PN) outcomes differ between clients of internet-based testing services and clinic-based clients. We sought to compare treatment uptake, engagement in PN, and PN outcomes between chlamydia (CT) and/or gonorrhoea (GC) cases diagnosed through GCO and two provincially-operated sexually transmitted infection clinics.

Methods A matched case-control study was conducted among CT/GC cases in BC from 2016–2018. All cases diagnosed through GCO were selected and matched to two clinic cases (controls) based on diagnosis, gender, age group, and specimen collection date. Using a cascade of care, PN outcomes were compared between partners of GCO and clinic cases. Bivariate comparisons were conducted using chi-square or Fisher's exact test.

Results There were 257 GCO cases matched to 514 clinic cases. Treatment uptake did not differ between GCO (254/257, 98.9%) and clinic (513/514, 99.8%) cases. There was no difference in the proportion of notified partners between GCO (176/287, 61.3%) and clinic cases (338/520, 65.0%) although a greater proportion ($P<0.01$) of notifiable partners reported by clinic cases were notified by public health (44/520, 8.5%) vs. GCO cases (6/287, 2.1%). Among all notified partners, clinic cases reported a greater proportion ($P<0.01$) of tested partners (114/338, 33.7%) than did GCO cases (38/176, 21.6%). Of all notifiable partners, positivity was higher ($P<0.01$) among clinic cases (93/520, 17.9%) than GCO cases (29/287, 10.1%).

Conclusion GCO clients diagnosed with CT or GC demonstrated similar treatment uptake and engagement in PN to clinic clients. The difference in partner testing may be due to different populations being reached by internet-based testing and merits further investigation. The high positivity rate among partners underscores the importance of PN.

Disclosure No significant relationships.

012.6 CONTACT TRACING VS PATIENT-DELIVERED PARTNER TREATMENT FOR AFRICAN AMERICAN HETEROSEXUAL MEN WITH CHLAMYDIA

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Background Most research on partner treatment for chlamydia has been done with female index cases or with clinic-based populations, thus less is known about optimal approaches for community screened men. The purpose of this study is to compare contact-tracing versus patient-delivered partner-treatment (PDPT) for rates of index and partner treatment among chlamydia infected-young heterosexual African American men (AA) diagnosed by screening at community venues.

Methods 'Check It' is a community chlamydia screening program for AA men aged 15–24. Initially, index and partner treatment was done by a disease intervention specialist (DIS) using a contact-tracing approach where contacted index and partners could get azithromycin treatment at no cost at participating pharmacies. In month 14 of the program, in response

to the findings of in-depth interviews with men enrolled in the program, contacted index men were offered PDPT that could be picked up at a participating pharmacy or mailed to the index. Index and partner treatment outcomes were compared.

Results In-depth interviews revealed concerns about giving DIS contact partner information and issues with transportation, thus, PDPT and direct-mailing of azithromycin were added to treatment options. There were 102 screened men in the contact-tracing-phase and 22 in the PDPT-phase. Of these 124 Ct + men, 83.9% were contacted and 62.9% were treated and they reported 204 baseline partners. Treatment rates were higher in the PDPT-phase versus the contact-tracing-phase for index (86.4% vs 57.8%, p -value <0.02) and partners (50.0% vs 20.6%, p -value <0.01) respectively. Time-to-treatment was shorter for those in the PDPT-phase versus the contact-tracing-phase for index (10.7 vs 16.8 days, p <0.04). During the PDPT-phase 8/22 index men (36.4%) opted for mail-delivery of azithromycin.

Conclusion Expedited index and PDPT using local pharmacies or mailed-treatment resulted in significantly higher index and partner treatment rates and shorter time-to-treatment among AA young men screened for Ct in the community.

Disclosure No significant relationships.

013 – WORKING TOWARDS SEXUAL HEALTH EQUITY: UNDERSTANDING CONTEXT

Wednesday, July 17, 2019

10.45 AM - 12:15 PM

013.1 FACTORS ASSOCIATED WITH SAFER SEX EFFICACY AMONG NORTHERN AND INDIGENOUS YOUTH IN THE NORTHWEST TERRITORIES, CANADA

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Background Identifying social and structural factors associated with sexually transmitted infections (STI) vulnerability is urgent in the Northwest Territories (NWT), where STI prevalence is 7-fold the Canadian average. The NWT also experiences higher food insecurity and intimate partner violence (IPV) than the national average. Safer sex efficacy (SSE) comprises knowledge, intention, and relationship dynamics for safer sex negotiation. We examined social and structural factors associated with SSE among Northern and Indigenous adolescents in the NWT.

Methods With an Indigenous sexual health agency, we conducted a cross-sectional survey with adolescents aged 13–17 in 17 NWT communities. Summary statistics and statistical comparisons were conducted, followed by crude and multivariable regression models, with a canonical link function, to compare factors associated with SSE and within gender stratifications. We conducted post-hoc sensitivity analyses among Indigenous youth.

Results There were 610 participants (mean age: 14.2 years [SD: 1.5]; 49.5% cisgender women, 48.9% cisgender men, 1.6% transgender persons); three-quarters (n=447; 73.3%) were Indigenous. One-quarter (n=144; 23.6%) reported food insecurity and nearly one-fifth (n=111; 18.2%) IPV. Among young women, food insecurity (β : -1.89[CI: -2.98, -0.80], $p=0.001$) and IPV (β : -1.31[CI: -2.53, -0.09], $p=0.036$) were associated with lower SSE in adjusted analyses, and currently dating was associated with increased SSSE (β : 1.17[CI: 0.15, 2.19], $p=0.024$). Among young men, food insecurity (β : -2.27 [CI: -3.39, -1.15], $p=0.014$) was associated with reduced SSE. Among sexually active participants (n=115), increased SSE was associated with increased condom use among young women (β : 1.40[0.19, 2.61], $p=0.024$) and men (β : 2.14 [0.14, 4.14], $p=0.036$). No differences emerged by Indigenous identity across analyses.

Conclusion Food insecurity and IPV emerged as syndemic factors associated with lower SSE—a protective factor associated with condom use among Northern and Indigenous adolescents in the NWT. Poverty and violence compromise Indigenous and Northern youth's sexual agency and in turn contribute to STI vulnerabilities, requiring urgent attention.

Disclosure No significant relationships.

013.2 MIXED METHODS ANALYSIS: ROLE OF PARENTS, PEERS, AND PERCEIVED SEVERITY OF SEXUAL HEALTH OUTCOMES AMONG NATIVE AMERICAN YOUTH

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10.1136/sextrans-2019-sti.177

Background Native American youth experience the highest rates of teen pregnancy and sexually transmitted infections (STIs). Past research has demonstrated the influence of parents and peers on adolescent sexual health decision making. Yet few studies have explored how the threat of negative health outcomes, specifically STIs and unintended pregnancy, impact youth's intentions, perceptions of reactions from peers and parents, and ultimate behaviors.

Methods This study used a mixed-methods approach. Quantitative and qualitative data was collected from Native, reservation-based youth ages 11–19. N=558 completed a survey and 62 participated in a focus group discussion (FGD). Multivariate logistic regression assessed associations between the perceived severity of STI and unintended pregnancy with the outcomes of lifetime sexual experience, sexual intention, condom use, and condom use intention (CUI). Qualitative data was analyzed using a descriptive, directed method.

Results Mean age was 13.4 and 51.6% were female. Youth who reported they would be upset (OR=2.43, $p=0.001$) or their parents would be upset (OR=2.95, $p\leq 0.001$) if they got pregnant/got someone pregnant had higher odds of CUI. FGD data differ slightly, with some youth (mostly females) saying they didn't use condoms because they want to become pregnant. Youth saying friends would lose respect for them if they had an STI had higher odds of CUI (OR=2.37, $p=0.001$).

FGD data endorse peers as major influencers on sexual activity, especially among males.

Conclusion Results show the perceived severity of STIs and unintended pregnancy combined with anticipated negative reactions from parents and peers are associated with Native youth's intention to use condoms, but not actual condom use behavior or sexual initiation. To bridge this intention-behavior gap, future programming should engage both parents and peers, reinforce the severity of not using condoms, and develop Native youth's skills for actual condom use.

Disclosure No significant relationships.

013.3 HIGH PREVALENCE OF CERVICO-VAGINAL INFECTIONS AMONG FEMALE ADOLESCENTS IN FOUR URBAN REGIONS OF PANAMA

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10.1136/sextrans-2019-sti.178

Background Few data exist on cervico-vaginal STI among adolescents in Panama. The aim of this study was to determine the prevalence and correlates of cervico-vaginal STIs among female school-going adolescents in urban regions of Panama.

Methods A multicentric cross sectional study using multistage cluster sampling, with random selection of schools and clusters was conducted among participants aged 14–19 years enrolled in public high schools in the urban regions of Panama, San Miguelito, Colón, and Panamá Oeste, accounting for 53% of the country's population. One region was studied each year between 2015 and 2018. Participants self-administered a questionnaire and gave urine samples. Those who self-reported sexual activity were tested for *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), *Mycoplasma genitalium* (MG), and *Trichomonas vaginalis* (TV) by PCR. Correlates of infection were analyzed using univariate (OR) and age adjusted analyses (AOR).

Results A total of 1404 female adolescents (median age 17) participated. More than half (57.3%) reported a history of sexual activity; of those, 27.4% had ≥ 1 positive STI test (22.8% positive for CT, 2.2%NG, 3.9%MG, 2.3%TV). Almost all participants with NG also had CT (15/18, 88.2%); nearly half with MG also had CT (13/31, 41.9%). Correlates did not change when removing non-CT infections; correlates of one or more STI included: three or more sex partners in the past year (AOR=4.12, 95%CI: 1.13–15.1), sex with a casual partner at least once (AOR=3.5, 95%CI: 1.6–7.7), reported sex in the past month (OR=1.8, 95%CI: 1.3–2.7), and reported anal sex (OR=1.6, 95%CI: 1.1–2.4). Protective correlates included study sites Colón and Panamá Oeste (AOR=0.3, 95%CI: 0.1–0.7; AOR=0.2, 95%CI 0.1–0.4).

Conclusion This study found very high prevalence of cervico-vaginal STIs, especially CT among high school-going female adolescents in urban Panama regions. Results indicate the need for interventions that target female adolescents, such as screening and treatment in urban Panama.

Disclosure No significant relationships.

013.4 PATTERNS OF DRUG USE AMONG MSM IN AMSTERDAM AND SEXUALLY TRANSMITTED INFECTIONS, THE NETHERLANDS: A CLUSTER ANALYSIS

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10.1136/sextrans-2019-sti.179

Background Men who have sex with men (MSM) are at high risk for both drug abuse and sexually transmitted infections (STI). We aimed to identify subgroups of MSM in Amsterdam with distinctive patterns of drug use during sex and their association with sexual behavior and STI.

Methods In this cross-sectional study, data from four different studies on MSM and transfeminine women conducted at the Public Health Service of Amsterdam in 2014–2016 were used. Information on drug use, sociodemographics and sexual risk behavior, including lab-confirmed STI, was collected. K-median cluster analysis was used to identify subgroups with similar drug use patterns, whose association with sexual behavior and STI was examined.

Results A total of 1147 individuals were included. Median age was 40 years (IQR=32–47). Five clusters of users were identified: ‘polydrug (n=329)’, ‘erectile dysfunction drugs (EDD) (n=106)’, ‘nitrites/alcohol (n=310)’, ‘alcohol (n=239)’ and ‘no substance (n=163)’ users. Compared to MSM in the ‘no drug’ user cluster, MSM in the ‘polydrug’ user cluster reported a higher number substances used (median 0, IQR=0–0 versus 6, IQR=5–7; $p<0.001$), a higher number of sex partners (median 2, IQR=1–6 versus 20, IQR=10–40; $p<0.001$), higher proportion of condomless anal sex (48.0% vs 83.8%, $p>0.001$) and were most often diagnosed with an STI (1.9% vs 22.5%, $p<0.001$). High STI prevalence was also observed in MSM belonging to the ‘erectile dysfunction drugs’ (17.3%) and ‘nitrites/alcohol’ (17.5%) clusters and was not significantly different from those in the ‘polydrug’ cluster ($p=0.229$ and $p=0.091$, respectively).

Conclusion Drug use among high-risk MSM is prevalent in Amsterdam and could be categorized into five distinctive clusters based on the types of drugs used and was associated with various degrees of STI risk. The identification of drug use clusters might enable tailoring STI screening and prevention programs to drug-use patterns.

Disclosure No significant relationships.

013.5 REACHING HOME-BASED FEMALE SEX WORKERS WITH PREVENTIVE SEXUAL HEALTH CARE SERVICES IN THE NETHERLANDS

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10.1136/sextrans-2019-sti.180

Background In the Netherlands there has been an ongoing shift from indoor sex work settings such as licensed brothels and clubs to home-based sex work. Consequently, female sex workers (FSW) are harder to reach by regional public health services (GGD) who offer FSW free and anonymous preventive sexual health care services such as sexually transmitted infection (STI) testing and hepatitis B vaccinations. The aim of this study was to gain an insight in home-based FSW and in their perceived barriers and willingness to engage in preventive sexual health care services provided by the GGD.

Methods For this qualitative study semi-structured individual in-depth interviews were conducted with 29 home-based FSW based in two Dutch regions. An interview guide was developed including themes such as STI, hepatitis B, risk perception, stigma and safety and preferred communication and reachability by the GGD.

Results The interviewed home-based FSW showed to be a diverse population regarding background characteristics and experience and organisation of their work and personal life with e.g. sex work experience varying between 3,5 months – 15 years. The women mostly started sex work because of a poor financial situation, a high sexual drive and out of curiosity. Main reasons to be involved in *home-based* sex work was feeling in control, feeling safe and comfortable and negative experiences with indoor sex work settings. Important facilitating factors for FSW to engage in preventive sexual health care services are having trust in the health care provider and having personal contact e.g. through Whatsapp. Considering the high information density in the interviews, further analyses are still ongoing.

Conclusion This study highlights the diversity among home-based FSW. Future outreach efforts towards home-based FSW should take the diversity of this group and identified facilitating factors into account in order to optimize reach of future preventive sexual health care services.

Disclosure No significant relationships.

013.6 **PRECARIOUS LEGAL IMMIGRATION STATUS LINKED TO CLIENT CONDOM REFUSAL AMONG SEX WORKERS IN METRO VANCOUVER (2010–2018)**

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10.1136/sextrans-2019-sti.181

Background Under new Canadian sex work laws (PCEPA) passed in 2014, sex workers with precarious legal status face exacerbated criminalization, yet little quantitative evidence exists on how legal immigration status shapes HIV/STI risk. This study aimed to model the effect of precarious status on client condom refusal; and the potential moderating effect of precarious status on the relationship between condom refusal and the post-PCEPA law reform period.

Methods Longitudinal data were drawn from AESHA, a community-based cohort of 900+ sex workers in Vancouver (2010–2018). A multivariable confounder model using logistic regression with generalized estimating equations was developed to model the independent effect of precarious status (any immigration status that is revocable under criminal charges: permanent residency, temporary residency, and undocumented) on recent client condom refusal (forcing unprotected sex or intentionally breaking the condom) over the study period. A second multivariable confounder model examined the moderating effect of precarious status on the relationship between condom refusal and the post-PCEPA law reform period (2015–present).

Results Over the 8-year study (n=758), 9.1% of participants had precarious status and 16.5% experienced condom refusal, with a total 196 events of condom refusal reported. In multivariable analysis adjusted for confounders, precarious status was independently associated with increased odds of facing condom refusal (adjusted odds ratio [AOR] 2.53, 95% confidence interval [CI] 1.37–4.68). In a second multivariable confounder model, legal status moderated the relationship between condom refusal and the post-PCEPA law reform period: among women with non-precarious status, odds of condom refusal were not significantly different post-PCEPA (AOR 1.17, 95%CI 0.77–1.78), whereas women with precarious status faced 4-fold increased odds of condom refusal post-PCEPA (4.35, 95%CI 1.21–15.66).

Conclusion Laws criminalizing sex work among im/migrants in Canada enhance vulnerability among those with precarious status through presenting barriers to safer sex and increasing HIV/STI risk, highlighting urgent need for sex work and immigration policy reforms.

Disclosure No significant relationships.

014 – IMPROVING THE ACCESS AND IMPACT OF STI TESTING

Wednesday, July 17, 2019

10:45 AM – 12:15 PM

014.1 **OPTIMIZING SCREENING FOR CHLAMYDIA: IS THERE A ROLE FOR SCREENING HETEROSEXUAL MEN?**

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10.1136/sextrans-2019-sti.182

Background US guidelines recommend annual chlamydia screening of sexually active women under age 25y. The benefits of screening heterosexual men remain unclear. We analyzed the potential impact of increasing chlamydia screening from current levels, comparing strategies targeting women and/or men.

Methods We examined expanded screening scenarios using a calibrated deterministic pair formation chlamydia transmission model of the US heterosexual population ages 15–54y, stratified by sex, age, risk and partnership status (not sexually active, unpaired, paired). We modeled three scenarios targeting 15–24y, using a fixed number of additional tests (1.2 million) across scenarios and maximum impact achievable: additional screening for women (S1), men (S2), or equally divided between women and men (S3). We report estimates and 95% credible intervals of yearly infections averted, prevalence reduction, and pelvic inflammatory disease (PID) cases averted among 15–24y.

Results In the calibrated baseline scenario, estimated chlamydia screening coverage in the 15–24y population translated into 7.5 times as many yearly tests among women as among men. In S1 (15% increase in screening among women), median 4,900 (2,500–10,700) PID cases were averted yearly, compared to S2 (a doubling of screening among men) with 4,100 (2,200–8,700) cases averted, and S3 (8% increase among women and 53% increase among men) with 5,100 (2,800–10,400) cases averted. Estimated chlamydial infections averted for men and women were 30,400 (18,400–64,500) in S1, 59,600 (36,400–112,900) in S2, and 52,900 (34,300–93,900) in S3. For S1 and S2, the sex targeted with additional tests had a greater reduction in chlamydia prevalence, but fewer infections averted compared to the opposite sex.

Conclusion Depending on specific program objectives, differing screening recommendations may apply. To avert PID, increasing screening in women or both sexes may be most beneficial. To maximize infections averted, targeting men with increased screening may be needed. Program costs and cost-effectiveness, not considered here, may impact the interpretation of results.

Disclosure No significant relationships.

014.2 CAN COMMUNITY CHLAMYDIA TRACHOMATIS SCREENING OF YOUNG HETEROSEXUAL MEN HELP IDENTIFY INFECTED NETWORKS?

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10.1136/sextrans-2019-sti.183

Background Despite interventions to reduce *Chlamydia trachomatis* (Ct) rates in women, rates have increased or remained stable, particularly for African American (AA) women. Men could be a potential reservoir of infection yet the Centers for Disease Control and Prevention do not recommend screening men stating lack of evidence for feasibility and potential to reduce infection in women. The purpose of this study was to explore if venue-based screening is feasible and has high-yield. **Methods** Venue-based screening (e.g. barbershops, colleges, community events) was conducted between March–December 2018 among AA men aged 15–24 who had sex with at least one woman in the last two months and spent most of their time in New Orleans. Men were offered a modest incentive, were screened for Ct via urine NAAT and underwent an audio/computer-assisted self-administered survey eliciting information about sexual partners

Results Of 599 men screened, 590 (98.5%) enrolled. Men enrolled received Medicaid (60.9%), were Ct tested in the last year (29.3%), reported a history of Ct (12.7%), were asymptomatic (97.1%) and 9.3% were Ct+. Men reported 873 partners (average 2.2, s.d. 1.4). Most of these partners were someone he knew for a long time (69.9%) or met through people in his social network (14.4%), were able to be re-contacted (80.1%), and with whom future sexual contact was planned 61.4%. In over one-third of partnerships (35.4%) men believed that their partner was having sex with one of his friends. Most men (53.3%) found out about the program from someone in their social network.

Conclusion Venue-based screening of young AA heterosexual men is feasible, detected a high rate of Ct infection, most partners were from social networks and could be re-contacted. Screening of young AA men has the potential to identify infected sexual networks and ultimately could reduce Ct disparities among men and women.

Disclosure No significant relationships.

014.3 DISPARITIES IN ACCESS TO HIV POINT-OF-CARE TESTING: THE NON-URBAN CANADIAN CONTEXT

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10.1136/sextrans-2019-sti.184

Background Testing for sexually transmitted and blood borne infections (STBBIs), including HIV, is a crucial component of sexual health promotion. Testing can help facilitate timely access to care and treatment for those with a positive test result. Despite the approval of HIV point-of-care-testing (HIV POCT) for use in Canada in 2005, many jurisdictions do not have access to this testing innovation such as the 4 Atlantic provinces and there remain challenges in access in many non-urban settings elsewhere in Canada.

Methods Both qualitative and quantitative data were collected as part of an HIV POCT feasibility study with high risk populations in the largest of the 4 Atlantic Canadian provinces as well as from two scoping reviews on access to and uptake of HIV POCT with reference to Canadian non-urban settings. Together these data were examined using a PESTEL analytic framework for common emergent themes in relation to the policy-relevant factors contributing to why HIV POCT remains challenging to access in non-urban settings, even among populations at enhanced risk of infection.

Results Key emergent themes were mapped using the PESTEL analytic framework and found: perceptions of low risk for HIV among those living outside large metropolitan centres; competing public health priorities and expenditures; lack of national policy direction on testing, and issues of stigma; confidentiality; and loss to follow up in non-urban settings.

Conclusion The current jurisdictional constraints facing Federal, provincial, and territorial governments in relation to policies for testing, including access to STBBI testing innovation such as point-of-care testing, requires greater attention as Canada moves forward with the release of the 'Reducing the Health Impact of STBBIs in Canada by 2030: A Pan-Canadian Framework for Action'. Specifically, greater policy attention and national leadership is needed on the core pillar of STBBI testing in an effort to reach the undiagnosed, particularly in non-urban settings.

Disclosure No significant relationships.

014.4 IMPLEMENTATION OF POINT OF CARE GONORRHEA AND CHLAMYDIA TESTING IN AN STD CLINIC PREP PROGRAM, SAN FRANCISCO, 2017–2018

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10.1136/sextrans-2019-sti.185

Background We assessed the impact of point of care (POC) testing for gonorrhoea and chlamydia (GC/CT) on time to treatment in a HIV pre-exposure prophylaxis (PrEP) program in a STD clinic.

Methods In May 2018, San Francisco City Clinic implemented express GC/CT testing using the GeneXpert™ for PrEP follow-up visits for men who have sex with men (MSM) and transwomen. PrEP patients who were symptomatic or a contact to GC or CT were empirically treated and excluded from express testing. We describe the population screened using GeneXpert™ and test positivity. We compared their time to treatment with asymptomatic PrEP follow-up visits during the same time frame one year prior. Differences in time to treatment were compared using a t-test.

Results From May 2018–December 2018, there were 1623 visits by MSM and transwomen on PrEP at which GC/CT testing was conducted. The GeneXpert™ was used at 596 (36.7%) of visits. Of the 366 unique patients screened using the GeneXpert, the median age was 33; 40% were white, 30% Latino, 22% Asian and 6% black. Either GC or CT were positive at 87 (14.6%) of patient-visits. Positivity was higher at the rectum (10.8%) compared with throat (5.6%) and urine (1.5%). In comparison, from May 2017–December 2017, there were 611 visits by asymptomatic patients on PrEP

who were tested for GC/CT but not empirically treated. Either GC or CT was positive at 90 (14.7%) visits. Median age and race/ethnicity did not differ between the groups. Mean and median time to treatment for GC/CT decreased from 6 and 4 days prior to implementing GeneXpert™, to 1.7 and 0 days for those tested with the POC test ($p < 0.001$). **Conclusion** Prevalence of GC and CT was high among asymptomatic patients on PrEP. The introduction of POC testing decreases time to treatment, reducing duration of infectivity and potentially preventing ongoing transmissions. **Disclosure** No significant relationships.

014.5 CHLAMYDIA TRACHOMATIS TESTING: A NATIONAL EVALUATION OF INTERNET BASED SELF-SAMPLING IN SWEDEN

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10.1136/sextrans-2019-sti.186

Background *Chlamydia trachomatis* (CT) testing in Sweden is free of charge and now exceeds 600,000 annual tests in a population of 10 million. These tests include internet-based self-sampling tests, a service that gradually has been implemented as a part of routine diagnostics in all 21 counties. To our knowledge Sweden is the country with the highest coverage of internet based self-sampling for CT. This study evaluates the diagnostic outcome for self-sampling.

Methods Requests for both self-sampling at home and clinic based sampling for CT-testing were sent to the laboratories in 18 of 21 counties. All 18 counties provided data on self-sampling in 2017 and 12 counties (representing 80% of the population) provided data on both self-collected samples at home and clinic based testing for the years 2013 to 2017.

Results The proportion of self-sampling increased from 12.9% in 2013 to 17.8% in 2016 when compared to national chlamydia test figures. Between 23% and 26% of delivered test kits were never sent back for analysis during 2013–2017. In analysis of 12 counties self-sampling increased by 110% between 2013 ($n=32,993$) and 2017 ($n=69,181$) for women, compared to 67% for men (2013: $n=21,008$; 2017: $n=35,091$). Test volumes for clinic based sampling was fairly constant for both sexes (women 2013 $n=245,274$; 2017 $n=243,338$; men 2013 $n=97,519$; 2017 $n=110,617$). The proportion of men was 36% for self-sampling compared to 30% ($p < 0.00001$) for clinic based sampling, and the positivity rate decreased for both groups from 2013 to 2017 (7.8% to 7.1% ($p < 0.01$)) vs 9.1% to 7.0% ($p < 0.0001$)). Corresponding figures for women went from 5.3% to 4.6% ($p < 0.0001$) and from 4.9% to 4.1% ($p < 0.0001$).

Conclusion Self-sampling has increased significantly in recent years, especially among women.

The positivity rate is similar in self-collected and clinic collected samples.

Self-sampling reaches men more than clinic based testing, but not as much as expected.

Disclosure No significant relationships.

014.6 MAFRICA: ZENZELE, A MOBILE-PHONE ENABLED HIV TESTING AND LINKAGE TO CARE PATHWAY FOR YOUNG PEOPLE IN RURAL SOUTH AFRICA

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Background The uptake of HIV testing with linkage to care or prevention interventions such as Pre-Exposure Prophylaxis (PrEP) remains low among young men and women outside antenatal settings. This contributes to the high HIV incidence and HIV-related mortality in South Africa.

Methods We conducted formative work (8/2016–12/2018) to co-develop and pilot *Zenzele*, a mobile-phone enabled HIV self-test to support decentralized HIV care and prevention in a HIV high burden rural area of South Africa. We conducted surveys with a representative sample of 13–35-year-olds ($n=3460$); provider and user interviews ($n=40$ and 54 respectively); and group discussion ($n=9$). We piloted *Zenzele*, a simulated online pathway with $n=30$ individuals aged 18–30 attending a rural clinic. The *Zenzele* application supported an audio-visual guide in isiZulu and English; a timer to support self-testing according to the manufacturer guidelines; photographing the test using the smartphone camera and providing an automated interpretation of the result; and post-test health promotion and linkage to care.

Results 75.6% of 13–35-year-olds owned a mobile phone. After adjustment phone ownership was associated with age (aOR:1.48;95%CI1.42–1.54); male (aOR:1.64;95%CI 1.33–2.03); and recent HIV test (aOR:1.33;1.09–1.62). Interviews suggested that the mobile-phone enables HIV-self testing was broadly acceptable to users and providers. During the pilot study, everyone completed the self-test and received a result, the majority without resorting to the online support. The one participant testing positive was successfully linked to care. Post-pilot interviews found that young people liked the privacy and convenience and valued the availability of a hotline nurse. Main challenges were waiting 20 minutes to receive the test results and variable digital literacy.

Conclusion Mobile-phone enabled HIV self-testing combined the advantages of self-testing with provision of live support for those who struggle with the test, or who test positive. It provides the prospect of safe, decentralized, de-medicalised HIV care and prevention, including PrEP.

Disclosure No significant relationships.

015 – UNDERSTANDING PERCEPTIONS AND BELIEFS: IMPROVING STI/HIV INTERVENTIONS AND OUTCOMES

Wednesday, July 17, 2019
10:45 AM – 12:15 PM

015.1 'A PREP USER IS SOMEONE WHO HAS A LOT OF BAREBACK': A QUALITATIVE STUDY OF ACCEPTABILITY OF PREP IN MSM IN LEBANON

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Background Pre-exposure prophylaxis (PrEP) is a significant development in the global efforts to prevent HIV transmission and acquisition. In order to realize the potential of this antiretroviral medication for preventing acquisition of the virus by HIV-negative people, it is crucial to understand how it is perceived by most-at-risk populations and to assess their willingness to use it. PrEP have been shown to be effective in preventing HIV in MSM. The aim of this qualitative research was to understand the willingness of MSM in Lebanon to use PrEP, including their perception of it, its effectiveness, as well as potential motivators for and barriers to its uptake.

Methods Interviews were conducted with 18 Lebanese MSM using an STI clinic and checkpoint in Lebanon. Data were analyzed using Qualitative Thematic Analysis.

Results All participants recognized that PrEP reduces the risk of HIV acquisition and frequently positioned it as an alternative to condoms. Perceived barriers to PrEP included one's lack of discipline to adhere to PrEP adequately, the risk of potential side effects, the stigma surrounding PrEP and its users, and the potential cost of acquiring PrEP.

Conclusion Findings from this qualitative study suggest that in principle PrEP may be acceptable to MSM in Lebanon but that there are significant barriers to its uptake that need to be addressed before its implementation. Greater awareness and understanding of PrEP are critical to its successful implementation in Lebanon. Furthermore, its implementation needs to be matched by an adequate stigma reduction campaign.

Disclosure No significant relationships.

015.2 INTERESTED? WHY OR WHY NOT? STI CLINIC CLIENT PERCEPTIONS OF BACTERIAL STI VACCINES IN BRITISH COLUMBIA, CANADA

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Background Sexually transmitted infections (STIs) contribute to a large global health burden, potentially leading to cancer,

infertility, and increased risk of contracting other STIs. Several STI vaccines are in development, with the potential to decrease STI prevalence and morbidity. However, concerns remain regarding acceptability across populations. To plan for implementation and rollout, the objective of this study was to explore attitudes STI clinic clients have towards STI vaccines, including acceptability and perceived barriers.

Methods The STRIVE-BC consortium - a group of public health leaders, scientists, and clinicians focused on STI vaccine research - implemented a 31-item questionnaire at two large STI clinics in Vancouver, Canada to understand STI vaccine acceptability. Demographic and clinical characteristics were summarized using descriptive measures. A multivariable logistic regression (MLR) model was constructed using a combination of *a priori* clinically relevant variables and significant covariates ($p \leq 0.05$) from univariate analysis. The MLR model assessed predicting factors of STI vaccine interest as odds ratios (ORs) with 95% confidence intervals (CI).

Results 293 surveys were analyzed with 86.5% of respondents reporting they would be interested in receiving an STI vaccine. The average respondent was a 33-year-old Caucasian heterosexual male with post-secondary education. MLR indicated that willingness to pay was a significant factor for syphilis vaccine interest (OR=3.83, 95% CI=1.29, 11.38, $p=0.02$). Intent to engage in positive health behaviours after vaccination was significant for chlamydia (OR=5.94, 95% CI=1.56, 22.60, $p=0.01$) and gonorrhoea (OR=5.13, 95% CI=1.45, 18.07, $p=0.01$) vaccine interest.

Conclusion Participants attending large STI clinics expressed a strong willingness to receive STI vaccines. As STI vaccines are still years away from commercial availability, highlighting acceptable cost, ages, and anticipated health behaviours allows for informed implementation and rollout. Research priorities and areas of future work including additional populations and explorations of hesitation can be considered by attendees to apply within their research and practice areas.

Disclosure No significant relationships.

015.3 DEVELOPMENT OF A SCALE MEASURING STIGMA TOWARDS ALCOHOL ABSTINENCE AMONG PEOPLE LIVING WITH HIV IN VIETNAM

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10.1136/sextrans-2019-sti.190

Background Hazardous alcohol use is prevalent among people living with HIV (PLHIV), leading to sub-optimal HIV treatment outcomes. In Vietnam, alcohol use is highly normative making it challenging to reduce or abstain among PLHIV. We developed a quantitative scale to assess alcohol abstinence stigma (AAS) and assessed the association with alcohol use among PLHIV in Vietnam.

Methods We conducted qualitative interviews with 30 PLHIV with hazardous alcohol use from an antiretroviral therapy (ART) clinic in the Thai Nguyen to inform item development. Alcohol use was assessed using the Alcohol Use Disorders Identification Test (AUDIT). We tested items in a quantitative survey of 1,559 ART clinic patients in Thai Nguyen to assess internal reliability (Cronbach's α) and structural validity (exploratory factor analysis, EFA). We used binomial logistic regression to estimate associations between AAS (median score >7) and alcohol use.

Results Using the results from the qualitative interview data, we developed the AAS scale with seven final items covering internalized, experience, and anticipated stigma, with scores ranging from 7 to 35. The scale had good internal consistency ($\alpha=0.75$). EFA suggested the presence of two factors ($r=0.42$) that explained 64.5% of the total variance. Overall, the median AAS score was 7 (IQR:7–11). Those with alcohol dependence symptoms (AUDIT \geq 20) reported high levels of AAS (median=9, IQR:7–14) and non-harmful alcohol users (AUDIT<8) reported lower levels of AAS (median=7, IQR:7–9). AAS was significantly associated with alcohol dependency, (adjusted prevalence ratio APR =1.74, 95%CI: 1.53,1.99), adjusting for age, gender, and employment status.

Conclusion The AAS scale may be utilized or adopted to measure of alcohol abstinence stigma among PLHIV in settings where alcohol use is culturally encouraged. This new measure will aid future studies assessing the value of developing culturally sensitive strategies to reduce alcohol consumption and ultimately improving HIV treatment outcomes among PLHIV.

Disclosure No significant relationships.

015.4 PREDICTORS OF INCORRECT HIV CARE INITIATION BELIEFS AMONG PEOPLE LIVING WITH HIV/AIDS IN CHÓKWÈ DISTRICT, MOZAMBIQUE

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10.1136/sextrans-2019-sti.191

Background Early initiation of HIV treatment is crucial to reach epidemic control of HIV/AIDS. We evaluated beliefs about timely HIV care initiation and their predictors to better understand barriers to treatment initiation and inform educational interventions in Mozambique.

Methods We analyzed cross-sectional data collected from the 2014–2017 HIV combination prevention survey in Chókwè District, Mozambique to evaluate the prevalence of and associations with the belief that immediate HIV care after a positive diagnosis is not needed if a patient feels well. Analysis was restricted to HIV-positive participants, aged 15–59 years, who had previously heard of HIV and HIV treatment, had prior knowledge of their HIV-positive status and had ever received

HIV care in Chókwè. Descriptive analysis and multivariate logistic regression modeling were used to estimate the adjusted odds ratios (aOR) of potential predictors. All calculations were weighted to reflect the 2013 district census.

Results The median age of participants (N=2167) was 37 years (95% CI: 37–38); twenty-five percent were male, 75% had ever taken treatment and of those, 86% were on treatment at the time of survey. Sixty-two percent of participants believed there was no need to immediately seek HIV care after a positive diagnosis if the patient felt well. Never taking ARVs (aOR=4.1, 95% CI: 3.1–5.5), believing traditional medicine was as good as HIV treatment (aOR 4.2, 95% CI: 1.8–9.8), and never notified by a healthcare provider of their HIV treatment eligibility (aOR 1.4, 95% CI: 1.0–2.0) were associated with an increased odds of this belief. No significant associations with sociodemographic characteristics were found.

Conclusion These results demonstrate the importance of robust HIV treatment and counseling services that reinforce the benefits of early treatment initiation. Implementation of culturally responsive psychosocial support strategies may increase the prevalence of correct HIV care beliefs and treatment initiation.

Disclosure No significant relationships.

015.6 WOMEN'S APPROACHES TO INVOLVING OTHERS IN MAKING HIV TRIAL ENROLLMENT DECISIONS WHILE PREGNANT IN THE US AND MALAWI

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10.1136/sextrans-2019-sti.192

Background There is a pressing need to expand the HIV prevention and treatment evidence base in pregnancy. However, research in pregnancy entails unique ethical and scientific complexities. The decision-making processes of potential trial participants in the doubly sensitive context of HIV, a highly stigmatized disease, and pregnancy, where multiple stakeholders and sociocultural practices may influence women's preferences, are not well understood. Involvement of others in decision-making processes may vary, including who pregnant women consult and why, and the influence of consultations on decisions. Understanding women's involvement of others in participation decisions is critical to inform practices supporting informed decision-making.

Methods 140 in-depth interviews were conducted with pregnant or recently pregnant women; 70 in the U.S. and 70 in Malawi, 35 HIV-positive and 35 uninfected in each setting. Participants described whether they would involve others in enrollment decisions while pregnant for hypothetical HIV prevention or treatment research scenarios. Thematic analysis informed the analytic approach. Interviews were transcribed, translated when necessary, coded, and emergent themes identified.

Results In both contexts, many women described collaborative decision-making approaches, particularly with male partners, female relatives and friends, and in the US, clinicians. Participants commonly described valuing others' perspectives on risks and benefits and shared responsibility for the decision. Many women described sole decision-making authority, even if informing others was likely or necessary. Few women

described partners having sole decisional authority. Several participants, particularly in Malawi, stated they would decide independently for fear of HIV stigma, accusations of infidelity, and relationship conflict.

Conclusion Women described a variety of approaches and considerations in consulting others about HIV biomedical research enrollment while pregnant. Congress attendees will understand the importance of developing practices responsive to participants' needs and preferences, including facilitating women's ability to engage others in the decision-making process if she desires and supporting individual decision-making.

Disclosure No significant relationships.

016 – HOST-PATHOGEN INTERACTIONS

Wednesday, July 17, 2019

1:45 PM – 3:15 PM

016.1 THERAPEUTIC EFFECT OF INDOLEAMINE 2,3-DIOXYGENASE (IDO) INHIBITOR IN THE MALE GENITAL INFLAMMATION

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Background Indoleamine 2,3-dioxygenase (IDO) catalyzes the first and rate-limiting step of tryptophan catabolism. IDO is induced in various tissues during systemic infection and plays a key role in immune response. Therapeutic effect of IDO inhibitor for systemic infection was already reported, but the effect for local infection was still unclear. We hypothesize that IDO play a central role for local immunological reaction in the male genital inflammation and IDO inhibitor contribute to innovative therapy for the male genital inflammation. To validate this hypothesis, we inhibited IDO using 1-methyltryptophan (1-MT) and investigated inflammatory changes in the male genital inflammation model.

Methods Twelve weeks old C57BL/6 male mice were used through the study. 1-MT 100µg was intraperitoneally administered and confirmed inhibitory effect of 1-MT. Lipopolysaccharide (LPS) 100µg was injected to the male genitalia (epididymis and prostate) and confirmed validity of modeling. Based on the results of preliminary examination, LPS was injected three hours after 1-MT administration. After modeling, male genitalia were removed in a time-dependent manner. Inflammatory changes were analyzed using comprehensive cytokines/chemokines assay for determining representative candidates. Biochemical and immunohistochemical changes were analyzed using representative candidates.

Results Histological analysis showed that invasion of inflammatory cells and destruction of ductal structure were observed in the male genital inflammation model of 1-MT(-) mice compared with that of 1-MT(+) mice. Comprehensive cytokines/chemokines assay showed that down-regulated expression of inflammatory promoting cytokines/chemokines (epididymitis: IL-1α, IL-6, CCL3, CXCL1. Prostatitis: IL-16, TREM-1,

CXCL10, CXCL12) were observed in male genital inflammation model of 1-MT(+) mice compared with that of 1-MT(-) mice. Same results were obtained from separate quantitative assay and immunofluorescent staining.

Conclusion Ido is involved in immunological reactions via cytokines/chemokines in the male genitalia. Inhibition of Ido may contribute to protection of the male genital inflammation. Therefore, Ido inhibitor might be a novel target therapy for the male genital inflammation.

Disclosure No significant relationships.

016.2 MAPPING REGIONS OF HOST ATTACHMENT IN THE *T. PALLIDUM* ADHESIN TP0751: FUNCTION-INFORMED VACCINE DESIGN

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10.1136/sextrans-2019-sti.194

Background *Treponema pallidum* ssp. *pallidum* (*T. pallidum*), the causative agent of syphilis, is a highly invasive pathogen that moves throughout the body via the bloodstream and invades every organ and tissue to cause the serious sequelae associated with sexually-transmitted and congenitally-acquired syphilis infections. Prevention of pathogen spread via the bloodstream is a critical requirement of a successful syphilis vaccine. The *T. pallidum* vaccine candidate Tp0751 is a host-binding adhesin that interacts with endothelial cells lining blood vessels. In this study we identify epitopes of Tp0751 that, when blocked with neutralizing monoclonal antibodies (mAbs), interrupt host endothelial cell interaction. This improved understanding will enhance antigen selection for syphilis vaccine development.

Methods Epitope localization of mAbs specific for Tp0751 was completed via enzyme-linked immunosorbent assays using several truncated versions of Tp0751. Following epitope localization, recombinant Tp0751 was incubated with individual mAbs and subsequently assayed for inhibition of Tp0751 adhesion to endothelial cells compared to that observed using control antibodies.

Results Epitope screening of Tp0751-specific mAbs identified functionally important regions of Tp0751 that mediate adherence to host cells. Inhibition studies revealed that all mAbs reactive against a defined C-terminal structural domain of Tp0751 impeded adherence of recombinant Tp0751 to endothelial cells. In contrast, N-terminal-reactive mAbs did not display this inhibition. These molecular studies allowed localization of neutralizing epitopes within a functionally important domain of the Tp0751 adhesin, which in turn assists with informed vaccine design.

Conclusion This study identified epitopes of Tp0751 that are important for *T. pallidum* host cell adhesion. Host immune targeting of these functional regions may facilitate antibody-dependent neutralization of treponemal dissemination, which is needed to establish protective immunity against *T. pallidum*. These results further our understanding of *T. pallidum* host cell adhesion and allow refinement of antigen selection for syphilis vaccine development.

Disclosure No significant relationships.

016.3 CYTOKINE IMMUNE RESPONSE AGAINST NATURAL HUMAN PAPILLOMAVIRUS INFECTION AMONG MEN IN KISUMU, KENYA

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10.1136/sextrans-2019-sti.195

Background Human papillomavirus (HPV) is strongly associated with ano-genital and cervical cancer. Persistence of oncogenic HPV genotypes is required for development and progression of HPV-associated malignancies. Although, >70% of women clear incident HPV infections, data on natural history and HPV immunology among men is limited.

Methods To evaluate cell-mediated immune response against natural HPV infection among men, we assessed cytokine (IFN- γ , TNF- α , IL-2, IL-4, IL-6, IL-10 and IL-13) responses in peripheral-blood-mononuclear cells (PBMCs) collected from 135 men enrolled in a prospective HPV cohort study. PBMCs were stimulated by HPV L1 gene viral-like-particles (VLP) and cytokine responses measured using a multiplex Luminex assay.

Results Of 135 men included in this analysis, 41 men had persistent HPV infection, 44 men cleared HPV infection and 50 were HPV uninfected. Their mean (SD) ages were 28.9 (6.79), 27.6 (6.49) and 26.4 (4.81) years respectively. Immune response was induced in 22% (95% CI: 12.8–35.2) of HPV uninfected men, 64% (95% CI: 48.9–76.2) of men with HPV clearance and 51% (95% CI: 36.5–65.8) of men with HPV persistence. Men with HPV clearance and HPV persistence were significantly ($p < 0.01$) at increased odds [OR = 6.20 (95% CI: 2.29–17.19) and OR = 3.72 (95% CI: 1.37–10.25) respectively] of mounting cytokine responses compared to HPV uninfected men. T-helper type 1 (Th1) cytokines IFN- γ (5.1 mean-fold increase) and IL-2 (4.2-fold) were significantly ($p < 0.0001$) upregulated among men with HPV clearance and not in men with HPV persistence, compared to HPV uninfected men. Among men with HPV clearance compared to those with persistent HPV infection, IFN- γ (2.4-fold) and IL-2 (3.0-fold) were the only cytokines significantly ($p < 0.0001$) upregulated. In the three groups of men, there were no significant changes in Th1 cytokine TNF- α , and Th2 cytokines: IL-4, IL-6, IL-10 and IL-13.

Conclusion In this study, Th1 cell-mediated cytokine immune response was associated with HPV clearance in men.

Disclosure No significant relationships.

016.4 STRUCTURAL SIMILARITY OF *TREPONEMA PALLIDUM* PROTEIN TP0225 WITH HUMAN TOLL-LIKE RECEPTOR 2

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10.1136/sextrans-2019-sti.196

Background The causative agent of syphilis, *Treponema pallidum*, is a highly invasive chronic pathogen. Here we used bioinformatics and structural biology to characterize the sole LRR-containing protein in *T. pallidum*, Tp0225. In other bacterial pathogens, Leucine-Rich Repeat (LRR)-containing proteins contribute to chronicity by mediating attachment, invasion and immune evasion.

Methods A phylogenetic tree was constructed to determine the evolutionary relationship between Tp0225 and LRR homologs from pathogenic and non-pathogenic treponemes. The size and organization of Tp0225 protein domains were analyzed by comparing them to the domains of the treponemal homologs. For structure determination, the full-length recombinant protein was purified, crystallized, and the three dimensional structure determined using X-ray crystallography.

Results Bioinformatic analyses showed that Tp0225 has diverged more from non-pathogens compared to pathogens during evolution. The structure of Tp0225 demonstrated that the protein adopts a non-classical LRR fold and contains a hydrophobic pocket on the surface of the structure. This unusual LRR characteristic is similar to the hydrophobic pocket found on the surface of the human Toll-like Receptor 2 (TLR2) LRR domain that recognizes *T. pallidum* during infection.

Conclusion We have determined the structure of the only LRR-containing protein in *T. pallidum* and have shown that it contains an unusual LRR structural feature that is shared with the host innate immune signaling molecule TLR2. This structural mimicry may be involved in subversion of normal host processes during *T. pallidum* infection.

Disclosure No significant relationships.

016.5 TARGETING COMPLEMENT RECEPTOR 3 ON PRIMARY HUMAN CERVICAL CELLS HAS THE POTENTIAL TO CURE *NEISSERIA GONORRHOEAE* INFECTION

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10.1136/sextrans-2019-sti.197

Background Complement receptor 3 (CR3) is a leukocytic, pattern recognition receptor that plays a pivotal role in innate immunity. CR3 is also uniquely expressed by human cervical epithelial cells where it is the key receptor mediating *Neisseria gonorrhoeae* (Ng) cervicitis. Binding of the Ng surface appendage, pilus, to the I-domain region of CR3 (CR3ID) is critical to cervical cell adherence and modulates the host response to infection. Thus, the pilus-CR3ID interaction may pose a novel target for critically-needed, new strategies to treat or prevent Ng disease in women.

Methods To identify potential inhibitors of the Ng-CR3 interaction, recombinant human I-domain or purified CR3 were immobilized on biosensor chips. Interactions between these immobilized proteins and a library of 3141 drugs were investigated by surface plasmon resonance (SPR). Drugs that bound the CR3ID were further examined by competitive SPR studies and in Ng, primary human cervical epithelial (Pex) cell infection assays.

Results Using SPR, we identified fourteen drugs that bound to the CR3ID with disassociation constants in the nanomolar range. Competitive SPR analysis demonstrated that six of these fourteen drugs blocked the pilus-CR3ID interaction. Moreover, these drugs also blocked Ng adherence to Pex cells as well as to Chinese hamster ovary cells expressing CR3 (CHO-CR3). One drug, carbamazepine, was chosen for further analysis using a panel of low-passage and multidrug-resistant Ng strains. Carbamazepine blocked adherence to Pex and CHO-CR3 cells for all strains tested and also could cure Pex cells

that had an established *Ng* infection. In this regard, a single dose of carbamazepine was effective in curing ($\geq 99\%$ *Ng* killing by 24h post-treatment) Pex cells infected with multidrug-resistant *Ng* strains, including the ceftriaxone-resistant strains WHO-X (H041) and WHO-Y (F89).

Conclusion Our data identify safe, repurposed, drugs that may have efficacy in preventing and treating *Ng* cervical infection in women.

Disclosure No significant relationships.

016.6

BASIC SCIENCE AIDS SYPHILIS VACCINE DEVELOPMENT: BLOODSTREAM SPREADING BY THE SYPHILIS SPIROCHETE *TREPONEMA PALLIDUM*

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10.1136/sextrans-2019-sti.198

Background *Treponema pallidum* ssp. *pallidum* (*Tp*) causes syphilis, a sexually transmitted infection characterized by multi-stage disease and diverse symptoms. *Tp* undergoes rapid vascular dissemination, penetrating tissue, placental, and blood-brain barriers to access secondary infection sites via a process that is incompletely understood. The protein Tp0751 is an adhesin on the host-facing surface of *Tp* that mediates adherence to endothelial cells (ECs) lining blood vessel walls. This study explores *Tp* movement across endothelial barriers to enhance our understanding of *Tp* dissemination and identify host interactions that could be targeted for vaccine development.

Methods The methods of affinity chromatography and proteomics were used to identify receptor proteins on host ECs that are bound by Tp0751. Antibody inhibition studies revealed specific receptor regions required for binding. Endothelial barrier traversal was investigated with immunofluorescence and barrier permeability assays. Phosphoproteomics identified endothelial intracellular signaling pathways initiated by Tp0751 by exploring gain/loss of phosphoryl groups on proteins.

Results Here we show *Tp* uses Tp0751 to bind the 67 kDa laminin receptor (LamR) on human EC surfaces. Importantly, the same region of LamR is also targeted by meningitis-causing bacteria including *Neisseria meningitidis* and *Streptococcus pneumoniae*. Further molecular analyses reveal that *Tp* and Tp0751 disrupt the architecture of human cell-cell junctions in blood vessel walls without altering overall barrier integrity. Phosphoproteomics demonstrates that ECs exposed to Tp0751 exhibit differential phosphorylation on proteins known to promote endothelial barrier traversal by leukocytes and pathogens.

Conclusion These studies suggest a common tissue invasion strategy exists for neuroinvasive pathogens and identifies an interaction that can guide vaccine development for syphilis and other neuroinvasive diseases. Further, exploring *Tp* barrier traversal reveals that *Tp* uses similar mechanisms as immune

cells and neurotropic pathogens to invade tissues and cause the detrimental sequelae associated with syphilis. These studies enhance our understanding of *Tp* infection and facilitate targeted syphilis vaccine development.

Disclosure No significant relationships.

O17 – SCREENING AND VACCINATION

Wednesday, July 17, 2019

1:45 PM – 3:15 PM

017.1

HPV FOCAL 48 MONTH EXIT RESULTS BY AGE FOR WOMEN HPV OR LBC NEGATIVE AT BASELINE SCREENING

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10.1136/sextrans-2019-sti.199

Background HPV FOCAL, a large clinical trial conducted within an organized screening program setting, compared high-risk human papillomavirus (HPV) testing (Liquid based cytology (LBC) triage for HPV positives) to LBC for primary screening for cervical cancer. Primary endpoints included detection of high grade cervical intraepithelial neoplasia (CIN) grade 2 or greater (CIN2+) or grade 3 or greater (CIN3+) over 48 months in women 25–65 yrs of age.

Methods Over 18,000 women were randomized into the HPV and LBC arms. HPV arm: baseline HPV testing; if HPV negative, exit at 48 months with HPV/LBC co-testing. LBC arm: baseline LBC testing; if LBC negative, screen at 24 months with LBC and exit at 48 months with HPV/LBC co-testing (in LBC arm, 48 months disease detection includes disease found at 24 months). We present 48 month exit CIN2+ results by age for baseline negative women.

Results At baseline, in the HPV arm, 8769 were HPV negative and in the cytology arm, 9074 were cytology negative. For all ages, at 48 months significantly more CIN2+ was detected in the LBC vs. HPV arm (10/1000 [95%CI: 8, 12] vs 4/1000 [95% CI: 3,5], respectively, $p < 0.01$). In both groups, CIN2+ exit screen detection rates were highest in the women 25–29 yrs of age at baseline screening (LBC 30.8/1,000 & HPV 19.5/1,000) and lowest in women 50+ at baseline (LBC 3.5/1,000 & HPV 1.8/1,000).

Conclusion At FOCAL exit where women were co-tested with LBC and HPV, less CIN2+ was detected across all age strata in women who were baseline HPV negative, than in baseline cytology negative women, confirming the safety of a 48 month interval for HPV negative women. In addition, the highest CIN2+ rates were detected in women who were 25–29 yrs at baseline and lowest in those 50+ at baseline, informing for age appropriate HPV-based program planning.

Disclosure No significant relationships.

017.2 WOMEN'S EXPERIENCES WITH PRIMARY HUMAN PAPILLOMAVIRUS (HPV) TESTING FOR CERVIX SCREENING: HPV FOCAL EXIT SURVEY RESULTS

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10.1136/sextrans-2019-sti.200

Background Globally, cervical screening is moving from cytology (Pap) to HPV-based testing. Cytology-based screening has occurred for decades; therefore, engaging the screened population is critical to success of this significant paradigm shift. HPV FOCAL, a large clinical trial, compared primary HPV testing every 4 years to liquid-based cytology (LBC) every 2 years. Participants were surveyed to assess experiences surrounding HPV screening.

Methods Women aged 25–65 (n=19,009) from two urban centres were randomized to control (LBC) or intervention (HPV) arms, and 16,374 women attended 48 month exit with HPV/LBC co-testing. At trial entry, women were provided information about HPV, cervical cancer, HPV testing and results. Women completing exit screening were invited to complete a survey assessing attitudes to HPV vs. Pap testing, screening intervals, and receipt of HPV results.

Results Of 14,535 invites sent, 5,532(38%) responders completed some or all of the survey with 63% reporting that HPV vs. Pap testing was acceptable; and 54% willing to have HPV testing every 4–5 yrs vs. a Pap every 3 yrs. Concerns regarding HPV positive results differed by age. More women ≥50 yrs reported it important for them to know who gave them HPV than younger women (25–34 yrs: 68%; 35–49 yrs: 69%; 50+ yrs: 76%). More women 25–34 yrs than >35 yrs would feel judged for having HPV (25–34 yrs: 44%; 35–49 yrs: 36%; 50+ yrs: 34%). More women ≥50 yrs reported being HPV positive would affect the relationship with a sexual partner (25–34 yrs: 36%; 35–49 yrs: 41%; 50+: 45%). Response differences by education will also be presented.

Conclusion In this large HPV screening trial, the majority of women reported that HPV vs. Pap testing was acceptable and over half would be willing to have HPV testing every 4–5 yrs. Women had varied concerns regarding HPV positive results and responses varied by age. These findings illustrate the importance of comprehensive, targeted communication strategies prior to implementation of primary HPV screening.

Disclosure No significant relationships.

017.3 DECLINING RATES OF CERVICAL INTRAEPITHELIAL NEOPLASIA AFTER INTRODUCTION OF THE HPV VACCINE IN BRITISH COLUMBIA, CANADA

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10.1136/sextrans-2019-sti.201

Background In 2008 British Columbia (BC), Canada, implemented a voluntary school-based HPV vaccination program for girls, born 1994 or later, with an average uptake of 63%. Given the long time-lead between infection and malignant disease, effects on cancer incidence will take decades to assess. To evaluate the early impact of the HPV vaccine in BC, ecological trends in cervical intraepithelial neoplasia (CIN) rates were assessed in young women before and after the implementation of the HPV vaccination program.

Methods From the population-based cervical cancer screening program database in BC, information on all Pap smears and histopathological abnormalities, in calendar years 2004–2017 in women under age 28 were obtained. Rates of cervical intraepithelial neoplasia (CIN) were calculated as the number of cases divided by the number of cytology specimens for that period. Incidence rate ratios (IRR) comparing pre- and post-vaccination years, adjusted for age and screening year, were calculated by piece-wise Poisson regression analysis. We performed a sensitivity analysis including only women eligible for routine screening.

Results The total number of screens in the unvaccinated cohort was 1,417,512 and in the vaccinated cohort 73,343. After the introduction of the HPV vaccination program in BC, a decrease in the incidence of CIN was observed in vaccine-eligible birth cohorts. The adjusted IRR for CIN1, 2 and 3 were respectively 0.60 (95%CI 0.53–0.67), 0.49 (95%CI 0.41–0.57) and 0.39 (95%CI 0.32–0.47). Sensitivity analysis confirmed these findings, also indicating a significant decline in CIN rates in birth cohorts eligible for the HPV vaccination program.

Conclusion This study illustrates the population impact of the provincial school-based HPV vaccination program, by an observed decline in rates of CIN since introduction of the program. Further evaluation of the population-based impact includes a linkage between vaccination and screening registry.

Disclosure No significant relationships.

017.4 IMPACT OF THE HUMAN PAPILLOMAVIRUS IMMUNIZATION PROGRAM ON RATES OF ANOGENITAL WARTS IN BRITISH COLUMBIA, CANADA 2000–2017

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10.1136/sextrans-2019-sti.202

Background In 2008, British Columbia (BC), Canada, implemented a provincially-funded school-based quadrivalent human papillomavirus (HPV-4) vaccine program for girls born in 1994 or later. In 2015, the program was expanded to include men who have sex with men (MSM) born in 1989 or later. To determine the impact of the vaccine on anogenital warts (AGW), diagnosis rates were measured among women who have sex with men (WSM), men who have sex with women (MSW), and MSM.

Methods AGW diagnoses were ascertained from an electronic medical record system used at 16 geographically dispersed high volume sexually transmitted infection (STI) clinics across BC. Clients aged 14–46 years, born between 1970–1999 who accessed services from 2000–2017 were included. Rates were calculated as new AGW diagnoses over person-years (PY) at risk, and stratified by age group, period of clinic visit, and birth cohort. Age-period-cohort Poisson modeling produced adjusted relative rates (aRR).

Results There were 204,832 clinic visits by 85,158 unique individuals: 28,366 (33%) WSM, 35,688 (42%) MSW and 14,534 (17%) MSM. After adjusting for age and period, overall AGW rates were 56% lower among the birth cohorts 1994–1996 compared to 1991–1993 (1.21 vs 2.72 cases/100PY, aRR: 0.44, 95%CI: 0.34, 0.59). AGW rates in the 1994–1996 cohort were 65% lower among WSM (0.97 vs 2.77 cases/100PY, aRR: 0.35, 95%CI: 0.22, 0.57), 58% lower among MSW (1.60 vs 3.78 cases/100PY, aRR: 0.42, 95%CI: 0.28, 0.65) and 41% lower among MSM (1.14 vs 1.19 cases/100PY, aRR: 0.59, 95%CI: 0.38, 0.91) versus the 1991–1993 cohort.

Conclusion The HPV-4 vaccine program had a significant impact on lowering AGW rates in BC, specifically among WSM born after 1994 who had access to the school-based program, and MSW born after 1994 likely from herd immunity. A smaller reduction in AGW rates among MSM may reflect delayed access to provincially-funded HPV-4 vaccine.

Disclosure No significant relationships.

017.5 DECLINING TRENDS IN ANOGENITAL WARTS SINCE HPV VACCINE INTRODUCTION IN A LARGE URBAN HEALTH SYSTEM, 2013–2017

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10.1136/sextrans-2019-sti.203

Background Assessing the extent to which the HPV vaccines are affecting trends of HPV-related diseases is an important public health priority. Diagnoses of anogenital warts (AGW) provide an early indicator of vaccine impact due to its short incubation period compared to other HPV-related diseases. We expand on previous trend studies by including recent data through 2017 that permit more robust assessments since the routine recommendations for male vaccination in 2011 in the United States.

Methods Electronic medical record data were abstracted from encounters that occurred in 8 Yale-New Haven Health system clinics between 2013–2017. Visits related to incident AGW were identified for each patient as the first occurrence of either having an AGW diagnosis code (ICD-9 078.11) or ‘genital warts’ as a reason for visit indicated by their medical provider. The annual proportion of visits related to incident cases of AGW was estimated among the number of patients who had at least one visit in that clinic per year. Trends overall, by sex, and by vaccine eligibility were analyzed using Cochran-Armitage tests and $p < 0.05$.

Results A significant decline over time was observed in the proportion of visits for incident AGW overall (p -value < 0.001 , annual percent change (APC) = -20.3). When stratified by sex,

a significant decline was observed in both males (p -value = 0.0203, APC = -17.9) and females (p -value = 0.0006, APC = -9.4). Significant declines were also observed among later birth cohorts that were eligible for HPV vaccines (p -value = 0.0003, APC = -24.4) but not for earlier birth cohorts (p -value = 0.12, APC = -3.1).

Conclusion Diagnoses of incident AGW have declined significantly through 2017, and birth cohort analyses are consistent with expected HPV vaccine impact. Importantly, these trends reflect and extend previous analyses and provide strong evidence of declines in males since their eligibility for routine vaccination in 2011 in the United States.

Disclosure No significant relationships.

017.6 PARENTS’/HEALTHCARE PROVIDERS’ KNOWLEDGE, ATTITUDE AND PERCEPTION OF SCHOOL-BASED HPV VACCINATION PROGRAM IN LAGOS, NIGERIA

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10.1136/sextrans-2019-sti.204

Background Human Papillomavirus (HPV) infection is a necessary cause for cervical cancer. HPV vaccine is available at a cost but not yet implemented in the national vaccination program in Nigeria. School age children are the target population for this vaccine. Parents play crucial roles in the decision to vaccinate their children against HPV and the healthcare providers have important roles to play in the coverage of this vaccine. The study objective was to assess and compare the knowledge, attitude and perception of parents and healthcare providers about school-based HPV vaccination program in Lagos State, Nigeria.

Methods A comparative cross sectional descriptive study involving 300 parents of children aged 9–13 years attending public primary and junior secondary schools as well as 221 healthcare providers in Primary Health Centers in Lagos State selected by multistage sampling techniques was conducted. A pre-tested self-administered questionnaire was used for data collection. Data analysis was done using SPSS. Chi-square statistics was used to test the associations between the variables at the level of significance of 5%.

Results The mean ages were 42.0 ± 7.9 years (parents) and 36.8 ± 6.2 years (healthcare providers). Majority of the parents (75%) and healthcare providers (94%) have heard of HPV infection and cervical cancer but only 40% of parents and 80% of the healthcare providers knew about HPV vaccine. Of these, 33% of the parents and 58% of the healthcare providers knew that this vaccine can be given in schools. Overall knowledge was significantly poor (35%) among parents and good (94%) among healthcare providers. Attitude and perception in both groups were good (about 90%) and about 70% of respondents were in support of school-based HPV vaccination. Significant factors affecting overall knowledge in the two groups were age, gender and level of education.

Conclusion With poor knowledge among parents, there is a need for educational campaigns and medical education to increase the HPV vaccine awareness with subsequent increase in vaccination coverage in Nigeria.

Disclosure No significant relationships.

018 – PILLS OF WHITE MERCURY: SYPHILIS PREVALENCE, SCREENING AND PREVENTION

Wednesday, July 17, 2019

1:45 PM – 3:15 PM

018.1 PREVALENCE OF ACTIVE SYPHILIS AMONG TRANSWOMEN IN SÃO PAULO, BRAZIL

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10.1136/sextrans-2019-sti.205

Background Studies document that transwomen bear one of the most severe burdens of HIV worldwide, yet little information is available on the prevalence of other sexually transmitted infections (STI). Of particular concern in Brazil is the lack of data on the prevalence of syphilis specifically for transwomen in a background of increasing syphilis diagnoses among other populations. The aim of the present analysis was to estimate the prevalence of active syphilis infection among transwomen in a large, community-based sample from São Paulo, Brazil.

Methods We analyzed baseline data from the Trans*National Study, a cohort being assembled to longitudinally track health issues among transwomen in São Paulo, Brazil. Participants were recruited using respondent-driven sampling (RDS), a long-chain peer-referral methodology to obtain population-based data from hard-to-reach communities. Participants completed a structured questionnaire, HIV testing, antibody tests for *Treponema pallidum*, and, if positive, Venereal Disease Research Laboratory (VDRL) test titers. Active syphilis was defined as a positive treponemal-specific antibody test plus a VDRL titer greater than 1:8, consistent with national treatment guidelines.

Results Of 729 transwomen interviewed, 32.1% were 24 years of age or younger and 75.6% earned under the city's minimum wage. A majority (453/729, 62.1%) tested antibody-positive for syphilis. Among those, the VDRL titer was greater than 1:8 for 37.5% (170/453), suggesting a point prevalence of active syphilis of 23.3% (95% CI 20.3–26.6) in the population. Of those with evidence of active syphilis, only 35.3% (60/170) reported ever having a syphilis test. HIV prevalence was 28.7% in the sample; 70 transwomen were living with HIV and had evidence of active syphilis (overall co-infection 9.6%).

Conclusion Our community-based sample in São Paulo, Brazil suggests one-fifth to one-fourth of transwomen have active syphilis, with possibly most going untreated. This study highlights the urgent need for screening and prevention strategies for STI infection, especially syphilis, for transwomen.

Disclosure No significant relationships.

018.2 ESTIMATING DISEASE BURDEN OF MATERNAL SYPHILIS AND ASSOCIATED ADVERSE PREGNANCY OUTCOMES IN CHINA

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10.1136/sextrans-2019-sti.206

Background Syphilis can be transmitted from mother to infant during pregnancy or delivery, causing a variety of adverse pregnancy outcomes including early fetal loss, stillbirth, neonatal death, prematurity, low birth weight and clinical evidence of congenital syphilis. In 2012, WHO estimated that 0.93 million maternal syphilis infections caused 0.35 million adverse pregnancy outcomes. However, there has been no report on the burden of maternal syphilis infections and associated adverse outcomes in China. This study aimed to estimate maternal syphilis infections and its associated adverse pregnancy outcomes in China.

Methods A WHO estimation model was used to estimate the number of maternal syphilis and adverse pregnant outcomes due to mother-to-child transmission. Data on the number of pregnant women, syphilis testing rate, syphilis seroprevalence rate and treatment rate were collected at county level in China in 2015.

Results Data were collected from 2,675 counties of 337 cities in 30 provinces (data were not reported in Tibet Autonomous Region) of mainland China in 2015 35,247 pregnant women were estimated to be infected with syphilis and the prevalence rate was 0.23%. It was estimated that a total of 5232 adverse pregnancy outcomes were caused by maternal syphilis infections, including 2,406 early fetal losses and stillbirths, 928 neonatal deaths, 788 preterm or low weight births, and 1,110 infected infants. The overall incidence rate of syphilis associated adverse pregnant outcomes was 34.1 per 100,000 pregnant women in China, which ranged from 5.8 to 218.0 per 100,000 pregnant women among different provinces.

Conclusion Maternal syphilis and associated adverse outcomes remain an important public health issue in China, and disease burden was relatively high in some areas. Improved syphilis screening, timely diagnosis and treatment are important for eliminating mother-to-child transmission of syphilis.

Disclosure No significant relationships.

018.3 DEVELOPMENT OF A SYPHILIS SERUM REPOSITORY FOR RESEARCH AND EVALUATION OF SYPHILIS DIAGNOSTICS TESTS IN THE UNITED STATES

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10.1136/sextrans-2019-sti.207

Background Ongoing collaboration between the Centers for Disease Control and Prevention's (CDC) Division of STD Prevention and the Association of Public Health Laboratories (APHL) is facilitating the development of a syphilis serum repository for research and evaluation of Food and Drug

Administration (FDA)-cleared syphilis diagnostic tests or new investigational assays in the United States (US). Described here is a repository of residual syphilis serum specimens (N=464) that were tested and submitted by US state and local public health laboratories (PHL), with further evaluation performed at the CDC.

Methods Specimen submission criteria include de-identification of patient information, collection date, volume, storage conditions, freeze-thaw cycles, prior serology results, reported clinically diagnosed syphilis stage, treatment status, and demographics as available. Upon CDC receipt and assessment, 283/464 sera met the minimum 2 ml volume requirement for assay evaluation. Sex and age information were provided for all specimens, with some clinical data provided for reported (n=152) and unknown (n=131) syphilis stage. Previous test results were blinded and sera were tested using five FDA-cleared syphilis serological tests; nontreponemal Rapid Plasma Reagin (RPR), treponemal *Treponema pallidum* Particle Agglutination (TP-PA), Trep-Sure Enzyme Immunoassay (EIA), LIA-SON treponema screen (Chemiluminescence Immunoassay, CIA), and Syphilis Health Check (SHC). The investigational INNO-LIA Syphilis Score (Line Immunoassay, LIA) was also tested.

Results Of the five treponemal tests evaluated, overall sensitivity ranged from 76.3–100%, with EIA and SHC showing the highest and lowest sensitivity, respectively. The nontreponemal RPR demonstrated overall sensitivity between 63.2–100%. Concordance was high (84.2%) among the standard laboratory assays, RPR, EIA, CIA, and TP-PA. There was negligible variation in sensitivity based on reported syphilis stage for this panel.

Conclusion Laboratory generated data and limited reported clinical information associated with tested residual specimen panels may be of value for research and development of syphilis diagnostic tests. Repository growth is ongoing with active serum submissions from PHL.

Disclosure No significant relationships.

018.4 EVALUATION OF ROUTINIZED SYPHILIS SCREENING WITH HIV VIRAL LOADS AMONG MEN LIVING WITH HIV

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10.1136/sextrans-2019-sti.208

Background Frequent syphilis screening allows for early detection and treatment and decreased transmission. We conducted a clinic-based intervention incorporating opt-out syphilis testing into routine HIV viral loads. The primary objective was to determine the degree to which the intervention increased the detection rate of early syphilis.

Methods The Enhanced Syphilis Screening in HIV-positive Men (ESSAHM) Trial was a stepped wedge cluster-randomized controlled trial in 4 urban HIV clinics in Ontario, Canada from 01/02/2015 to 31/07/2017 (ClinicalTrials.gov: NCT02019043). Population: adult males. Intervention (I):

standing orders for syphilis serological testing with HIV viral loads. Control (C): maintenance of current, provider-initiated syphilis testing practice. Outcome: new diagnoses of early infectious syphilis. We obtained syphilis serologies via linkage with the centralized provincial laboratory and defined early syphilis cases using a standardized clinical worksheet and medical chart review. The trial was powered ($\geq 80\%$) to detect a $\geq 75\%$ increase in case detection rate, assuming 3 tests per patient per year. We employed a generalized linear mixed-effect model to estimate time- and age-adjusted rate ratios (aRR) comparing intervention to control periods.

Results 3,893 men were followed over 7,468 person-years (PY), and had a mean of 2 viral load tests per year. The mean number of syphilis tests per person per year increased from 0.65 in control to 1.44 in intervention periods. There were 217 new diagnoses of syphilis in total (C: 81; I: 136), for which 147 were cases of early syphilis (C:61; I:86). The detection rate increased from 1.51 per 100PY in control to 2.50 per 100PY in intervention periods, with a corresponding aRR = 1.28 (95%CI 0.73, 2.24; p = 0.40).

Conclusion The implementation of standing orders for syphilis serological testing with HIV viral loads resulted in a modest but statistically non-significant increase in detection of new cases of early infectious syphilis.

Disclosure No significant relationships.

018.6 PRENATAL CARE ENTRY AMONG PREGNANT WOMEN WITH SYPHILIS WHO USE METHAMPHETAMINES: A KEY TO CONGENITAL SYPHILIS PREVENTION

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10.1136/sextrans-2019-sti.209

Background In California, congenital syphilis (CS) increased for the fifth consecutive year in 2017, and contributed one third of CS cases in the United States. In response, state and local STD programs implemented CS prevention strategies. A CS Prevention Cascade monitors impact, assesses prenatal care (PNC) gaps, and estimates CS cases averted.

Methods This analysis used 2017 California Project Area surveillance data for women diagnosed with syphilis during pregnancy or at delivery. Cases were assessed for the following, each met ≥ 30 days prior to delivery: documented PNC, syphilis screening, treatment initiation, and treatment adequacy by stage. Data for each cascade bar included women counted in the preceding bar(s). The final bar represented the CS Prevention Ratio (CSPR) – the proportion of pregnant syphilis cases who did not deliver a CS infant. This cascade was then stratified by MU, defined as having either self-reported use upon interview or positive urine toxicology in pregnancy or at delivery. Three groups were identified: Non-MU (NMU); Positive-MU (PMU); Not interviewed (NI). A post-hoc stratified cascade included only pregnant syphilis cases with documented PNC, to explore how MU might impact CS case aversion once PNC is initiated.

Results 616 women were included; 239/118/259 were NMU/PMU/NI respectively. Within these groups 95%/86%/71% met PNC criteria, 89%/81%/66% received syphilis screening, 84%/75%/63% initiated treatment, 82%/73%/61% met treatment adequacy, and CSPR were 79%/69%/59% (p<0.001).

However, when considering only those with documented PNC (n=226/101/183): 94%/95%/94% received syphilis screening, 88%/88%/89% initiated treatment, 87%/85%/87% met treatment adequacy, and CSPR were 84%/81%/84% (p=0.84).

Conclusion Compared to NMU, PMU and NI were associated with a decreased CSPR. When considering only those with documented PNC, significant differences between groups were not observed, suggesting PNC entry may be a key intervention for CS prevention.

Disclosure No significant relationships.

019 – MODELS, NETWORKS AND TRANSMISSION DYNAMICS: NEW INSIGHTS FOR PROGRAMS

Wednesday, July 17, 2019

1:45 PM – 3:15 PM

019.1 MODEL-BASED STUDY DESIGN FOR ESTIMATION OF ROUTE-SPECIFIC GONORRHEAL TRANSMISSION PROBABILITIES

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10.1136/sextrans-2019-sti.210

Background Gonorrheal infection occurs at multiple anatomical sites as a result of different types of sex. Assuming anal sex, oral sex, rimming, and kissing transmit infection leads to seven possible routes of transmission. Recent models of gonorrheal infection have shown that the route-specific transmission probabilities cannot be directly estimated from currently available data. Here, we have illustrated how theoretical models can be used to inform epidemiological study designs aimed at estimating these transmission probabilities. This methodology that we call ‘model-based study design’ informs 1) necessary sample sizes, 2) which variables need to be measured, and 3) how sensitive resulting estimates are to the analytical model misspecification.

Methods We simulated cohorts of high risk MSM over 2 years, where every three months, each man completes a sexual behavior questionnaire and has gonorrheal testing at all sites. Cohorts were simulated under many of conditions, such as measuring different variables, different levels of under and over reporting of sex acts, and different patterns of sexual behavior in the population. The simulated data were analyzed in a Bayesian framework where prior knowledge of the joint prevalence of single-site and multi-site gonorrheal infection was integrated into the analysis using the Stan programming language. Outcomes included coverage of true transmission probabilities, bias, and uncertainty in route-specific transmission probabilities.

Results Under ideal conditions, we have shown that route-specific gonorrheal transmission probabilities can be estimated from study designs similar to ongoing CDC projects.

However, we also found that failure to measure heterogeneity in sexual behavior, a high preponderance of very high-risk behavior, and systemic under-reporting of certain sex acts (but not random recall bias) significantly limit the power of cohort studies regardless of the design.

Conclusion Model-based study design provides a general method for the design, analysis, and evaluation of studies for complex parameters that cannot be estimated directly from available data.

Disclosure No significant relationships.

019.2 BRIDGING OF *NEISSERIA GONORRHOEA*E ACROSS DIVERSE SEXUAL NETWORKS IN THE HIV PREP ERA

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10.1136/sextrans-2019-sti.211

Background Despite ‘best effort’ public health measures, the incidence of gonorrhoea is increasing in many countries. Recently, whole genome sequencing (WGS) has been used to investigate transmission of *Neisseria gonorrhoeae*, including antimicrobial-resistant (AMR) lineages, but to date, most studies have not combined genomic data with detailed patient-level information on sexual behaviour to define the extent of transmission across population subgroups (‘bridging’).

Methods We performed an observational study and undertook WGS and bioinformatic analysis on all cultured clinical isolates of *N. gonorrhoeae* in the state of Victoria, Australia, from January to December 2017. Antimicrobial susceptibility testing was performed on all isolates, and detailed epidemiological data was obtained, including data on sexual orientation, HIV status, use of HIV pre-exposure prophylaxis (PrEP), sex work, and overseas travel. Epidemiological associations were made with dominant genetic clusters of *N. gonorrhoeae*.

Results A total of 2,186 isolates were sequenced from 2,055 patients, 86.3% of whom were male. We identified eleven dominant genetic clusters, containing thirty or more patients, with the largest cluster comprising 181 patients. There was extensive bridging of clusters between men who have sex with men (MSM) and heterosexuals, with bisexual males identified in seven of the major clusters. Eight major clusters contained HIV-positive and HIV-negative patients (including individuals receiving PrEP). We also identified transmission of a novel azithromycin-resistant clone, associated with a mosaic *mtr* locus.

Conclusion To our knowledge, our study is the first to combine WGS with comprehensive individual-level behavioural risk data, providing verification for transmission of multiple gonococcal lineages within and across distinct sexual networks. Application of these methods in real-time will allow gonorrhoea transmission and antimicrobial resistance to be tracked, with ‘hotspots’ identified for interventions aimed at improving gonorrhoea control.

Disclosure No significant relationships.

019.3 PARTNER SERVICES FOR GONORRHEA CAN DECREASE NEW HIV AMONG MSM IN KING COUNTY, WASHINGTON: A MATHEMATICAL MODELING STUDY

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10.1136/sextrans-2019-sti.212

Background Partner services (PS) for bacterial STIs has potential to increase STI treatment among infected sex partners and HIV testing among people diagnosed with STIs and their partners. The population-level impact of PS on gonorrhea and HIV incidence has not been estimated.

Methods Calibrated to King County's MSM population, our compartmental gonorrhea-HIV coinfection model captures sexual mixing, gonorrhea and HIV transmission, and scale-up of antiretroviral therapy (ART), pre-exposure prophylaxis (PrEP), and routine STI screening. We assessed incremental impact of PS over 5 and 20 years, and compared gonorrhea and HIV incidence and prevalence without PS, with PS, and with PS that integrates promotion of HIV testing (PS+HIV). In the absence of PS, we assumed that 10%, 10%, and 95% of rectal, pharyngeal, and urethral gonorrhea were treated and 63% of MSM receiving gonorrhea treatment also received HIV testing. With PS, 40% of treated cases received PS, increasing the proportion of partners treated for gonorrhea and tested for HIV by 4%, 4%, and 38% at each site. PS+HIV increased the proportion of gonorrhea-infected MSM tested for HIV to 83%.

Results After 5 and 20 years, PS modestly changed rectal, pharyngeal, and urethral gonorrhea incidence and prevalence (<7%). After 5 years, HIV prevalence decreased 0.1% with PS and 0.5% with PS+HIV. HIV incidence decreased 6.0% (from 187.1 to 176.0 per 100,000 persons) with PS and 14.7% (187.1 to 159.6/100,000) with PS+HIV. After 20 years, HIV prevalence decreased 3.2% with PS and 5.6% with PS+HIV. PS reduced incidence 23.3% (75.2 to 57.7/100,000) and PS+HIV 37.7% (75.2 to 46.9/100,000).

Conclusion Moderate gonorrhea PS coverage had modest impact on gonorrhea, given high rates of STI testing and treatment in King County. However, long-term PS+HIV increased HIV testing opportunities and substantially reduced HIV incidence. PS+HIV is a potential approach for prioritizing HIV testing in high ART and PrEP coverage settings.

Disclosure No significant relationships.

019.4 MOLECULAR EPIDEMIOLOGY OF HIV AMONG FOREIGN-BORN RESIDENTS OF KING COUNTY, WASHINGTON, USA, USING HIV SURVEILLANCE DATA

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10.1136/sextrans-2019-sti.213

Background In King County, one-third of HIV diagnoses occur among foreign-born individuals, a 50% increase since 2010. The extent to which these infections are locally acquired is

unclear, but has important implications for HIV prevention and incidence estimation.

Methods Using HIV surveillance (2010–2018) and partner services (PS) (2010–2016) data from Public Health–Seattle & King County, HIV-1 *pol* gene sequences from routine drug resistance testing were linked to demographic, clinical, and epidemiological information. We identified genetic similarity clusters of 2+ individuals using TN93 pairwise genetic distance with a 0.02 threshold. Belonging to a cluster is suggestive of local transmission, therefore correlates of clustering were identified using logistic regression, adjusted for early infection (CD4 >500 cells/mm at diagnosis). We also calculated the proportion of foreign-born cases with a negative HIV test in the U.S. before diagnosis.

Results From 2010–2018, 2,521 people were diagnosed with HIV in King County: 663 (26%) occurred among foreign-born individuals, primarily from Latin America (N=232), sub-Saharan Africa (SSA) (N=214), and Asia (N=98). Among individuals with a PS interview (75% Latin American, 56% SSA, 69% Asian-born), HIV testing histories suggest that 40% of Latin American, 19% of SSA, and 36% of Asian-born individuals likely acquired HIV locally. Individuals with non-B HIV subtypes similarly varied by region of birth: 2% of US, 5% of Latin American, 93% of SSA, and 46% of Asian-born people. Among 1,754 individuals with an available sequence (70% of U.S. versus 63% of foreign-born), 1,092 (62%) clustered in 304 genetically similar clusters. Odds of clustering, compared to US-born, was 0.44 (95%CI: 0.31,0.60) among Latin American, 0.08 (95%CI: 0.05,0.14) among SSA, and 0.40 (95%CI: 0.24,0.66) among Asian-born.

Conclusion Our results suggest that local HIV acquisition occurs least frequently among SSA-born, followed by Asian-born and Latin American immigrants. Incident estimates that include all diagnoses among foreign-born people may overestimate HIV incidence.

Disclosure No significant relationships.

019.5 THE INFLUENCE OF RISK GROUP TURNOVER IN STI/HIV EPIDEMICS: MECHANISTIC INSIGHTS FROM TRANSMISSION MODELING

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10.1136/sextrans-2019-sti.214

Background Heterogeneity in the risks of STI/HIV acquisition and transmission are central to core group theory. We examined the influence of population turnover among risk groups on group-specific STI prevalence and the contribution of unmet needs among the core group to onward transmission.

Methods We developed an analytical approach to modeling risk group turnover that leverages demographic data and ensures constant relative risk group size. A deterministic model of STI transmission without disease-attributable mortality incorporated this turnover approach with three risk groups, including: a core group with the highest rates of partner change, a multiple-partnerships group, and a low-risk group. We varied the duration within the core group (3 to 33 years) via turnover among all groups and duration of infectiousness (5 years to lifetime) via a uniform treatment rate. We then compared the influence of turnover on group-specific STI prevalence at different treatment rates. We also calibrated to

group-specific STI prevalence with and without turnover, and compared the fitted partner change rates and transmission population attributable fraction (tPAF) of the core group to cumulative STI infections in the total population.

Results Across the range of turnover and treatment parameters explored, turnover consistently decreased STI prevalence in the core group. In the low-risk group, turnover increased prevalence under low treatment rate, but had the opposite effect under high treatment rate. When calibrating to the same STI prevalence, fitted core group partner change rates were higher with turnover than without. Using these fitted parameters, models with turnover then consistently projected a higher tPAF of the core group versus models without.

Conclusion Modeling of risk group turnover can influence the projected group-specific STI prevalence and fitted risk parameters. Models without turnover may underestimate the contribution of core groups in STI epidemics, and thus the impact of interventions prioritizing these populations.

Disclosure No significant relationships.

019.6 PROFESSIONAL INJECTORS, INJECTION NETWORKS, AND HIV: CASES STUDIES FROM FIVE CITIES IN PAKISTAN

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10.1136/sextrans-2019-sti.215

Background There are large numbers of people who inject drugs (PWID) in Pakistan, with a high and growing HIV prevalence in many cities. Cross-sectional bio-behavioural surveys conducted over fifteen years have shown heterogeneous HIV epidemic trajectories in different cities with inconsistent associations between aggregate and individual measures of behaviour and epidemic trajectories. This study triangulates behavioural, biological, and network data to gain new insights into drivers of local epidemics among PWID.

Methods A questionnaire was administered to 1,439 PWID in five cities in Pakistan in 2014 and dried blood spots were collected for HIV testing and sequencing. The questionnaire collected locations where participants injected recently and these were used to construct place-based injection networks. Demographic, behavioral, geographic, and network structure data were tested for associations with HIV and HIV phylogenetic analysis was conducted to identify transmission clusters.

Results HIV prevalence varied between the cities, from 8.6% to 45.3%. Although aggregate individual behaviours were not strongly associated with HIV, there were differences between cities in injecting practices and network configurations. Injection network configurations differed between cities, ranging from networks with dense sub-regions to widely dispersed networks. A city that experienced an explosive HIV outbreak showed particularly dense geospatial networks and a large phylogenetic cluster (n=52) suggesting a link between

geospatial concentration and rapid HIV transmission. In a city where the use of professional injectors was associated with HIV at the individual level, there were dense network sub-regions and HIV+ individuals were more likely to be more centrally located in networks ($p<0.01$) and in network components with a greater proportion who had used a professional injector ($p<0.05$).

Conclusion Contextual factors shape the injection practices and network configurations among PWID in Pakistan. Factors that influence HIV transmission dynamics are more complex than individual behaviours, and include professional injectors and geographic and network clustering.

Disclosure No significant relationships.

Poster Presentations

PS01 – POSTER VIEWING SESSION – MONDAY

Monday, July 15, 2019

5:45 PM – 7:00 PM

P004 THE NATIONWIDE ANTIMICROBIAL RESISTANCE SURVEILLANCE SYSTEM OF SEXUALLY TRANSMITTED INFECTIONS – SOUTH KOREA, 2017–2018

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10.1136/sextrans-2019-sti.216

Background The Korea Centers for Disease Control and Prevention established the new nationwide surveillance system and conducted the first nationwide surveillance of antimicrobial resistance for three major sexually transmitted pathogens; *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, and *Mycoplasma genitalium*.

Methods The urethral discharge was collected from male patients with urethritis at 20 primary urologic clinics from January 2017 to December 2018. The cervical swab was collected from female patients with cervicitis at 8 primary gynecological clinics from January to December 2018. All specimens were sent to the 4 regional or the central laboratories.

Results A total of 224 *N. gonorrhoeae* isolates were collected. Of these, 90.6% were resistant to tetracycline, 95.3% to ciprofloxacin, and 58.0% to penicillin. None of the strains was resistant to ceftriaxone and spectinomycin. The minimum inhibitory concentration (MIC) range of ceftriaxone was ≤ 0.008 –0.25 $\mu\text{g/mL}$ and the MIC₅₀ and MIC₉₀ were 0.06 $\mu\text{g/mL}$ and 0.12 $\mu\text{g/mL}$. Twenty-two strains were resistant to cefixime (MIC 0.5 $\mu\text{g/mL}$). Most of the penA genotypes were type X. In particular, the proportion of mosaicism in DNA specimens has been steadily increasing, and the spread of penA-34.001 was confirmed in 2018. Reduced azithromycin susceptibility (defined MIC ≥ 1.0 $\mu\text{g/mL}$) increased from 0% in 2017 to 13% in 2018. The MIC range, MIC₅₀ and

MIC90 of gentamicin were 2–16 µg/mL, 4 µg/mL and 8 µg/mL, respectively.

Conclusion In South Korea, the antimicrobial resistance of *N. gonorrhoeae* is very severe and most isolates are multi-drug resistant to penicillin G, tetracycline, and fluoroquinolones. PenA-10.001 and penA-34.001, which are mainly isolated in South Korea, are thought to be the pre-stage of ceftriaxone-resistant germs in Japan and Europe, and the possibility of highly resistant germs is highly increased in South Korea. Enhanced antimicrobial resistance surveillance is necessary to prevent transmission of these strains.

Disclosure No significant relationships.

P005 GONORRHEA IN THE ERA OF AMR, DIAGNOSTIC NEEDS FOR IMPROVED ANTIMICROBIAL STEWARDSHIP IN LOW AND MIDDLE INCOME COUNTRIES

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10.1136/sextrans-2019-sti.217

Background In 2012, the World Health Organization (WHO) estimated 78 million cases of *Neisseria gonorrhoea* (NG) worldwide and recent reports indicate an increase in NG resistance to current antibiotic therapies globally. Chlamydia trachomatis (CT) infection is more prevalent than NG and current syndromic management guidelines are designed to simultaneously treat both bacteria with a combination of antibiotics to avoid missing treatment. In resource constrained settings many patients with urethral or vaginal discharge presenting at primary healthcare settings (PHC) are over-treated due to syndromic management, which lacks appropriate diagnostic tools for CT and NG differentiation in these settings.

Methods To address this gap, the Foundation for Innovative New Diagnostics (FIND) and WHO collaborated on the development of Target Product Profiles (TPPs) to guide the development of appropriate diagnostics tools for improved clinical management of NG and CT infections. Using a Delphi-like process involving two serial surveys to solicit input from over 52 experts.

Results Two TPPs for the appropriate identification of NG (and NG/CT) and its susceptibility/resistance profile to antibiotics were developed and will be publicly available on the WHO and FIND websites. A request for proposals is in process to stimulate the development of diagnostic tools that meet the technical characteristics of these TPPs.

Conclusion TPPs for rapid identification of NG-positive patients at PHC and for identification of NG susceptibility/resistance to antibiotics are urgently needed. Technology advancements over the past years may enable development of improved tests to support uptake and wide scale use in PHC. A reflex antibiotic susceptibility test would be useful to further guide prescription of current therapies. Results of this work will guide the development of new and appropriate diagnostics in the next 3–5 years, to enable improved patient management and conservation of new antibiotics that will become available.

Disclosure No significant relationships.

P006 'FIRST TEST ALONG THEN TOGETHER' – THE PRACTICE OF COUPLE'S HIV TESTING IN ETHIOPIA

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10.1136/sextrans-2019-sti.218

Background Some evidence indicates that Couple HIV Testing & Counselling (CHTC) is an approach that could be used to enable more people to be reached. However, little is known about how couples may use this service and what their concerns are around the approach. This study aimed to understand how individuals who had ever been in a long-term heterosexual relationship intended to use CHTC in Ethiopia and their beliefs about its benefits and potential harms.

Methods A qualitative study was conducted in Addis Ababa, Ethiopia. We interviewed individuals who had ever been in a long-term heterosexual relationship (n=21), and key-informants (n=11) including religious leaders, health-care providers and case managers. The interview data were transcribed verbatim and thematically analysed using NVivo 11. The data were coded to look for concepts and patterns across the interviews, and relevant themes and sub-themes identified which captured key aspects related to individual's views on undertaking HIV-testing with a sexual partner.

Results Most participants regarded CHTC as an important HIV-testing approach for people who are in a long-term heterosexual relationship and expressed the view that there was 'nothing like testing together'. However, many participants said they would prefer to be tested alone to check their own HIV-status before undertaking or deciding to undertake CHTC - 'first alone then together'. This strategy was expressed as a way of managing their concerns about being HIV-positive and 'fear of the consequences' including potential accusations of infidelity, relationship break-up, and potentially exposed in the community as being HIV-positive.

Conclusion The findings of this study suggest that while CHTC has been actively promoted in Ethiopia, people may be concerned about undertaking CHTC without prior individual HIV-testing and have developed ways of making the process work for them. More work is needed to understand the approach couples considering is a more dignified, effective and cost-effective way.

Disclosure No significant relationships.

P007 UPTAKE OF COUPLES HIV TESTING AND COUNSELLING IN SUB-SAHARAN AFRICA: A SYSTEMATIC REVIEW AND META-ANALYSIS

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10.1136/sextrans-2019-sti.219

Background This systematic review and meta-analysis aimed to estimate and characterise the uptake of Couples HIV Testing and Counselling (CHTC) in Sub-Saharan African countries.

Methods A comprehensive search of published studies was carried out in six electronic databases followed by a manual search of studies from references of selected papers. Data were extracted using a template. The results were synthesised, and a meta-analysis based on a random-effects model was conducted. Subgroup and sensitivity analyses were undertaken to explore sources of heterogeneity.

Results Of 30,273 citations, 14 studies with a total of 97,030 study participants were identified. The pooled CHTC uptake was 31.48% (95%CI: 23.55–40.00) with significant heterogeneity between studies ($I^2=99.98\%$, $p < 0.001$). The Egger's and Begg's tests showed there was no evidence of publication bias ($p=0.08$). However, the sensitivity analysis showed that two studies highly influenced the overall estimate. After omitting these two studies, the pooled estimate for CHTC uptake was 24.05% (95%CI: 16.6 5, 32.34, $I^2=99.86\%$, $p<0.001$). The sub-group analysis indicated the pooled CHTC uptake was higher among pregnant women and their partners (OR=1.66, 95%CI: 1.58, 1.84) compared with heterosexual couples in general. Similarly, the uptake was higher when one person in the dyad first tested individually without the knowledge of their partner, and then suggested to their partner that they take CHTC together, compared to an approach of undertaking CHTC together as the first testing option for both people (OR=3.16, 95%CI: 2.69, 3.72).

Conclusion The findings confirmed that more than three-quarters of study participants who were in ongoing heterosexual relationships chose not to, or were unable to, undertake CHTC. These findings suggest people are cautious of what could amount to harmful risks when couples test together, particularly if their HIV sero-status is shown to be discordant. Further studies are required to explore how couples intend to use HIV testing services including CHTC.

Disclosure No significant relationships.

P008 **DIAGNOSTIC ACCURACY OF XPRT MTB/RIF IN DETECTING PULMONARY TUBERCULOSIS AMONG PEOPLE LIVING WITH HIV IN WESTERN NIGERIA**

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10.1136/sextrans-2019-sti.220

Background Tuberculosis is a leading killer among people living with human immunodeficiency virus (HIV). HIV-infected individuals with latent TB are approximately 20–30 times more likely to develop TB disease, at a rate of 8–10% per year, with the disease estimated to cause approximately 9 million cases annually and 1.5 million deaths. Hypothesis tested was site of infection effect on tuberculosis on tuberculosis treatment outcome. This study determined the diagnostic validity and reliability of Xpert MTB/RIF in identifying the presence of Pulmonary Tuberculosis (PTB) among HIV patients in South Western Nigeria.

Methods This study was a prospective analytical study among HIV patients between ages 15 – 60 years who are infected

with HIV seen from January 2015 - June 2017. Patients with signs and symptoms of Pulmonary Tuberculosis (PTB) were enrolled and submitted sputum for Acid Fast Bacilli (AFB) smear and Xpert MTB/RIF. This was processed following protocol for pulmonary samples for Xpert MTB/Rif. All samples were processed for AFB smear and Xpert MTB/RIF as part of the procedure for PTB diagnosis.

Results A total of 300 patients were enrolled in the study. The mean age \pm SD is 37.11 ± 15.27 years. One hundred and thirty five (45.0%) of them are males while one hundred and sixty five (55.0%) are females. Xpert MTB/RIF has a sensitivity of 93.0% and specificity of 98.5%. The main factor associated with tuberculosis treatment outcome was the site of infection ($\chi^2 = 19.01$, $df = 1$, $p = 0.001$) as 233 (77.7%) of the patients were declared cured after six month treatment course.

Conclusion Use of Xpert MTB/RIF as a screening tool has a great performance for rapid diagnosis of *Mycobacterium tuberculosis* might effectively reduce the risk of multi-drug resistant tuberculosis (MDR-TB) in HIV care and treatment settings and improve the prognosis of affected patients.

Disclosure No significant relationships.

P012 **A PROCESS EVALUATION OF AN INCENTIVIZED HOME-BASED INTERVENTION TO TEST AND START (HITS) IN RURAL KWAZULU-NATAL, SOUTH AFRICA**

¹Oluwafemi Adeagbo*, ¹Frank Tanser, ¹Velaphi Gumedede, ²Thulile Mathenjwa, ³Philippa Matthews, ⁴Sally Wyke, ⁵Till Bärnighausen, ²Deenan Pillay, ⁶Nuala Mcgrath, ⁷Ann Blandford, ⁸Janet Seeley, ⁹Maryam Shahmanesh. ¹*Africa Health Research Institute, Social Science Research and Ethics, Mtubatuba, South Africa*; ²*Africa Health Research Institute, Mtubatuba, South Africa*; ³*Africa Health Research Institute, Clinical Research, Mtubatuba, South Africa*; ⁴*University of Glasgow, College of Social Sciences, Glasgow, UK*; ⁵*Heidelberg University, Heidelberg, Germany*; ⁶*University of Southampton, Southampton, UK*; ⁷*University College London, Institute of Digital Health, London, UK*; ⁸*London School of Hygiene and Tropical Medicine, London, UK*; ⁹*University College London, London, UK*

10.1136/sextrans-2019-sti.221

Background Despite freely available HIV testing and treatment, many men do not access HIV treatment and care in South Africa. We conducted home-based intervention to test and start (HITS) - a factorial design randomised controlled trial (ClinicalTrials.gov #NCT03757104). HITS is designed to assess the effectiveness of two financial micro-incentives (R50 [\$3] food vouchers) for home-based HIV testing and, following a HIV-positive test, to link to HIV care; and/or a male-targeted counselling application to support home-based testing (EPIC-HIV1) and to support men linking to care (EPIC-HIV2). The research was conducted in an HIV-hyperendemic setting in rural KwaZulu-Natal.

Methods We conducted a process evaluation to understand the impact of HITS intervention on the decision of men to test for HIV and/or engage in HIV care. Thirty men (16–73 years) were purposively selected in the three intervention arms (ten per arm) and interviewed between August and December 2018. Emerging themes were thematically analysed following an interpretivist approach.

Results Although participants welcomed the male-centred intervention, some felt that the voucher amount was too small. Overall, many participants described the voucher, EPIC-HIV, and the convenience and privacy of home-based testing as 'catalysts' to test or link to care irrespective of their reported intrinsic motivations to know their status or concerns around HIV related sexual risk behaviours. One-third of the interviewees were first-time testers. Despite the incentives, two out of the five men who tested positive reported that they have not linked to care because they feared stigmatisation at local clinics.

Conclusion Generally, the HITS intervention influenced men's motivation to test and access care, but some respondents felt the incentive was insufficient to overcome some barriers of accessing HIV care at fixed clinics. To achieve the 90–90–90 targets among men in our setting, provision of decentralised, non-judgmental and convenient incentivised HIV care services could increase uptake of HIV testing and treatment.

Disclosure No significant relationships.

P013 SCREENING PRACTICES RELATED TO INCONCLUSIVE *NEISSERIA GONORRHOEAE* AND *CHLAMYDIA TRACHOMATIS* NUCLEIC ACID AMPLIFICATION TESTING

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10.1136/sextrans-2019-sti.222

Background Given rising incidence of *Neisseria gonorrhoeae* and *Chlamydia trachomatis* (GC/CT), development of efficacious screening strategies is critical. While guidelines recommend nucleic acid amplification testing (NAAT) for GC/CT screening, a small proportion of NAAT results are inconclusive - resulting in delays in diagnosis and treatment. Our study seeks to determine rates as well as provider- and patient-related factors associated with inconclusive NAAT results with the goal of developing improved screening practices.

Methods This is a cross-sectional, case-control study of individuals with inconclusive GC/CT NAATs at a single institution (University of California, Los Angeles) from 3/2016–6/2018. Clinical charts were abstracted for age, gender, HIV status, PrEP use, STI screening (GC/CT and syphilis), anatomic site of sample collection (urogenital, pharyngeal, or rectal), and whether repeat testing occurred within 6 months following an inconclusive result. Cases were defined as a specimen that resulted in inconclusive GC and/or CT NAAT. Controls were specimens randomly selected from all non-inconclusive samples that underwent GC/CT NAAT during the study period and were matched with inconclusive specimens by type (rectal, urine, or genital). Patient-level characteristics associated with inconclusive GC/CT testing were analyzed with Chi-square and logistic regression.

Results During the study period, 6.1% (852/14,048) rectal, 0.3% (313/91,092) genital, and 0.01% (155/137,783) urine samples were inconclusive for one or both of GC and CT; no pharyngeal samples yielded inconclusive results. Among patients with inconclusive GC/CT NAAT, 64.6% (441/683) received repeat testing within six months, of which 6.4% were positive, 82.8% (365/441) negative, 10.7% (47/441) inconclusive, and 0.2% (1/441) indeterminate. While diabetes was associated with inconclusive urogenital GC/CT NAAT,

HIV status, PrEP use, and positive STI screening were not associated with inconclusive results.

Conclusion Despite having a clinical indication to receive GC/CT screening, fewer than two-thirds of inconclusive results were repeated, potentially missing an opportunity to interrupt the infection cycle.

Disclosure No significant relationships.

P014 VALIDATING A CLINICAL PREDICTION RULE FOR *CHLAMYDIA* AND *GONORRHEA* INFECTION AMONG ONLINE TESTERS IN BRITISH COLUMBIA, CANADA

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10.1136/sextrans-2019-sti.223

Background Clinical prediction rules (CPRs) estimate the probability of a health outcome to support decision-making in intervention and service delivery. Previously, a CPR was derived to maximize detection of chlamydia and/or gonorrhoea (CT/GC) infections and minimize the number of screening tests offered among asymptomatic women and heterosexual men attending sexually-transmitted infection (STI) clinics in Vancouver, British Columbia, Canada. We assessed the external validity of using this clinic-derived CPR within GetCheckedOnline (GCO), a provincial online STI testing program in British Columbia.

Methods Data used for calculating CPR scores, including age, race/ethnicity, number of sexual partners and previous CT/GC diagnoses, were collected prospectively on GCO from October 2015 to June 2018. Model calibration and discrimination were evaluated using the Hosmer-Lemeshow (H-L) statistic and the area under the receiver operating characteristic curve (AUC), respectively. Sensitivity and proportion of GCO clients screened were calculated at different CPR cut-off scores. In the original derivation population, the CPR had an AUC=0.74, with a cut-off risk score ≥ 6 identifying 91% of infections and screening 68% of testers.

Results Among 2703 GCO CT/GC test episodes, the prevalence of CT/GC infection was 2.1%. The clinic CPR showed reasonable calibration (H-L $p=0.952$) and discrimination (AUC=0.64, 95%CI: 0.57–0.71). Using a CPR cut-off risk score of ≥ 6 , we would have detected 79% of infections and screened 64% of testers. Lowering the cut-off risk score to ≥ 4 would have increased sensitivity to 95% while screening 85% of testers.

Conclusion This is the first study validating the use of a clinic-derived CPR within an online setting. Our CPR showed reasonable accuracy and performance when applied to GCO data. Differences in model performance online compared with clinic-based settings highlight important differences in the populations who use online testing. Use of CPRs in online contexts offers unique and novel opportunities for public health and STI testing.

Disclosure No significant relationships.

P015 INTRODUCTION OF CHLAMYDIA AND GONORRHEA OPT-OUT TESTING IN A SHORT-TERM CORRECTIONAL FACILITY IN ALBERTA, CANADA

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Background Incarceration provides an opportunity for screening and treatment of STBBI in high-risk groups. The purpose of this study was to evaluate the uptake and outcomes of opt-out screening at time of admission.

Methods Between March and September 2018, all individuals ≤ 30 years admitted to a short-term correctional facility in Alberta, Canada were offered urine nucleic acid amplification test (Aptima Combo 2[®], Hologic Inc., Marlborough, MA) for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoea* (NG), upon admission. Admission line-lists recorded offering of opt-out testing and reasons for testing non-completion. Laboratory data extracts provided test results by matching collection date with unique patient identifiers. Simple descriptive statistics analysis were completed.

Results A total of 1,735 (1,295 males) admissions were recorded, with a median age of 23 years (IQR: 21–25). Most (92.7%; n=1,608) of individuals were offered opt-out testing; reasons for not offering testing included inability to consent (35.1%; n=39), operational limitations (28.8%; n=32), guardianship issues (10.8%; n=12), other concerns (9.0%; n=10), and missing (16.2%; n=18). Of those offered testing, 32.3% (n=520) consented. Reasons for not consenting included: no perceived risk (35.3%; n=384), recently tested (16.6%; n=181), deferred testing (13.3%; n=145), declined (11.0%; n=120), not sexually active (4.7%; n=51), other (5.9%; n=65), and missing (13.1%; n=142). The positivity rate for CT was 18.0% (n=83) and NG was (12.6%; n=58). Women were more likely to test positive for CT (26.1% vs 15.2%, $P=0.008$) and NG (21.8% vs 9.3%, $P<0.001$) than men.

Conclusion Opt-out testing at admission proved to be feasible, although uptake was relatively low, CT and NG positivity rates were high. With the majority of incarcerated individuals in Canada being held in short-term correctional facilities, intensification of screening strategies to an opt-out model is effective for a large number of high-risk individuals.

Disclosure No significant relationships.

P016 KNOWLEDGE AND TESTING OF HIV AMONG MEN AND WOMEN IN INDIA: EXPLORING TEST AND TREAT MODEL OF HIV PREVENTION

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Background The government of India adopted the Test and Treat model of human immunodeficiency virus (HIV) prevention. This study has made an attempt to explore the effectiveness of the Test and Treat approaches by analyzing the knowledge and testing of HIV among male and female.

Methods The study has used last two rounds of National Family Health Survey data, providing community-based insights in the testing of HIV. Descriptive and multivariate

techniques have been used to analyze the nationally representative sample of 69,751 men and 124,385 women in 2005–06 and 103,411 men and 121,118 women age 15–49 in 2015–16 respectively.

Results Women, who are educated, residing in urban areas, and from better economically households are more prone to have knowledge of place of HIV testing and also have ever undergone HIV testing than their men counterparts. It is a welcome change given the existing HIV scenario, with a continuously narrowing gender gap in new HIV infections. Women and men having positive attitude towards stigma and discrimination to people living with HIV (PLHIV) are in better agreement to ever being tested. Further, women and men having knowledge about antiretroviral therapy (ART) are 1.6 times ($p<0.001$) and 1.8 times ($p<0.001$) more likely to have ever been tested for HIV. The ‘test and treat’ model of HIV in India portrays a women-centric effort to ensure HIV testing as part of their ANC, resulting in a substantial increase in ever being tested.

Conclusion This study concluded that HIV testing and treatment has improved considerably over the last decade among women and men. Despite an enhancement in coverage of HIV testing, the existing disparities in HIV testing and treatment require policy instruments with an integrated approach. Government should work in close collaboration with communities/key stakeholders, and efficiently use their resources to provide evidence-based HIV prevention and treatment interventions.

Disclosure No significant relationships.

P017 EFFECT OF TIME CHANGE ON ADOLESCENT AND YOUNG PEOPLE ACCESSIBILITY TO AYFHC IN AKURE, ONDO STATE NIGERIA

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Background Government in Ondo state have made significant effort in establishing youth friendly health care centres to increase young people’s access to health and social services. By it became very frustrating to see very few young people patronizing such centres due 8am-4pm working hours. Change in time to 4pm-8pm showed a significant difference in young people access to AYFHC services.

Methods Using Participatory Learning in action and community engagement We discovered young people 10–35 years in Akure either attend school from 8am-4pm or go to centres where they skills from 8am-6pm. With this kind of schedule, it became very difficult for young people to leave school or their skill centres for AYFHC services. In 2017, there was an extension in service time to 8pm, there was a massive increase of young people accessing social and health services at this centre’s from 4pm-8pm from 2persons per day to 12persons per day.

Results It was observed that the additional 10 persons came between 4pm to 8pm. Most of the young people preferred the evening hours because it was very convenient and it allows them do their daily activities. Also it reduced stigmatization because absence at school or work leads to questions been raised.

Conclusion Provision of AYFHC isn’t enough, passionate Friendly health workers should be employed and Service time

should be convenient for young people to come as well as the location should be strategic.

Disclosure No significant relationships.

P018 PAY-IT-FORWARD GONORRHEA AND CHLAMYDIA TESTING AMONG CHINESE MEN WHO HAVE SEX WITH MEN: A CLUSTER RANDOMIZED CONTROLLED TRIAL

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10.1136/sextrans-2019-sti.227

Background Gonorrhoea and chlamydia testing is poor among Chinese MSM with HIV risk. Furthermore, gonorrhoea and chlamydia testing programs are poorly funded and unlinked to HIV testing services. Pay-it-forward offers an individual a gift (e.g. an STD test) and then asks whether they would like to give a gift to another person. This study assesses the effectiveness of a pay-it-forward program in increasing gonorrhoea/chlamydia testing among MSM compared to standard of care.

Methods We conducted a cluster randomized controlled trial at three HIV testing sites run by MSM community-based organizations in Beijing and Guangzhou (NCT03741725). We included MSM aged 16 or older who had met indications for testing based on US CDC guidelines. Twenty clusters of 10 men each were randomized into pay-it-forward and standard of care arms. In pay-it-forward, men were offered free testing and then given the option to donate money toward future participants' tests; in standard of care, testing was offered at the standard price of 150RMB (US\$22). The primary outcome was dual gonorrhoea/chlamydia test uptake ascertained by administrative record. Generalized estimating equations were used to assess the population-averaged effect of the pay-it-forward intervention. This analysis focuses on the primary comparison between pay-it-forward and standard of care.

Results Overall, 201 participants were recruited. Most participants were younger than 30 years old (67.5%, 127/188) and had college or above education (85.1%, 165/194). 43.1% (69/160) reported condomless anal sex in the last three months. Gonorrhoea/chlamydia testing rates were 56.4% (57/101) in pay-it-forward and 18.0% (18/100) in standard of care. Gonorrhoea/chlamydia testing rates were three times higher in pay-it-forward compared to standard of care (RR:3.14, $p < 0.001$, 95%CI=1.80–5.45). 94.7% (54/57) of pay-it-forward participants donated toward future participants, with an average amount of 53.6RMB (US\$8).

Conclusion Findings suggest that pay-it-forward increases gonorrhoea/chlamydia testing and may inform the integration of STD and HIV testing services among MSM.

Disclosure No significant relationships.

P019 IMPLEMENTING HOME-SAMPLING STRATEGIES TO ENGAGE YOUNG HETEROSEXUALS IN CHLAMYDIA TRACHOMATIS RE-TESTING AND PEER-TESTING

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Background Home-sampling is an increasingly used method to promote testing for *Chlamydia trachomatis*. Here, we implement and evaluate home-sampling for re-testing and peer-testing in young (<25 years) heterosexual men and women.

Methods At our STI clinics (Limburg, Netherlands, 2015–2018), indexes, i.e. young heterosexuals diagnosed with chlamydia, were (a) offered a self-sampling test for a peer, and (b) offered to receive an SMS-reminder after 5 months to order a re-test for themselves and a peer. Test offers were free-of-charge self-sampling tests for chlamydia and gonorrhoea (urine sample for men; vaginal and rectal swabs for women). We interviewed care providers on implementation-barriers and facilitators and performed a process evaluation on test-uptake and overall (genital or rectal) STI positivity.

Results Of 1709 indexes (1221 women): (a) 571 (33.4%) were given a test for a peer; 211 (37.0%) peers tested and peer-positivity was 18.5% (17.9% in women-including 3 cases of gonorrhoea and 12.8% rectal chlamydia; 19.5% in men). (b) 1048 (61.3%) accepted to receive a re-test reminder; 417 (39.8%) ordered the re-test and 266 (63.8%) re-tested with 13.9% re-test positivity (15.6% in women –including 10.4% rectal chlamydia–, 8.2% in men – including one gonorrhoea case). 155/417 (37.2%) also ordered a peer-test; 62 (40%) peers tested but only 6.5% (n=4) were positive. In (a) and (b), nearly half of positive peers never tested before; rectal infections in women were frequently without a genital infection. Interviews with care-providers revealed problems in implementing logistics which could be solved by an easy-to-use online system.

Conclusion A future implementation using an online system needs to improve test-kit returns by including reminders or provisional payment, and strategies to help indexes find and motivate high risk peers. High STI positivity in peers (many first time testers) from clinic-indexes reveals the need to especially target these peers to tap into a hidden (untested) infected population.

Disclosure No significant relationships.

P020 URISPONGE™ FACILITATE URINE COLLECTION AND TRANSPORTATION FOR THE DETECTION OF STD WITH THE ANYPLEXTM II STI-7 ASSAY

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Background Molecular urine collection devices are not supporting bacteria culture. Copan UriSponge™ consists of a leak-proof screw-cap tube with 3 sponges containing preservative salts attached to a plastic stick to absorb and retain urine during transport and prevent bacterial overgrowth. Urines collected in UriSponge™ were compared to urine samples

transported in dry contains for the detection of STI with 'Multiplex Real-time PCR' assays. The objective of this study was to validate the performance of urine in UriSponge™ for the detection of STI with the Seegene Anyplex™ II-STI-7 assay

Methods Urine collected with UriSponge™ from 2991 patients attending a STD-clinic were used in this study. A first void urine was collected in a sterile-cap, the UriSponge™ sponges were immersed into the urine until saturated and stored back in its own tubes. Prior testing, UriSponge™ samples were centrifuged at 2500-RPM for 5min, de-capped the tubes and discarded the sponges, vortexed and loaded the urine tubes on the Nimbus for nucleic acids extraction and amplified with the Anyplex II STI-7-assay for the detection of *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), *Trichomonas vaginalis* (TV), *Mycoplasma genitalium* (MG), *Mycoplasma hominis* (MH), *Ureaplasma urealyticum* (UU), and *Ureaplasma Parvum* (UP).

Results In the 2991 UriSponge™ samples tested, were detected 267 (8.02%) CT, 220 (7.35% NG, 59 (1.97%) TV, 129 (4.31%) MG, 232 (7.75%) MH, 430 (14.5%) UU and 640 (21.4%) UP positive. The positivity rate of each STI was comparable to data obtained from a previous study comparing urine samples stored in sterile containers and UriSponge™. Samples processing on the Nimbus facilitated testing workflow. **Conclusion** Good performance was obtained with urine collected and transported with UriSponge™ for the detection of STI with the Anyplex™ II STI-7-assay. UriSponge™ is an optimal device for urine collection for STI screening, eliminating the use of large leaking urine containers and are supporting culture for NG AST.

Disclosure No significant relationships.

P021 USE OF NON-FDA CLEARED ASSAYS FOR DETECTION OF STIS IN CHILDREN BEING EVALUATED FOR SUSPECTED SEXUAL ABUSE

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Background Although NAAT testing is the gold-standard for *C. trachomatis* (Ct) and GC in adults, limited data exists for children. Although there are now 7 FDA cleared Ct/GC NAATs in the US, assays that are not FDA cleared have been proliferating.

Methods We present 3 instances where non approved assays were used in children being evaluated for suspected sexual abuse.

Results The tests were Vaginitis Plus NuSwab® (LabCorp, North Carolina) which tests for BV, *Candida* species, Ct, GC, and *T. vaginalis* (Tv), Diatherix Laboratories NAAT for GC, Ct and Tv (Huntsville, Alabama) and 'Leukorrhea Panel' (MDLabs, NJ), R-T PCR for Tv, GC and Ct. These tests are not FDA-cleared. There are no studies on the performance of these assays in men or women in the peer-reviewed literature including sensitivity, specificity (including cross reactivity with other bacteria) and predictive values for any anatomic site. MDLabs also claimed that their assay did 'reflex' antibiotic susceptibility testing for GC and Ct. A 11 yo girl with a positive NuSwab for Ct subsequently tested negative by TMA. A 2 yo boy tested positive for GC by Diatherix in a rectal

specimen, which was discarded after 7 days. The Diatherix manual specifically stated that the test should not be used for rectal specimens. Two siblings tested positive in throat for GC by the 'Leukorrhea Panel' after disclosure of oral penile contact, but father was negative for GC. Specimens were not retained for confirmatory testing.

Conclusion Because of low STI disease prevalence in children (< 3%), low test specificity calculates to an unacceptably low positive predictive value. None of these labs retained the specimens for confirmatory testing, a major departure from CDC recommendations. Use of NAATs that have not been cleared by any regulatory agency without reliable test specificity data can have criminal and juvenile protection implications when used in children.

Disclosure No significant relationships.

P022 ANTENATAL TESTING FOR CURABLE STIS COMPARED TO SYNDROMIC MANAGEMENT IN BOTSWANA: A COST-EFFECTIVENESS STUDY

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Background *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) are sexually transmitted infections (STIs) associated with adverse outcomes, including low birth weight (LBW). Most countries don't test pregnant women and use syndromic management, which misses asymptomatic infections. This study used a decision model to assess the cost-effectiveness of testing pregnant women for CT and NG using the GeneXpert compared to syndromic management in Botswana.

Methods Using costs and implementation data from a previous study and outcome data from the literature, we modelled the short-term incremental costs and neonatal outcomes of both scenarios from a health services prospective. For the base case, we assumed CT and NG prevalence rates were 7.8% and 1.3%, and the probabilities of LBW associated with maternal CT was 5% and NG was 58%. Probabilities of death and disability weights came from the World Health Organization.

Results Offering CT and NG testing to approximately 50,000 antenatal patients in Botswana had a one-year cost of \$925,804 more than syndromic management. Testing was associated with 4,322 more cured maternal infections, and 612 more cases of LBW infants averted, which is \$1,513 per LBW infant averted and \$320 per disability adjusted life year (DALY) averted. The incremental cost-effectiveness ratios were most sensitive to the assumed prevalence of CT and NG, probability of LBW, disability weight, treatment uptake, and capital costs.

Conclusion Testing for CT and NG infections is more costly than syndromic management. However, testing is estimated to prevent LBW infants and DALYs. CT/NG testing scale-up is cost-effective if policy-makers' willingness to pay is informed by the WHO 1 Gross Domestic Product/capita threshold (\$7,596/DALY averted in Botswana). While the costs of testing may be high for countries with constrained budgets in Southern Africa, reductions in antenatal STIs may help address the important global goal of preventing LBW.

Disclosure No significant relationships.

P023 A MIXED-METHODS ANALYSIS OF A PAY-IT-FORWARD GONORRHEA/CHLAMYDIA TESTING PROGRAM AMONG MEN WHO HAVE SEX WITH MEN IN CHINA

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Background *Neisseria gonorrhoeae* and *Chlamydia trachomatis* are common among Chinese men who have sex with men (MSM), but testing rates are low. We developed a pay-it-forward program, where each man receives a free gonorrhea/chlamydia test and can then choose to donate toward testing for future participants. This study aims to investigate the facilitators of increased gonorrhea/chlamydia testing among MSM in the pay-it-forward program.

Methods We collected survey data on socio-demographics and perceived benefits of the pay-it-forward program among men offered the pay-it-forward intervention as part of a quasi-experimental study in Guangzhou, China. We analyzed testing uptake using multivariable logistic regression. We also conducted twelve semi-structured interviews with men who received testing eliciting their perceptions of the program. Interview data were coded to identify themes.

Results 204 MSM were offered pay-it-forward and 109 (54%) received gonorrhea/chlamydia testing. Across survey and interview data, the main facilitators of testing were (1) lower cost and (2) care for MSM community. First, 48/204 (24%) participants selected discounted testing as a benefit of pay-it-forward, and receiving testing was not associated with income. In interviews, the majority of participants felt that standard hospital-based testing was prohibitively expensive, especially for students (150 RMB, ~USD \$21.50); pay-it-forward made testing affordable for them. Second, 141/204 (70%) men selected 'more MSM can get tested' or 'I can help someone else' as benefits of pay-it-forward, and selecting at least one of these options was associated with getting tested (aOR = 2.59, 95% CI = 1.31–5.15). In interviews, some men expressed desire to contribute to the MSM community; others felt that encouraging others to test could also eventually benefit themselves.

Conclusion This pay-it-forward program may increase MSM gonorrhea/chlamydia testing rates by reducing barriers due to cost and mobilizing community altruism. This model may be useful for other settings and sexual health services.

Disclosure No significant relationships.

P024 TARGETED POINT-OF-CARE TESTING COMPARED TO SYNDROMIC MANAGEMENT OF UROGENITAL INFECTIONS IN RWANDAN WOMEN

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Background Sexually transmitted and urogenital infections are typically managed by World Health Organisation (WHO)-recommended syndromic algorithms in resource-poor countries. Vaginal discharge (VDS) and lower abdominal pain (LAP) algorithms in women perform poorly. The main aim of the WISH study was to compare the performances of VDS/LAP algorithms incorporating point-of-care tests (POCTs), and of WHO syndromic algorithms, with gold standard test results.

Methods At-risk Rwandan women (N=705) underwent POCTs for bacterial vaginosis (BV; vaginal pH \geq 5.0) and *Trichomonas vaginalis* (TV; OSOM) regardless of symptom-reporting. Women with a positive risk score were POC-tested for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* (CT/NG; GeneXpert). Vulvovaginal candidiasis (VVC) was treated presumptively. Nucleic acid amplification tests (NAATs) were done for CT/NG, TV, BV, and VVC on everyone and were used as gold standards.

Results NAAT-based prevalences were: 60/705 (8.5%) CT, 50/705 (7.1%) NG, 111/690 (16.1%) TV, 125/690 (18.1%) BV, and 59/690 (8.6%) VVC. Infection-specific sensitivities of the WHO VDS/LAP algorithms ranged from 58.3–74.6%, and specificities from 44.7–50.6%. WISH POCT-based algorithms had good sensitivity (68.5–76.0%) and specificity (97.4–100%) for CT, NG, and TV but low specificity for BV (41.2%); sensitivity 95.2%), and modest sensitivity (64.4%) and specificity (69.4%) for VVC. Sensitivity (73.6%) and specificity (100%) for BV improves by screening all women for vaginal pH, and confirmatory testing of those with pH \geq 5.5 (n=275). Speculum/bimanual examinations by a physician had limited added value (except in the case of LAP), and partner notification was suboptimal. Staff and participants considered POC testing feasible and acceptable.

Conclusion POC testing for urogenital infections in women improves performance and is feasible in resource-poor settings. The WHO VDS/LAP algorithms should therefore recommend POC testing whenever feasible. However, programmes would benefit from more affordable combined CT/NG POCTs, and POCTs combining BV, TV, and VVC diagnoses. Additional studies in other populations, including low prevalence populations, are warranted.

Disclosure No significant relationships.

P025 AUTOMATION AND OPTIMIZATION STRATEGIES IN A MOLECULAR LAB RESULT IN AN IMPROVED WORKFLOW FOR STI SURVEILLANCE STUDIES

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Background Clinical types of specimen as well as rising sample numbers during a STI studies, pose a challenge to the capability of the lab. Workflow optimization and automation strategies are crucial to enable high throughput investigations with a maximum of efficiency if diagnostic data have to be combined with additional information content.

Methods In our molecular laboratory we have established an optimized the sample management, automated extraction and detection protocols using the Panther[®] instrument, bidirectional order entry and reporting setting followed by a digital archiving and data management procedure. The workflow

combines self-sampling from different anatomical sites, automated data input and sample management including LIS based registration of the sample tubes. The Panther[®] protocol combines target detection of different STI pathogens. The results are transferred directly into the LIS for validation and reporting. The sample tubes are archived including an electronic place marker for subsequent investigation.

Results The workflow enables us to proceed up to 600 samples in a 10 hours working day. We handle 250–500 samples per day. During the German MSM screening study 2018 we investigated 6900 additional samples resulting in 27600 analytical data points and more than 300.000 sociodemographic information within 3 month. Analytical result data were continuously linked to collected questionnaire information on sociodemographics (e.g. clinical symptoms, sexual behavior, PrEP-use, etc.). Result reports were delivered every day and cumulative data sets were exported from LIS for epidemiological evaluation every week.

Conclusion We have adapted a workflow for laboratory requirements of epidemiologic STI studies. This is essential for efficient data management processes. By integrating molecular instruments into a combined sample management process automation has become a fundamental principle in laboratory processes but is also indispensable for conducting STI investigations. We have already implemented the process successfully during the ‘MSM Screening Study 2018’ and the ongoing ‘BRAHMS-Study 2018’.

Disclosure No significant relationships.

P026 FREQUENCY OF STD TESTING SERVICES AMONG COMMERCIALY-INSURED PATIENTS WITH HIGH RISK SEXUAL BEHAVIORS

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Background High-risk sexual behavior (HRSB) is associated with an increased burden of sexually transmitted diseases (STDs); therefore, CDC recommends those at high risk are screened more frequently than persons without HRSB. Because providers are able to document patients as having 3 types of HRSB: heterosexual, homosexual, or bisexual, using the International Classification of Disease Tenth Revision (ICD-10), this study assessed STD/HIV screening frequencies among patients with HRSB diagnoses.

Methods A large commercial claims database for outpatient visits for 2016 was analyzed. We included in the analysis patients diagnosed with any HRSB based on ICD-10 codes. The initial diagnosis for HRSB was considered as the index date for each patient. Testing frequencies for chlamydia, gonorrhea, syphilis, and HIV were assessed by 3 types of HRSB. For those diagnosed with HRSB from January 1–June 30, 2016, an additional 6 month follow-up testing period was also assessed.

Results 52,160 patients were diagnosed with HRSB in 2016: 90.3% were heterosexual, 7.7% homosexual, and 2.1% bisexual HRSB. Testing for chlamydia, gonorrhea, syphilis, and HIV was 65.3%, 65.2%, 38.1%, and 43.6% for heterosexual, 49.9%, 49.8%, 51.5%, and 57.8% for homosexual, and 57.7%, 56.6%, 41.6%, and 48.2% for bisexual HRSB patients at the initial diagnosis date. 35.5%, 20.9%, and 36.5% of

heterosexual, homosexual, and bisexual HRSB patients were found to have follow-up claims within 6 months after the index date, respectively. Of those who had follow-up claims, follow-up testing for chlamydia, gonorrhea, syphilis, and HIV was 77.2%, 77.6%, 50.6%, and 56.4% for heterosexual, 71.8%, 72.7%, 74.5%, and 80.4% for homosexual, and 69.7%, 71.1%, 58.2%, and 66.7% for bisexual HRSB patients. STD/HIV follow-up testing rates were higher among patients who were screened at the index date than those who were not.

Conclusion STD/HIV screening and follow-up screenings among HRSB patients are sub-optimal. Most HRSB patients do not have timely follow-up visits.

Disclosure No significant relationships.

P027 SAFETY AND EFFECTIVENESS OF SAME-DAY SCREENING AND TREATMENT AMONG YOUTH IN LOS ANGELES, CALIFORNIA

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Background *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) are the most common sexually transmitted infections (STIs). Lesbian, gay, bisexual, transgender, queer (LGBTQ) and homeless youth often report risk-taking behaviors such as higher number of sex partners and condom-less sex, yet they have decreased access to healthcare services. Providing treatment following testing can reduce the transmission of infection and the risk of developing complications. As part of a large, adolescent prevention study, we provided same-day CT/NG testing and treatment for participants.

Methods We recruited 578 persons aged 12–24 years from homeless shelters, LGBTQ organizations, and community health centers in Los Angeles, California beginning May 2017. Participants received point-of-care pharyngeal, rectal, and urethral/vaginal CT/NG testing using the Cepheid GeneXpert. Beginning March 2018, after a positive CT or NG test result, participants were offered a same-day treatment pack. Participants were additionally offered treatment packs for their sex partners. We measured the proportion of participants who received treatment within 3 months of testing, the median time-to-treatment, and the number of expedited partner therapy packs taken by participants between March 2018 – December 2018.

Results Before offering same-day treatment for CT/NG infection, only 35% (15/43) of participants had confirmed treatment. After implementing the same-day treatment packs, 76% (42/55) of participants received treatment ($\Delta = 41\%$, p-value < 0.001). Of those receiving treatment, median time to treatment was 10 days (range 1–88 days) before, and 1 day (range 0–62) after ($\Delta = 9$ days, p-value = 0.007). Overall, 35% (25/78) of participants took 36 partner therapy packs (median = 1 pack, range 0–3 packs). There were no reported adverse side effects.

Conclusion Providing same day STI testing and treatment to high-risk youth is safe, feasible, and can increase the proportion of individuals receiving timely treatment.

Disclosure No significant relationships.

P029 MULTI-TARGET PCRS – THE NEW MULTI-TOOL OF STI DIAGNOSTICS

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Background An efficient and reliable detection of sexual transmitted infection (STI) is a basic requirement for successful therapies and important for an evaluation of epidemiological processes. Improved analytical methods could facilitate the interpretation of transmission and clinical progress of STIs. We implemented a new multi-target PCR (Allplex[®]) using an automated routine diagnostic setting for evaluation.

Methods Clinical samples were obtained from STI routine diagnostic. Urine specimens and genital swabs collected from different patient cohorts were processed using the automated Microlab Nimbus[®] instrument followed by an automated multiplex-PCR setup. The amplification and detection was conducted using the CFX96 system (BioRad, USA) using the Allplex[®] STI/GU kit. A simultaneous detection of *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), *Mycoplasma genitalium* (MG), *Mycoplasma hominis* (MH), *Trichomonas vaginalis* (TV), *Ureaplasma urealyticum* (UU), *Ureaplasma parvum* (UP), *Treponema pallidum* (TP), *Haemophilus ducreyi* (HD), HSV-1 and -2, VZV and CMV and Lymphogranuloma venereum (LGV) was possible.

Results A total of 500 samples were included for evaluation. The number of positive samples was 242, the overall number of detected pathogens was 320 (CT:31; NG:8; MG:12; TV:2; MH:26; UP:166; UU:51; others:24). Mixed infections could be observed in 61 samples (double: 47; triple: 12; more: 2). Amplification of internal controls revealed a valid processing of all negative samples. The results indicated also a different distribution between age groups, risk behavior, gender and collection site.

Conclusion These results demonstrate the benefit of multi-target PCR tools for the diagnosis of STI. The evaluated assay delivered a valid and reproducible performance. A further advantage of the workflow consists in the parallel or pooled processing of samples. Frequent detection of mixed infections face us with new challenges in the interpretation of medical findings. In current and future studies it has to be evaluated how multiplex results have to be interpreted individually and epidemiologically.

Disclosure No significant relationships.

P030 PILOT IMPLEMENTATION OF A HOME-CARE PROGRAM FOR CHLAMYDIA, GONORRHOEA AND SYPHILIS TESTING IN HIV POSITIVE MSM

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Background Not all men who have sex with men (MSM) are reached with current STI-care. We developed a home-care

program to increase coverage of high-quality HIV/STI-care for MSM. The program combines home-based self-sampling testing for HIV, syphilis, chlamydia and gonorrhoea (anorectal, genital and oropharyngeal) with counselling, treatment and sexual health care after positive diagnosis. The aim of this pilot was to implement this program in the hospital setting to reveal barriers and facilitators for successful implementation.

Methods Healthcare providers from HIV hospital clinic Maastricht offered free test-kits (including STI self-sampling tests and online questionnaire) to their HIV+ MSM patients. Logistics and patient care were managed by the public health service South Limburg. Quantitative (process, questionnaire, diagnostic-tests) and qualitative (evaluation meetings, care-provider-interviews) data were collected. Primary outcomes were adoption (distribution of test-kits), reach (percentage participation), process barriers and facilitators.

Results Of 129 MSM patients, 110(85.3%-adoption) were offered a test-kit; 64(58.2%-participation) accepted; 28(43.8%) returned the samples for testing. 23(82.1%) were not recently <3 months tested. Five MSM (17.9%) were diagnosed with one or more STI. MSM reported easy and convenient test-kit usage; 67% would use it again. Hospital and public health providers found the program acceptable but identified logistical challenges. Initial missing questionnaires (29.6%) led to logistical difficulties(time-consuming). Because a large proportion of MSM had previous syphilis (18/28), sufficient serum was not always(8/18) available for full syphilis diagnostics. In case we only did syphilis screening test, 82.1% (23/28) had sufficient serum for syphilis screening test (and HIV testing).

Conclusion The home-care program with self-sampling test was acceptable for hospital, public health-care providers and MSM. MSM participation could be improved as return rate of test-kits was low. Tested MSM did have STI and were not recently tested. Although in this HIV+ population syphilis diagnoses was often hampered, we expect screening in a lower prevalent syphilis MSM group to be more successful.

Disclosure No significant relationships.

P031 USING INTERVENTION MAPPING TO DEVELOP A HOME-CARE PROGRAM FOR MEN WHO HAVE SEX WITH MEN TO GET THEMSELVES TESTED FOR HIV/STI

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Background Despite public-health efforts, men who have sex with men (MSM) are still not sufficiently reached with current HIV/STI care. We developed a regional MSM home-care program, used by public-health STI care, hospital HIV care, and general practitioners. The program combines home-based self-sampling testing for HIV, syphilis, chlamydia and gonorrhoea (anorectal, genital and oropharyngeal) with counselling,

treatment and sexual health care after positive diagnosis. We developed this program using the systematic intervention mapping (IM) protocol (six steps). Here, we describe the development process.

Methods Step 1 (needs assessment): we conducted a literature review and interviews with 18 MSM and 19 healthcare professionals from public-health and hospital care. Step 2–5: specific objectives were formulated to achieve the program goal and methods were selected to address determinants that needed to be changed. Program production was done with evidence-based methods to overcome barriers identified in the needs assessment. A plan was made for implementation.

Results Step 1 (needs assessment): Healthcare professionals and MSM expressed a positive attitude towards home-based self-sampling. Care providers raised concerns to missing face-to-face counselling and expected that MSM may experience difficulties with blood drawing (finger prick). Steps 2–4: Identified target change behaviors were 1) testing in MSM and 2) adoption of the program in care-providers. Solutions to decrease testing barriers in MSM in the program include: 1) home-based self-sampling 2) reminders (text messaging) 3) social network peer-dissemination of tests and 4) re-testing opportunities. To improve adoption and implementation, a sustainable collaborative infrastructure is set up between public-health service, hospital care providers and general practitioners.

Conclusion The regional homecare program to motivate MSM to HIV/STI testing and to motivate care providers to use it was systematically developed for effective behavioral change. In the program, evidence-based methods to overcome barriers are included to reach an increased number of MSM and motivate care providers. The next step is to pilot implementation of the program.

Disclosure No significant relationships.

P032 ALONE BUT SUPPORTED WITH AN INNOVATIVE HIV SELF-TESTING APP: QUALITATIVE RESULTS FROM A LARGE COHORT STUDY IN SOUTH AFRICA

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Background HIV self-testing (HIV-ST) has the potential to positively impact HIV test access, uptake and early diagnosis. Its widespread adoption could change the nature of how and where patients access HIV testing. But concerns remain regarding test conduct, provision and nature of counselling, and support offered during/after HIV-ST. This study investigated an oral HIV-ST application (app) based strategy (an oral self-test with a mobile phone/tablet app), that offered HIV pre-test counselling, risk staging, test conduct/interpretation, and linkages to care. We aimed to identify if and how the app provided counseling and support during/after HIV-ST and how this strategy might impact test access in the South African context.

Methods We conducted a qualitative study nested within an observational cohort study (November 2016 – May 2018)

with concurrent comparators, in the township populations of Cape Town, South Africa. Participants could choose between supervised HIV-ST/unsupervised HIV-ST in private spaces around the clinic, and unsupervised HIV-ST at home. Qualitative data were collected from study participants and study staff using 33 semi-structured interviews, one focus group discussion, and observation notes. Audio files and notes were transcribed and themes were developed iteratively. NVIVO 9 (QSR International) was used during analysis.

Results Compared to conventional testing, participants perceived the app-based HIV-ST strategy as convenient. The convenience to test anywhere gave participants more control in choosing whom they included in the testing process. It addressed stigma, social visibility and privacy concerns by letting testers answer sensitive questions and receive their results privately. Future concerns centered on affordability, smartphone access, and usability in older and rural users.

Conclusion The innovative app-based strategy addressed multiple HIV testing barriers by making testing convenient and private. The flexible access and support offered by the strategy could aid in expanding access and linkages for HIV-ST and related co-infections in South Africa and beyond.

Disclosure No significant relationships.

P033 DIFFERENTIATION OF COMMON GENITAL ULCER DISEASE PATHOGENS USING SEQUENTIAL OR PARALLEL MOLECULAR TESTING

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Background The most common infectious etiologies of genital ulcers (GUs) in the USA are Herpes Simplex Virus infections (HSV1/2) and *Treponema pallidum* (Syphilis). GUs are a common symptom reported by men and women attending US sexual health clinics. Considering the insensitivity of relying solely on lesion characteristics for presumptive clinical diagnoses, the ability to accurately identify the underlying etiology of GUs would facilitate timely and accurate treatment decisions – ultimately improving patient care and mitigating the rapidly-expanding Syphilis epidemic. Here, we describe a diagnostic workflow that allows for sequential and parallel testing to characterize GUs, relying on a combination of IVD and LDT NAAT-based solutions performed on the cobas® 4800 System, to detect HSV1/2, VZV, and *T. pallidum* from single specimens.

Methods Commercially available control material for HSV1, HSV2, VZV, and *T. pallidum* were spiked into MSwab medium at varying concentrations; eight (8) swabs from the MSwab™ System were dipped into each of the spiked specimen vials and transferred to their respective collection tubes. Initial testing was split between two runs performed by the cobas® HSV1 and 2 Test on the cobas® 4800 System. The extracted nucleic acid remaining in the deep-well plate was subsequently used for VZV and *T. pallidum* testing on the User Defined Function (UDF) channel, using published primer/probe sequences.

Results Detection of VZV and *T. pallidum* on the UDF channel using nucleic acid extracts obtained following HSV1/2 testing on the cobas® 4800 System was possible, demonstrating high reproducibility and precision across several replicate specimens.

Conclusion Novel solutions that aim to reduce empiric therapy, or shorten the interval to treatment success, are critical. Through the use of sequential testing algorithms, more accurate discrimination between GU etiologies may help address the re-emergence of Syphilis in the USA.

Disclosure No significant relationships.

P034 HIV SELF-TESTING AND POTENTIAL LINKAGE TO CARE AMONG MEN WHO HAVE SEX WITH MEN IN CHINA: A CROSS-SECTIONAL ONLINE SURVEY

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Background HIV self-testing (HIVST) was recommended by the World Health Organization as an additional way for improving HIV testing due to its advantage in privacy and convenience. Studies showed that HIVST was well accepted among men who have sex with men (MSM) in China. This study aims to investigate the situation of HIVST usage, its correlates and implications for linkage to care among Chinese MSM.

Methods Data were collected from a nationwide online survey. Men who ever had sex with another man, were 16 years or older, born as a male, and ever tested for HIV were eligible. Survey collected information on HIVST and source of self-test kits. Sociodemographic and behavioral data were also collected and assessed in relation to HIVST through bivariate analyses. We characterized linkage to care after receiving a HIV-positive confirmatory results among self-testers and facility-based testers (i.e. who never self-tested).

Results Among 540 men who ever tested for HIV (age: 27.3 ± 6.6), most were never married (87.4%, 472/540) and completed college (52.2%, 282/540). 75.2% (406/540) reported having been self-tested. Self-test kits were commonly obtained from community-based organizations (54.4%, 221/406) and online (46.6%, 189/406). HIVST was associated with college or higher education (OR=1.41, 95%CI: 1.03–1.96), but not with other socio-demographics, sexuality disclosure or condom use. 32/540 (5.9%) men received confirmed HIV-positive results, 25/406 (6.2%) among self-testers and 7/134 (5.2%) among facility-based testers (p=0.69). After receiving HIV-positive confirmatory results, all 25 self-testers sought care while 3/7 (42.9%) facility-based testers did (p<0.001). Delays before seeking care were not significantly different between self-testers and facility-based testers (P=0.366). 254/508 (46.5%) men reported likely to test for HIV in next three months, similarly among self-testers and facility-based testers.

Conclusion Many men received HIVST. Men with higher education were more likely to be ever self-tested. The use of HIVST did not appear to hinder linkage to HIV care and services among men with confirmed HIV-positive results.

Disclosure No significant relationships.

P035 IMPACT OF MASS MEDIA EXPOSURE IN GETTING HIV TESTING AMONG URBAN WOMEN IN NEPAL

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Background According to Nepal Demographic and Health Survey (NDHS) 2016, 81% of women have heard of AIDS in Nepal. Despite this, only 10% of women have ever been tested and received the results. The objective of the study is to examine the impact of mass media exposure in getting HIV testing among urban women in Nepal.

Methods The study is based on 12,862 women aged 15–49 residing in Nepal and enrolled in NDHS 2016. All urban women were asked the frequency of exposure to media. Binary logistic regression analysis was used to study the effect of radio, television and internet exposure in getting HIV testing among women in Nepal.

Results Among women exposed to radio, television and internet have 12.6%, 12.6% and 18.6% HIV testing respectively than those without radio (9.9%), television (8.1%) and internet (8.3%). (P value <0.001). Women exposed to radio, television and internet at least once a week were more likely to have HIV testing than those not exposed. Women who used the internet every day had high HIV testing (19.4%, CI 18.9 to 19.8) in comparison to those listened radio every day (13.6%, CI 13.1 to 14.0) and watch television every day (14.1%, CI 13.7 to 14.5). Using binary logistic regression analysis, odds of women exposed to radio, television and internet were 1.2, 1.5 and 2.5 times respectively more likely to have HIV testing than those not exposed (P value <0.001).

Conclusion Urban women exposure to internet has high impact in getting HIV test in Nepal. Internet plays a crucial role as a source of information for urban women in getting HIV testing in comparison to radio and television. The Ministry of Health, and International Development Partners should develop the intervention such as mobile apps, website as information source as more women are using mobile phone and internet in Nepal.

Disclosure No significant relationships.

P036 PREDICTORS OF LOST TO FOLLOW-UP IN A 'TEST AND TREAT' PROGRAMME AMONG WOMEN WITH HIGH-RISK SEXUAL BEHAVIOUR IN KAMPALA, UGANDA

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Background Immediate uptake of antiretroviral therapy (ART) after an HIV-positive diagnosis (Test and Treat) is now being implemented in Uganda. Data are limited on lost to follow-up (LTFU) in high-risk cohorts that have initiated 'Test and Treat'. We describe LTFU in a cohort of women of high-risk sexual behaviour who initiated ART under 'Test and Treat'.

Methods We performed a retrospective cohort study of participant records at the Good Health for Women Project (GHWP)

clinic, a clinic in Kampala for women at high-risk of HIV-infection. We included HIV positive women ≥ 18 years who initiated ART at GHWP between August 2014 and October 2017. We defined LTFU as not taking an ART refill for ≥ 3 months from the last clinic appointment and not classified as dead or transferred to another clinic. We used the Kaplan-Meier technique to estimate time to LTFU after ART initiation. Predictors of LTFU were assessed using a multivariable Cox proportional hazards model.

Results Of the 293 enrolled participants, 16% of the women were LTFU within the first year of ART initiation. The mean (\pm SD) age of study participants was 30.3 (± 6.5) years, with 274(94%) reporting paid sex while 38(13%) had never tested for HIV before enrolment into GHWP. LTFU in the cohort was estimated at 12.5 per 100 person-years (95%CI 9.8–16.0). In multivariable analysis, participants who reported sex work as their main job at ART initiation (Adjusted Hazards Ratio [aHR] =1.98, 95%CI 1.12–3.52), having baseline WHO clinical stage III or IV (aHR = 2.65, 95% CI 1.26–5.60) were more likely to be LTFU.

Conclusion LTFU in this cohort is high. Follow up strategies are required to support women on Test and Treat to remain on treatment, especially those who engage in sex work and those who initiate ART at a later stage of disease.

Disclosure No significant relationships.

P038

COMPARISON OF ANYPLEX™II STI-7E V1.1 TO ALLPLEX™ CT/NG/MG/TV FOR THE DETECTION OF STI FROM URINE COLLECTED WITH URISPONGE™

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Background Sexual transmitted infections are playing an important role in genital infections. *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), *Mycoplasma genitalium* (MG) and *Trichomonas vaginalis* (TV), have been associated to vaginal infections, cervicitis and urethritis and complications like pelvic inflammatory diseases. Pathogens like *Mycoplasma hominis* (MH), *Ureaplasma urealyticum* (UU) and *Ureaplasma parvum* (UP), residing in the genital tracts, are not always associated to active infections. Seegene introduced the Allplex™ CT/NG/MG/TV (STI-4) Assay. This study objective was to compare the performance of the Anyplex™II STI-7e v1.1 (STI-7) that detects CT, NG, TV, MG, MH, UU, and UP, to the Allplex™ CT/NG/MG/TV for the detection of STI from urines.

Methods Urines collected with UriSponge™ (Copan Italia, Brescia Italy) were tested with the STI-7: UriSpone™ samples were centrifuged 5min at 2500 RPM, tubes de-capped, sponges discarded, vortexed and loaded samples on the Nimbus for nucleic acids extraction. Extracted samples were analyzed with the STI-7 on the CFX96 system. Nucleic acids from 142 urine, already defined negative and positive, were analyzed with the Allplex™ CT/NG/MG/TV on the CFX96 system. Both assays were compared, concordant results

were considered negative or positive, discordant results were retested in duplicate.

Results In the 142 urines tested with STI-7 and STI-4 assays, concordant results were detected, 29 CT, 16 NG, 11 MG positives, 29 negatives and 5 discordant results, 2 STI-7 negative/STI4 positive (1MG and 1CT) and 3 STI-7 positive/STI-4 negative (1NG, 1CT,1TV). Results were not statistically significant ($P > 0.05$). Anyplex II STI-7 detected 22 MH, 25 UU and 45 UP.

Conclusion In this study an excellent agreement was demonstrated by the Seegene Anyplex™II STI-7e v1.1 and by Allplex™ CT/NG/MG/TV assays for the detection of *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Mycoplasma genitalium* (MG) from urine collected with Copan UriSponge™. The Allplex™ CT/NG/MG/TV assays eliminate the detection of MH, UU, and UP.

Disclosure No significant relationships.

P039

A CENTRAL REFERENCE LABORATORY FOR ANTIMICROBIAL RESISTANT *NEISSERIA GONORRHOEAE* IN THE US DEPARTMENT OF DEFENSE

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Background Antimicrobial resistant (AMR) *Neisseria gonorrhoeae* has emerged as a global public health concern. Widespread resistance to all known antibiotics prescribed for treatment greatly hinders prevention, control, and management of gonorrhoea. Misuse of antibiotics and substandard antibiotic quality and dosing have contributed to the threat of untreatable gonorrhoea. As a globally deployed force, the U.S. military is vulnerable to diminished operational capability and readiness as this threat looms overhead.

Methods The need for rapid, timely, and actionable information for force health protection precipitated the establishment of the Department of Defense (DoD) Gonococcal (GC) Reference Laboratory and Repository in 2011. The aims of the Reference Laboratory are to monitor trends in AMR GC through confirmatory identification, antimicrobial susceptibility testing (AST) and advanced molecular characterization, and to improve *N. gonorrhoeae* culture capability at international DoD surveillance sites. To our knowledge, this is the only global AMR GC surveillance program led by a military organization.

Results Gonococcal surveillance at international DoD sites is conducted at partner military medical centers, private medical clinics, and U.S. government-sponsored care clinics. Laboratories currently submitting isolates include: AFRIMS (Bangkok, Thailand); NAMRU-3 (Accra, Ghana); NAMRU-6 (Lima, Peru); USAMRD-G (Tbilisi, Republic of Georgia); and USAMRD-A (Nairobi, Kenya). To date, 436 presumptive isolates have been shipped, from which 247 isolates were confirmed as *N. gonorrhoeae*. Resistance is commonly observed in these isolates, particularly with respect to tetracycline, penicillin, and ciprofloxacin. Of greater concern, reduced susceptibility to azithromycin (MIC ≥ 0.125 μ g/mL) and cefixime (MIC ≥ 0.06 μ g/mL) have been observed.

Conclusion The risk of AMR GC and the associated loss of convenient outpatient therapy is of great concern to the military medical community. Comparable data across geographically distinct regions is essential for monitoring AMR GC and implementing appropriate countermeasures in locations where service members are or could be deployed.

Disclosure No significant relationships.

P041 HOW IS THE VALUE OF POINT-OF-CARE TESTS FOR STIS NEGOTIATED IN THE CONTEXT OF A NATIONALISED HEALTH SYSTEM?

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Background Affordability, ease-of-use, rapid turnaround times and laboratory-equivalent accuracy have been identified as essential characteristics for point-of-care tests (POCTs) for STIs. Yet meeting these benchmarks does not guarantee POCT adoption into sexual health services (SHSs). Qualitative research can provide contextual understanding for how POCT characteristics are valued in relation to structural and political processes within health systems.

Methods We invited England SHSs interested in adopting POCTs for STIs to participate in the *Facilitators to Adoption* study, focused on understanding key facilitators and barriers to technology adoption within their services. Within these SHSs, we conducted in-depth interviews with key stakeholders self-identified as integral to adoption of POCTs into their services. Interviews were thematically analysed in NVIVO 11 to examine 'appropriateness' and 'usefulness' of POCT characteristics in the context of participating SHSs and the overall priorities of the National Health Service (NHS) in England.

Results 31 healthcare professions from 6 SHSs were interviewed between April and November 2018. Interviewees identified cost-effectiveness and ease-of-use as important in assessing POCTs attractiveness to their services. POCTs were seen by service leads as cost saving only if they affect costs directly incurred by the service, while potential effectiveness of POCTs was assessed by clinicians in the context of their potential for improving appropriate and timely treatment and care to area-specific priority patient groups. In some SHSs, the potential for POCTs to be seen by commissioners as increasing the competitiveness of their service by meeting new policy targets was an important factor driving adoption.

Conclusion The need for POCTs and their desirable characteristics are negotiated within complex processes of funding constraints, service restructuring and political commitments to increasing inclusivity of care. Our findings suggest that service leaders may find areas to leverage adoption of POCTs by focusing on the tests' potential to increase service relevance and competitiveness.

Disclosure No significant relationships.

P043 REGIONAL DIFFERENCES IN STI TESTING BARRIERS AMONG ONLINE TESTERS IN BRITISH COLUMBIA, CANADA

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10.1136/sextrans-2019-sti.248

Background GetCheckedOnline (GCO), an online sexually-transmitted infection (STI) testing service in British Columbia, launched in Vancouver, then expanded to two health regions (Island and Interior), including smaller urban and rural communities. We hypothesized that barriers to STI testing among GCO clients would be greater outside of Vancouver, due to a lower availability of existing STI services regionally.

Methods In 2015–2018, GCO clients were invited to participate in an online survey about STI testing barriers and facilitators at individual (e.g., embarrassment), healthcare provider (e.g., comfort discussing sexual health), clinic (e.g., distance, hours), and social levels (e.g., peer norms). We conducted Chi-squared, Fisher's exact, and t-tests for bivariate analyses (Vancouver vs. Interior, Vancouver vs. Island); significant results ($p < 0.01$) are shown.

Results 583 GCO clients completed surveys: 299 (51%) Vancouver, 203 (35%) Island, and 81 (14%) Interior. Vancouver respondents included proportionately more men who have sex with men, racialized minorities, and immigrants. A higher proportion of Interior (24%) and Island respondents (18%) reported testing for the first time compared to Vancouver (8%). More Vancouver respondents reported testing through GCO for routine testing (possible other reasons: symptoms, new relationship). We found no regional differences in other barriers at individual or provider levels. Fewer Island respondents reported delaying testing in the past year due to access issues compared to Vancouver respondents (57% vs 69%), which was not explained by differences in testing history. At a social level, fewer Interior respondents reported regular STI testing as a peer norm (31% vs 58% Vancouver).

Conclusion Our findings suggest that testing barriers generally may be more universal than region-specific among users of an online STI testing service. Moreover, despite the apparently wider availability of in-person sexual health services in Vancouver, barriers in accessing these services may persist. Future socio-demographic analyses and additional research (e.g., community surveys) may help to contextualize these findings.

Disclosure No significant relationships.

P044 REGIONAL DIFFERENCES IN USE OF
GETCHECKEDONLINE AND CLIENT CHARACTERISTICS
ACROSS BRITISH COLUMBIA, CANADA

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Background GetCheckedOnline (GCO) launched in Vancouver, British Columbia (BC), Canada, in September 2014, offering online access to sexually-transmitted infection (STI) testing. In February 2016, the program expanded to smaller urban, suburban, and rural communities in south central BC (Interior Health Authority) and Vancouver Island (Island Health Authority). Given regional differences in STI clinic service availability, we used GCO program data to compare socio-demographic and behavioural measures by region among clients completing testing through GCO.

Methods GCO test episode and client-level data were included from the first 23 months of regional expansion (February 2016 to December 2018). Variables were analyzed descriptively. Bivariate analyses comparing Vancouver with each of the expansion regions (Island and Interior) were conducted using chi-squared tests; significant results ($p < 0.05$) are listed below.

Results During the study period, 6,329 unique clients completed testing, with 3,435 (54%) from Vancouver, 1,834 (29%) from Island, and 1,060 (17%) from Interior. In total, 10,953 test episodes were completed. STI positivity was higher in Interior compared to Vancouver (6.1% vs 4.8%). Vancouver testers were older and a higher proportion identified as men who have sex with men (35%) compared to Interior (14%) and Island (26%). Greater proportions of testers from the expansion regions were symptomatic and reported STI risk factors (contact with STI-positive partner, condomless sex with >1 partner) at time of testing. Higher proportions of testing events in expansion regions were reported as first-time STI tests (never tested before: 23% Interior and 15% Island vs 9% Vancouver).

Conclusion This study highlights important regional differences in socio-demographic and sexual risk behaviours among GCO clients. Further research describing predictors of STI positivity, repeat testing patterns, and differences in barriers to testing across regions will help contextualize the impact of an online STI testing service across urban, suburban, and rural environments.

Disclosure No significant relationships.

P045 IS CHLAMYDIA TESTING IN GENERAL PRACTICE
SUSTAINED WHEN FINANCIAL INCENTIVES
OR AUDIT + FEEDBACK ARE REMOVED: A CLUSTER RCT

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10.1136/sextrans-2019-sti.250

Background Financial incentives (FI) and audit+feedback (AF) are often used to improve general practitioner (GP) performance. In the Australian Chlamydia Control Effectiveness Pilot (ACCEPt), a cluster-randomised controlled trial (RCT), GPs in the intervention arm received a FI of \$5-\$8 per chlamydia test and a quarterly AF report of chlamydia testing rates for their 16–29 year old patients. The objective of this present study was to examine the effects of removal of these measures on chlamydia testing rates.

Methods At the end of the ACCEPt trial, we designed a new 2X2 factorial cluster-RCT. ACCEPt intervention clinics were re-randomised to four arms: remove AF/retain FI, remove FI/retain AF, remove both AF and FI, or retain both FI and AF. The main comparisons were: removal vs. retention of FI and removal vs. retention of AF. The primary outcome was the absolute difference in chlamydia testing rates (proportion of 16–29 year old patients tested for chlamydia within a 12-month period) at year 2 compared with baseline, estimated using mixed-effect logistic regression models accounting for clustering at the clinical level.

Results 55 clinics were re-randomised. Chlamydia testing decreased from 20.0% to 11.7% in clinics with FI removed and from 20.1% to 14.4% in clinics that retained FI, with no evidence of a treatment effect between arms (difference=2.6%; 95%CI: -0.1, 5.7). Testing decreased from 20.8% to 11.5% in clinics with AF reports removed and from 19.7% to 14.8% in clinics that retained AF, with a larger reduction for removal than for retention of AF (difference=4.4% (1.1, 7.8)).

Conclusion Chlamydia testing rates declined in all clinics after the end of ACCEPt. Chlamydia testing rates fell more when quarterly audit+feedback reports were removed than when financial incentives were removed. Policy makers and clinicians should be aware of the challenge to sustaining chlamydia testing uptake in GP clinics.

Disclosure No significant relationships.

P046 ENSURING QUALITY-ASSURED AND PERSONALIZED ONLINE SELF-TESTING WITHIN A MARKET-DRIVEN CONTEXT

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Background The number of private and online providers of STI tests is increasing in the Netherlands. The autonomy and accessibility of online self-testing may contribute to timely diagnosis, lower healthcare costs and shorter waiting lists at STI clinics. But ill-informed self-testing can also lead to under-diagnosis and insufficient partnermanagement of STIs. To improve linkage to high quality private testing providers the online advice application Advies.chat was launched in 2017. We assessed process indicators for the successful implementation of this online advice instrument in 2018.

Methods The application generates tailored advices based on clinical guidelines. The questionnaire takes into account personal characteristics, sexual behaviour, sexual risks and symptoms. The advice refers to STI testing providers if testing is indicated and explains which specific STIs need to be tested for. All test advices refer to GP's and the specific diagnostic tests offered by selected online testing providers. Key populations (MSM, sex workers and young people < 25 years) are also referred to STI clinics. Anonymous process data from the Advies.chat database were analysed.

Results Advies. chat was visited 337,736 times in 2018; 113,257 visitors started the questionnaire, 17,449 the chatbot. Visits increased on Sundays, peaked on Mondays and decreased during the week. The most indicated reason for using Advies.chat was the 'possibility of being STI or HIV infected' (75%). Around 60% finished the questionnaire, leading to 65,736 advices and 8,700 clicks to online self-test providers.

Conclusion Online self-management tools can play a keyrole in improving the quality of the growing online STI testing market. Advies.chat shows that online triage and tailored advice is feasible and increases traffic to quality testing providers. The contribution of Advies.chat to the estimated 430,000 consultations at GP's and STI clinics in the Netherlands is sizable. Methods need to be developed to assess the impact of online self-management and self-testing on STI control.

Disclosure No significant relationships.

P047 THE THREE RS: RECALLS, REMINDERS AND RETESTING FOR CHLAMYDIA – VIEWS OF GPs AND YOUNG ADULTS

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Background Chlamydia reinfection increases the risk of pelvic inflammatory disease. Reinfection is common in Australia and while clinical guidelines recommend retesting 3 months post-treatment, less than 25% are retested. We aimed to examine general practitioner (GP) and patient views on retesting for chlamydia and recall/reminder systems to facilitate retesting.

Methods As part of a trial of chlamydia testing in general practice, GPs were provided with resources and support to implement recall/reminder systems to increase retesting. GPs' attitudes and practices were examined pre- and mid-intervention using semi-structured interviews. Semi-structured interviews were also conducted with patients throughout the trial. Data were analysed thematically.

Results 44 GPs undertook a pre-intervention and 24 a mid-intervention interview; 22 patients were interviewed. GPs viewed recalls/reminders as essential to a formal chlamydia control program. There was disparity in whether systems to enable retesting were adopted during the intervention. Barriers to implementing these systems included concerns about costs and time required to 'chase up' patients; these barriers persisted during the intervention. Concerns about privacy were raised by most GPs but not patients. Over half of patients were not provided with advice about retesting at the time of their initial chlamydia test. Of the four patients who tested positive, two were retested as per guidelines. Patients were universally supportive of receiving reminders for chlamydia retesting, though retesting when at the clinic for another reason was viewed as 'more practical'. Patients did not have strong preferences about reminder type (letter, SMS, email). Knowledge gaps were identified by both GPs and patients, and GPs identified a need to improve knowledge of the risks of chlamydia reinfection.

Conclusion GPs raised more concerns about retesting and reminders than patients. Increasing GP and patient knowledge of the risks of reinfection is crucial. GPs require additional support to implement strategies to increase re-testing.

Disclosure No significant relationships.

P048 IMPROVING 'HOME-BASED' STI/HIV SELF-SAMPLING AND BOOSTING SAMPLE RETURN RATES

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Background STI/HIV self-sampling has the potential to improve sexual health by increasing access to testing, yet uptake and sample return rates are currently sub-optimal. Our inter-disciplinary research team explored home-based self-sampling from the user perspective, to inform its optimisation (within the context of LUSTRUM, a UK based trial of Accelerated Partner Therapy (APT)). We describe how implementation science approaches were used to reconcile user, professional and practical requirements for APT and to suggest a series of simple improvements.

Methods 11 focus groups with the public (n=36), and those recently diagnosed with an STI (n=20), explored perceived barriers and facilitators to using prototype self-sampling packs and returning samples. Using the behaviour change wheel approach to direct intervention development, we engineered an optimised self-sampling and treatment pack and instructions, supported by audio-visual online materials. In this way we translated lay perspectives into evidence-based and theoretically informed, pragmatic recommendations.

Results Using rich participant extracts we illustrate how our analysis suggests: the design of the package should physically separate and order components to be used at each stage in the self-sampling/treatment process; simple written and online audio-visual instructions, suitable for those with low literacy levels should be provided; the rationale for and health consequences of not testing for STIs, including HIV, should be clearly articulated, enabling users to opt-out of HIV testing without inadvertently opting-out of STI testing; specific information concerning the viability of both self-taken samples and postal delivery to laboratories is needed

Conclusion This study represents the first evidence-based approach to improving the design of self-sampling packs and sample return. Using qualitative approaches and implementation science it is possible to systematically suggest refinements to product design and the need for additional sources of psychological and behavioural support to improve user experience, increase acceptability of self-sampling, broaden uptake and boost sample return

Disclosure No significant relationships.

P049 STI TESTING AND DOCUMENTATION VIA A PHONE APPLICATION (APP): EXPERIENCE WITH THE SAFE APP

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10.1136/sextrans-2019-sti.254

Background The STI epidemic continues to grow among young people. Encouraging screening and careful partner selection are approaches to controlling STI transmission.

Methods The SAFE App is a free, phone-based program that encourages users to undergo regular testing for STIs. The app allows for the real-time collection of data concerning the frequency of testing among various demographic populations. Users may securely upload test results from their regular healthcare provider or arrange to be tested through the app. Users who test through the app can use health insurance or pay a flat fee to test without generating an insurance claim. Test results can be securely displayed on the user's phone so they have the ability to easily share them with potential sex partners. The app is available for both Apple and Android systems and is supported by a network of physicians who communicate results to users and arrange for treatment for any user with a positive result. State reporting requirements are also fulfilled through the app.

Results To date, a limited number of users have registered for the app including about 200 from 38 states who imported

results into the app and about 150 from 22 states who obtained testing through the app. Among the latter, testing was completed at a commercial laboratory and the result electronically transferred to the SAFE medical record for rapid review by a physician and release to the user. Some users reported that they had never had an STI screen prior to testing through the app. After completion of scalability testing, the app will be promoted through social media.

Conclusion Widespread use of this app should encourage more testing of at-risk populations, generate demographic data concerning the frequency of STI testing, as well as ultimately reducing the spread of STIs by more judicious partner selection.

Disclosure No significant relationships.

P050 SEXUAL HEALTH LONDON ONLINE TESTING: A REVIEW OF SERVICE USERS AND OUTCOMES

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Background Sexual Health London (SHL) provides online asymptomatic sexual health screen, channelling patients away from clinic attendances. We present data from commencement on the 8th January to 31st October 2018 from this service.

Methods Descriptive analysis of routine data from registered users, including general demographics, service metrics of test kits (including nuclear acid amplification testing of Chlamydia and Gonorrhoea and/or blood serology), infection results and outcomes of kits (returned by 18th January 2019).

Results 82,806 registered users ordered 81,542 kits. 80.3% (n=65,460/81,542) kits were returned from 51,039 unique users. Proportion of sufficient samples in return kits: blood samples = 77.24% (n=50482/65361), vaginal samples = 99.41% (n=38312/38541) and urine samples = 99.15% (n=26595/26822). Median age 27 years old (range 16–99). Sex and sexual orientation demographics of unique users (n): Heterosexual: female = 54% (27560), male = 27.13% (13848), trans* = 0.05% (24) Homosexual: female = 0.45% (232), male = 11.56% (5898), trans* = 0.03% (14) Bisexual: female = 4.29% (2190), male = 2.41% (1231), trans* = 0.08% (42) Reactive results from sufficient samples (numerator/denominator): Chlamydia 4.39% (2850/64907), Gonorrhoea 1.12% (726/64907), HIV 0.35% (173/49889), Syphilis 0.58% (283/48692), Hepatitis B 0.73% (n=69/9430) and Hepatitis C 0.56 (n=54/9635). 100% of patients with a reactive HIV result have been contacted by a health advisor. 119 patients were considered 'low level' or could not be confirmed due to low sample volume. Of 54 'high level' reactive results, 32 were true positives and 18 patients were new positive patients. Median time (days) from requesting kit to kit testing was 9 days (range 1- 280 days). 99.3% of reactive results were communicated within three days of receiving the sample. 97.2% (n=4454) of reactive Chlamydia results were confirmed to have transferred care to a clinic.

Conclusion These results provide an indication of service usage and outcomes of sexual health testing using online services.

Disclosure No significant relationships.

P051 ACCURACY OF SEXUALLY TRANSMITTED INFECTIONS TESTING ON SELF-COLLECTED VAGINAL SAMPLES VERSUS CERVICAL SAMPLES

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10.1136/sextrans-2019-sti.256

Background Self-sampling has been shown to be a non-invasive and cost-effective method for the diagnosis and screening of sexually transmitted infections (STI). This study aims to evaluate the accuracy of detection of HPV and other STI on self-collected vaginal samples as compared to clinician-collected cervical samples in women with a recent diagnosis of cervical dysplasia.

Methods Self-collected vaginal (VS) and physician-administered cervical samples (CS) were collected from 130 women attending the Colposcopy Clinic, San Gerardo Hospital, Monza, Italy with a diagnosis of cervical dysplasia. VS and CS were collected using FLOQSwabs and L-Shaped FLOQSwab (Copan) respectively and transported to the Microbiology Laboratory of the University of Milano-Bicocca. Samples' nucleic acid extraction was performed using NucliSENS[®]easyMAG (bio-Mérieux). HPV and STIs detection was evaluated using Anyplex II HPV28 and STI-7 (Seegene), respectively. Sample cellularity adequacy through human CCR5 gene assessment was performed using an 'in house' Real-time PCR assay.

Results Demonstrated a very good overall concordance for HPV and STI detection on self and clinician-collected samples (gold standard). Very good agreement for the detection of one or more HPV types was demonstrated (Kappa = 0.915) with HPV positivity rates of 75% and 72% for VS and CS respectively. Similarly very good agreement was demonstrated for the detection of one or more of the 7 STIs under study (Kappa = 0.899). Overall a higher positivity for STIs was found in VS (48%) compared to CS (43%), with *Ureaplasma parvum* being most frequently detected. Adequate sample cellularity was demonstrated for all samples types; mean values of 2.07E+06 and 3.16E+06 cells/sample for VS and CS respectively.

Conclusion Self-collected samples showed a high degree of concordance with CS for both HPV and STIs detection with comparable sample adequacy. These results are promising for the introduction of self-collected samples in sexually transmitted and cervical cancer screening programs.

Disclosure No significant relationships.

P052 HIV CASE FINDING AND LINKAGE TO CARE IN ELEME LOCAL GOVERNMENT AREA, RIVERS STATE

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Background A combination of effective and efficient approaches are necessary for scaling up of HIV case-identification, particularly in resource-limited settings. To increase access and coverage, communities need to be linked to facilities via community-based interventions that seek to promote health

seeking behavior. This study is a Comparative Analysis of Facility Optimization and Community Based HIV Intervention and compares the effect of community HIV testing services (HTS) to HTS optimization at the facility-level.

Methods This is a pre-and post-intervention study conducted in Eleme, one of the priority LGA supported by the USAID funded Strengthening Integrated Delivery of HIV/AIDS Services (SIDHAS) in Rivers State. The pre-intervention phase (PIP1) covers the period November 2015 – October 2016 while the post intervention phase is from November 2016 – Oct 2017. PIP1 involved community entry/mobilization, HIV screening in general population, referrals and linkage to care and treatment services from the community to the facility, while the PIP2 focused on optimization of HIV testing services within the facilities through multipoint/Provider Initiated Testing and Counselling[PITC], targeted testing in the communities, Sexual Network and Genealogy Testing and referrals by escort to Service Delivery Points. We reviewed HTS and ART commencement data to compare differences in positivity yield and linkage between both phases.

Results The PIP1 had 107,813 individuals counselled, tested and received result, 1,406 tested HIV Positive and 964 linked to ART while the PIP2 had 24,078 individuals tested, 614 HIV positive and 610 linked to ART. Findings show increase in positivity yield from 1% to 3% and linkage from 87% to 99% in PIP1 and PIP2 respectively.

Conclusion Although community outreaches create awareness, a targeted approach to HTS including sexual network/genealogy testing may be a more efficient approach. In addition, PITC in health facilities yields a higher positivity and linkage rates, maximizes use of testing resources by focusing on higher risk populations.

Disclosure No significant relationships.

P053 DETECTION OF SEXUALLY TRANSMITTED PATHOGENS FROM SEDIMENT OF FIRST-VOID URINE IN PATIENTS FROM GREATER ZAGREB AREA

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Background First-void urine (FVU) is the preferred specimen for the diagnosis of sexually transmitted (ST) infections in men. The use of the invasive and painful urethral swabs is a major barrier to screening and a key factor in male non-attendance at genitourinary medicine clinics. The aim of this study was detection of ST pathogens from sediment of FVU of 822 men, collected instead of urethral swabs.

Methods All samples were stained, cultivated and used in multiplex polymerase chain reaction (PCR) test. The number of polymorphonuclear leukocytes (PMNL) was detected by microscopy.

Results Urethritis was confirmed in only 72/822 (8.76%) patients by detecting a significant number of PMNL in sediment of FVU, and etiologic diagnosis was established in 68/72 men with diagnosed urethritis. *Chlamydia trachomatis* was detected as the most common cause of urethritis (47.22%), followed by *Mycoplasma genitalium* (12.50%) and *Neisseria gonorrhoeae* (9.72%). In patients with nongonococcal urethritis (NGU), *M. genitalium* was found as the second most common

NGU pathogen. Microbiological analysis was required the most frequently for screening and control purposes (340/822, 41.36%), and in patients with chronic prostatitis (105/822, 12.77% of all patients). ST pathogens were detected more frequently in patients with urethritis than in patients from other diagnostic groups ($p < 0.01$), while *Ureaplasma urealyticum* was detected without statistically significant difference among different diagnostic groups of patients ($p > 0.05$).

Conclusion Urethritis was confirmed in less than 10% of patients, and the most samples collected in routine of clinical praxis are from patients without urethritis. In patients with urethritis multiplex PCR test can detect etiology quickly and reliable in almost all cases from noninvasive sample.

Disclosure No significant relationships.

P055 LONDON SEXUAL HEALTH PROGRAMME – DEVELOPING INNOVATIVE SOLUTIONS TO OPEN ACCESS SEXUAL HEALTH SERVICES

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10.1136/sextrans-2019-sti.259

Background Demand for sexual health services is increasing at a time when public funding has reduced. This Programme is a partnership of local government, working with England's National Health Service to improve access to sexual health services. A key part of our vision was to develop an online sexual health triage, home testing and treatment service, which work with a network of over 40 clinics.

Methods In order to achieve this, the Programme undertook widespread engagement across the city. This included a range of activities with service users, for example, online and clinic-based surveys and focus groups with underrepresented groups. Engagement also took place with clinicians, payorst and other stakeholders. Questions were asked to service users about their usage of services and the acceptability of new innovations, including online based self-sampling options. Clinical organisations were asked about the feasibility of online services being part of the clinical pathway. Alongside this engagement project, new governance arrangements, which took the form of legally binding agreements that enabled the parameters of a pan-London service procurement to take place. At the same time, payors agreed to align pricing for activity in clinics, to support system sustainability for both sides.

Results While many respondents said they value being able to go to a sexual health clinic, over half said they would use an online alternative.. With the governance for this partnership finalised: aligned service specifications for both clinic provision and an e-service, could take place for the online service which launched in January '18. The e-service has registered over 120k users since then

Conclusion The pressure of growing sexual health need on reduced public resource are self evident, doind more of the same was not a viable or sustainable option. With efficiencies brought about through citywide cooperation, robust clinical and commissioner governance structures, access to services in London has been enhanced.

Disclosure No significant relationships.

P056 THE ACCEPTABILITY OF DIFFERENT HIV TESTING OPTIONS AMONG YOUNG MEN LIVING IN VANCOUVER, CANADA: A QUALITATIVE STUDY

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10.1136/sextrans-2019-sti.260

Background In British Columbia (BC), three testing options are available: nominal, non-nominal and anonymous. Little is known, however, about the factors that influence the acceptability of the different testing strategies, particularly among young men, a group with disproportionately low HIV testing rates.

Methods We draw on data from in-depth, semi-structured interviews with 45 young men (18–30) in Vancouver, BC, in order to identify the factors that influence the acceptability of different HIV testing options.

Results Most participants described not being aware that there were options other than nominal testing available in Vancouver. Upon learning about non-nominal and anonymous testing options, participants described seeing the value of non-nominal testing, insofar as it safeguards their privacy while at the same time providing a pathway to HIV-related health care for those who test positive. Many were concerned, however, that anonymous testing would present challenges to treatment and care for those who test positive. Others expressed concerns about the implications for public health not having access to accurate and up-to-date information about the 'state' of the HIV epidemic. Nevertheless, while participants did not tend to describe anonymous testing as something they would opt for in the future, almost all of the participants felt offering anonymous testing as an option is an important strategy to reduce barriers for key groups of young men (e.g., those living in rural communities).

Conclusion Based on our results, offering non-nominal and anonymous HIV testing represents an important step in increasing the accessibility of HIV testing for some groups of young men who found these approaches both acceptable and preferable (e.g., over nominal testing). However, within our sample, participants were not aware that anonymous and non-nominal testing were available. Developing clear and easy-to-understand communication strategies about the different approaches to testing may enhance opportunities for uptake of these approaches.

Disclosure No significant relationships.

P057 THE BRAZILIAN STRATEGY FOR HIV SELF-TESTS FREE DISTRIBUTION IN PUBLIC HEALTH

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10.1136/sextrans-2019-sti.261

Background In 2017 there were 866 thousand PLHIV in Brazil. Among them, 84% knew their status. Innovative strategies are fundamental to increase access to testing in a country with a continental dimension and a concentrated epidemic. The MoH acquired 400 thousand HIVST to reach

undiagnosed people. This paper presents the Brazilian strategy for HIVST distribution in the public health system from January 2019.

Methods Throughout 2018 we analyzed guidelines, studies and policies on HIVST worldwide, conducted a two-month international cooperation with France to learn from country's experience, participated and presented in 2 HIVST international Webex led by WHO and PAHO and, in addition to the results of HIVST projects conducted in Brazil since 2015, held regular stakeholders committee meetings and defined HIVST distribution strategies.

Results The strategy consists of actions that allow access to people that are not reached by health services or that should be tested more frequently, taking the test to the sites of sociability of the key populations and using secondary distribution among peers and sexual partners of people at increased risk. The strategies are: to sexual partnerships or peers of PrEP users; at events and places of sociability of key populations by health teams and NGOs; to sexual partners of prisoners and performance of assisted testing and secondary distribution in health services. The MoH developed strategies for communication, user support, referral to diagnostic confirmation and follow-up of PLHIV, as well as strategies for monitoring the distribution and use of tests through a post-test questionnaire. Brazilian MoH launched a dedicated HIVST website, including a FAQ session, and there will be extensive training in February 2019.

Conclusion The Brazilian strategy aims to scale-up access to HIV testing. Quarterly monitoring of the strategy will be of paramount importance in measuring results, making the necessary adjustments and evaluating the expansion of the strategy.

Disclosure No significant relationships.

P058 DESIGN AND PERFORMANCE OF THE ALINITY M STI ASSAY FOR THE DETECTION OF CT, NG, TV, AND MG

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Background The Alinity m STI assay is an *in vitro* assay for the qualitative detection of nucleic acids from *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), *Trichomonas vaginalis*, and *Mycoplasma genitalium* (MG) for use on the automated Alinity m System. For CT, NG, and TV, the assay may be used to test endocervical swabs, clinician-collected and self-collected vaginal swabs, gynecological specimens in PreservCyt, female urine, and male urine from symptomatic and asymptomatic individuals. For MG, the assay may be used to test endocervical swabs from symptomatic and asymptomatic individuals.

Methods The Alinity m STI assay is designed for the Alinity m System, a fully automated continuous access analyzer that utilizes magnetic microparticle sample preparation chemistry, unit-dose lyophilized amplification reagents, and Readiflex™ processing logistics to deliver a time-to-first-result of 115 minutes. The assay can be customized to report any combination of CT, NG, TV, or MG from a single test to allow flexibility in the management of laboratory testing. In addition to CT, NG, TV and MG, the assay detects an endogenous human DNA sequence and an exogenous internal control as

validity controls for sample adequacy, extraction, and amplification efficiency.

Results Performance characteristics of the Alinity m STI assay were evaluated in a clinical study. Endocervical swabs, vaginal swabs, gynecological specimens in PreservCyt, and urine were collected from 398 females. Urine was collected from 411 males. For each subject, the Alinity specimen type was compared to a matched specimen tested with CE marked assays for CT, NG, TV, and MG. For all analytes, the overall positive percent agreement ranged from 91.4% to 98.2% and the overall negative percent agreement ranged from 99.7% to 100%.

Conclusion The Alinity m STI assay is a sensitive and specific assay for the detection and differentiation of CT, NG, TV, and MG on a state-of-the-art instrument.

Disclosure No significant relationships.

P059 QUANTITATIVE DETECTION OF BACTERIA ASSOCIATED WITH BV IN URINE VERSUS SWAB SAMPLES USING DROPLET DIGITAL PCR

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Background Bacterial vaginosis is the most common vaginal condition found in women of reproductive age. The lack of published data on the detection of BV-associated pathogens from urine, a non-invasive sample, lends novelty to the present study. This study aimed to detect and quantify *Gardnerella vaginalis*, *Prevotella bivia*, *Atopobium vaginae* and *Lactobacillus crispatus* from urine, as an alternative non-invasive method to vaginal swabs from pregnant women using droplet digital PCR (ddPCR).

Methods A total of n=100 DNA samples (50 paired urine and swabs) were tested. The samples were stratified as BV negative and positive using the BD MAX Vaginal panel assay (Becton Dickinson). Total DNA was extracted from urine and swabs using the PureLink Microbiome Kit (ThermoFisher Scientific). Droplet digital PCR was used to determine the absolute quantification of the pathogens using commercially available primer and probe sets. Differences in bacterial load between urine and swab samples were evaluated using Spearman's correlation.

Results In BV positive women, the average copies of *Gardnerella* quantified was 241598 and 441655 copies/μl in the urine and swab, respectively. *Prevotella bivia* had a mean of 3459 and 6005 copies/μl, whilst *Atopobium vaginae* was present at a mean of 51055 and 38454 copies/μl in urine and swab samples, respectively. The *Lactobacillus* species was present in the urine at a mean level of 1057 copies/μl DNA and 241385 copies/μl in swabs within BV negative women. A positive correlation between urine and swab samples for all the above mentioned microorganisms was observed (p<0.0001).

Conclusion We observed that urine has the potential to serve as an alternative sample collection method to detect BV-associated bacteria. The data obtained from this pilot study can be used as preliminary data to develop larger studies on this technology. Our future research direction will be to develop ddPCR using urine as a diagnostic test for BV.

Disclosure No significant relationships.

P060 PERFORMANCE OF 3-IN-1 POOLED SAMPLES FROM ANAL, RECTAL, AND THROAT OF GENEXPERT® CT/NG IN BALI, INDONESIA

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Background Nucleic Acid Amplification Testing (NAT) assay is the new tool that may diagnose gonorrhoea and or chlamydia more sensitive and specific. The test, however, is not widely used in Indonesia, time consuming and expensive. Pooling of samples may significantly reduce the cost while maintaining the effectiveness of the test with high specificity and sensitivity rate for the detection of CT/NG infections. This study aimed to examine the effectiveness of 3-in-1 pooled samples from anal, rectal and throat of GenXpert CT/NG among MSM in Bali, Indonesia

Methods A quantitative study was conducted between July 2017 and July 2018 in an MSM clinic in Bali. Xpert CT/NG samples were collected from throat, anal swab and first pass urine which then pooled into one cartridge. The pooled samples results were compared with each site results by CT/NG GeneXpert® assay.

Results A total of 502 swabs were collected from 251 participants, comprises 251 pharyngeal and rectal swabs respectively, along with 251 First Pass Urine. Sensitivities and specificities of the GeneXpert® CT/NG assay was calculated using the pooled 3-in-1 sites compare to each site result as standard. 4/251 (1.5%) of rectal swab samples invalid and/or error by CT/NG GeneXpert® assay that most likely due to contamination with stools. The study shown the performance of 3-in-1 pooled samples (from anal, rectal and throat) of GeneXpert® CT/NG was highly effective due to the high rate of sensitivity and specificity, particularly from anal site as shown in *table 1*.

Conclusion This is the first study ever conducted to report data on the performance of pooled samples of GeneXpert® CT/NG among MSM in Indonesia. Consistent with similar study in other countries using other NAT platform, this study found the high rate of sensitivity and specificity for CT/NG detection. To be concluded, pooled samples among MSM can be considered in the resource-constraint setting.

Disclosure No significant relationships.

P066 A MOBILE CLINIC MODEL TO CARE FOR WOMEN ENGAGING IN EXCHANGE SEX WHO ARE OPIATE DEPENDENT AND LIVING UNHOUSED IN SEATTLE

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Background In 2018, new HIV diagnoses among heterosexual persons who inject drugs (PWID) in King County, WA increased over 300%, from 7 to 30 cases. A cluster of 15 related cases were identified among persons living unhoused in a 3-mile radius in north Seattle, including 10 women who

used drugs and exchanged sex. Here we describe a mobile outreach clinic designed to serve women in this community.

Methods The SHE (Safe. Healthy. Empowered.) Clinic mobile unit began in July 2018. SHE provides weekly walk-in medical care and harm reduction services, including low-barrier buprenorphine-naloxone, contraceptives, sexually transmitted infection (STI) testing and treatment, and HIV pre-exposure prophylaxis (PrEP). The mobile clinic parks in front of a support center for women living with various combinations of homelessness, opioid addiction, and exchange sex. A retrospective chart review of the initial clinic visits of the first 50 women describes this high-risk population.

Results None of the SHE Clinic patients had been screened for STI in the 3 months prior to clinic enrollment. Combined STI prevalence was high (44.5%); 48% of tested women had *Trichomonas vaginalis* (11/23), 18% had *Chlamydia trachomatis* (5/28) and 18% *Neisseria gonorrhoeae* (5/27). Only 29% of women reported condom use with all sex. No women reported planning for pregnancy; however, only 31% were using contraceptives and 10% (4/39) had new diagnosis of pregnancy. Forty-two patients tested for HIV, and 17 (44.7%) HIV-negative women initiated PrEP at their initial visit. Four women (8.5%) were HIV-positive, all were referred for treatment and are receiving some HIV care in the SHE clinic.

Conclusion A mobile clinic affiliated with a well-established community-based organization has successfully provided limited primary medical care – including HIV testing, treatment and PrEP - to a homeless population of women who inject drugs and exchange sex in the epicenter of an HIV outbreak.

Disclosure No significant relationships.

P067 DRUG USE DURING SEX AMONG DUTCH SWINGERS AND ASSOCIATED SEXUAL RISK BEHAVIOR: A HIDDEN PHENOMENON?

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Background Combining drugs and sex has been associated with an increased risk for sexually transmitted infections. Recently, there has been considerable interest in drug use during sex among men who have sex with men ('chemsex') in STI clinical practice, but data in swingers are lacking. Our study assessed the types of drugs used, and associated sexual risk behaviour, in swingers who are either bisexual male, heterosexual male or female.

Methods In 2018, 1005 participants completed an online questionnaire that was advertised at Dutch swinger-websites. Inclusion criteria were: swinging (heterosexual couples having sex with others or singles having sex with other heterosexual couples) and being aged ≥ 18 years. Drug use during sex was assessed and compared between heterosexual male, bisexual

male, and female swingers using χ^2 -tests. Multivariable logistic regression analysis was used to evaluate possible factors (socio-demographics, alcohol, and condomless sex with swing partners) associated with drug use.

Results Drug use while swinging was reported by 44% (443/1005); 51% in women, 44% in bisexual men, and 39% in heterosexual men ($p=0.007$). Among drug-using swingers, XTC (92%;409/443), GHB (76%;338/443), and laughing gas (69%;304/443) were mostly used; 69% (305/443) used ≥ 4 different drugs (polydrug use). Condomless vaginal sex was reported by 46% in drug-using swingers (vs. 35% in non-drug-using swingers; $p<0.001$) and condomless anal sex by 30% in drug-using swingers (vs. 21% in non-drug-using swingers; $p=0.012$). Being a woman (aOR:2.10; 95%CI:1.36–3.09) and condomless vaginal sex (aOR:1.71; 95%CI:1.24–2.35) were independently associated with drug use.

Conclusion This study among a large group of swingers shows that drug use and polydrug use during sex are prevalent among both male and female swingers in the Netherlands, indicating that ‘chemsex’ is not only common among MSM. The association between drug use and sexual risk behaviour suggests that it might be useful to tailor STI prevention strategies, developed for MSM engaging in chemsex, for swingers.

Disclosure No significant relationships.

P068 STD SCREENING AND DIAGNOSIS AMONG 15–24 YEAR OLD DIAGNOSED WITH PRESCRIPTION OPIOID RELATED DISORDER

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Background Many injection drug users have elevated STD/HIV risks, such as sexual-trade for drugs, risky condom-less sex, or multiple sex partners. STD diagnosis and screening among opioid users has not been examined.

Methods Using 2016 MarketScan commercial claims data, men and women aged 15–24 with opioid prescriptions were identified. We have assessed STD diagnosis and screenings, including chlamydia, gonorrhoea, syphilis, and HIV, as well as heroin use using ICD-10 and CPT codes. Women were identified as sexually-active using HEDIS criteria whereas no other criteria used for men.

Results We identified 10% (0.4 million) patients aged 15–24 who had opioid use in 2016. Among sexually-active women aged 15–24 years, screening and diagnosis was 48.1% and 2.3% for chlamydia, 56.0% and 4.1% for gonorrhoea, 16.6% and 3.8% for syphilis, and 16.0% and 0.3% for HIV among 154,960 women who had opioid use and 51.6% and 2.0% for chlamydia, 55.5% and 4.1% for gonorrhoea, 15.1% and 3.8% for syphilis, and 14.7% and 0.4% for HIV among 812,005 women who had no opioid use. Among 332 male and 159 female opioid plus heroin users, screening was 21.2% and 56.6% for chlamydia, 25.9% and 62.3% for gonorrhoea, 36.5% and 44.7% for syphilis, and 35.8%, 47.8% for HIV, respectively.

Conclusion STD screening among patients with opioids was not significantly different from the enrollees without opioids. STD diagnosis and screening among heroin users are much higher than patients who had not used heroin.

Disclosure No significant relationships.

P069 DO CANNABIS USE AND SOCIAL SUPPORT MEDIATE THE RELATIONSHIP BETWEEN INTERSECTIONAL STIGMA AND BODILY PAIN AND FUNCTIONING?

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Background Stigma produces stress for women living with HIV (WLHIV) and is associated with poorer physical quality of life. Cannabis use may help to manage HIV-related symptoms, including stress and pain. Limited research has explored intersectional stigma and associations with bodily pain and physical functioning, or cannabis use as a stigma coping strategy. We examined coping strategies (medical cannabis use, social support) as mediators of the association between intersectional stigma (HIV-related, gender discrimination, racial discrimination) and bodily pain and physical functioning among WLHIV.

Methods We conducted a community-based study in 3 Canadian provinces (Ontario, British Columbia, Quebec) with WLHIV. Structural equation modeling (SEM) using maximum likelihood estimation methods was conducted to test the direct effects of intersectional stigma (HIV-related, gender discrimination, racial discrimination) on physical functioning and bodily pain, and indirect effects via social support and medical cannabis use, adjusting for socio-demographics.

Results Among 1422 participants (median age: 42.5 years, IQR=35–50), one-quarter ($n=362$; 25.89%) currently used cannabis ($n=272$, 43.04%, for medical use), one-fifth ($n=272$; 19.46%) formerly used, and 54.65% ($n=764$) never used cannabis. Confirmatory factor analysis suggests the latent construct of intersectional stigma fit the data well ($\chi^2[0]=0$; RMSEA=0; CFI=1). SEM indicated that intersectional stigma has significant direct and indirect effects on physical functioning ($B=-0.074$, $p<0.005$ for direct effect; $B=-0.051$, $p<0.001$: indirect effect) and bodily pain ($B=0.157$, $p<0.001$ for direct effect; $B=0.058$, $p<0.001$ for indirect effect). Medical cannabis use and social support partially mediated this relationship. Fit indices suggest good model fit (CFI=0.981; TLI=0.956; RMSEA=0.032 (90% CI: 0.015–0.049); SRMR=0.020).

Conclusion Findings suggest that intersectional stigma contributes to poorer physical functioning and pain. Medical cannabis use and social support, associated with improved physical functioning and reduced pain, partially mediated the associations between intersectional stigma and poorer physical health. Findings can inform strategies to reduce stigma and support WLHIV using cannabis as a stigma coping strategy.

Disclosure No significant relationships.

P070 DETERMINATION OF ANTIBIOTIC SUSCEPTIBILITY AND EFFICACY BY VITA-PCR

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Background Major challenges in the management of infectious diseases include treatment failure due to antimicrobial resistance (AMR) and the lack of a reliable test of cure (TOC). Whilst culture is a trusted method it is slow, and with the widespread use of nucleic acid amplification tests (NAATs), many labs no longer retain culture capabilities. NAATs can assess AMR by detecting microbial mutations associated with resistance; however, this approach requires knowledge of the molecular mechanism(s), and as new mutations emerge, tests need to be reconfigured. Uses of NAATs for TOC is problematic since residual DNA and RNA have been reported following effective therapy. The VITA method provides a new tool which can overcome current drawbacks.

Methods The VITA Index is the ratio of the number of copies of a gene and its associated transcripts to those of a non-transcribed region of DNA. It provides a relative measure of active transcription regardless of the quality/quantity of specimen. The approach has several applications. Firstly, following addition of antibiotic to a specimen, e.g. for 5 min/37°C or 15 min/room temperature, Total Nucleic Acid can be amplified by VITA RT-PCR. Comparison of the VITA indices \pm drug will relate to antibiotic resistance or sensitivity. VITA RT-PCR can later provide a TOC, where VITA indices of a specimen can fall either above or below a predetermined threshold, indicating a viable or cleared infection respectively.

Results Both sensitivity and resistance to different antibiotics has been demonstrated *in vitro* on *Chlamydia trachomatis*, with significant decreases in VITA in the presence of drug in sensitive ($p < 0.05$), but not in resistant strains. Further, urine obtained from a patient post-treatment was analysed, and consistent with clinical evidence of ongoing infection, the VITA Index indicated viable chlamydia.

Conclusion In conclusion, VITA provides a powerful new approach for rapid determination of AMR and TOC.

Disclosure No significant relationships.

P071 POLICE HARASSMENT AND HIV/STI RISK BEHAVIORS AMONG A SAMPLE OF PEOPLE WHO INJECT DRUGS ON THE U.S.-MEXICO BORDER

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Background The number of people who inject drugs on the U.S.-Mexico border has been increasing over the last years and has become a public health concern due to their vulnerability to HIV and other sexually transmitted infections (STIs). We explored the HIV/STI risk behaviors of people who inject drugs (PID) and their relationship to police harassment.

Methods The sample for this study included 200 PID (75% male, 25% female) recruited through respondent driven sampling methodology. Data analysis was conducted using SPSS v.25; independent sample t-test was used to identify mean differences across PID experiencing police harassment during the past three months vs. PID who did not experience police harassment in the last three months; chi-squared analysis was used to explore proportional differences on substance use and HIV/STIs sexual risk behaviors.

Results Overall, 1.9% of participants reported being diagnosed with HIV, and 23.3% with hepatitis C. PID who experienced police harassment reported higher use of other drugs: marijuana (OR=1.78, 95%CI=[1.05,3.04], $p=0.015$), inhalants (OR=2.06, 95%CI=[1.40,3.03], $p < 0.001$), cocaine (OR=1.78, 95%CI=[1.14,2.80], $p < 0.01$), crystal (OR=2.11, 95%CI=[1.27,3.52], $p < 0.01$), methamphetamines (OR=2.06, 95%CI=[1.22,3.48], $p < 0.01$), tranquilizers (OR=2.02, 95%CI=[1.35,3.02], $p < 0.001$). Regarding risk behaviors, PID who experience police harassment reported higher numbers of sex partners (Mean: 10.99 vs. 5.72, $p=0.024$) and condom-less sex (Mean: 3.18 vs. 1.55, $p=0.042$). Men reported higher rates of sex with other men (OR=1.66, 95%CI=[1.25,2.19], $p < 0.01$). More PID reported being gang raped (OR=2.15, 95%CI=[1.73,2.68], $p < 0.001$) and having condom-less sex with a person known to have HIV (OR=1.48, 95%CI=[1.10,1.99], $p < 0.01$).

Conclusion There is a clear relationship between experiencing police harassment, engaging in HIV high-risk behaviors, and higher consumption of other drugs among PID. Understanding the structural dynamics of discrimination and stigma among this group (e.g. double stigma, being MSM) could lead to a deeper understanding of these relationships.

Disclosure No significant relationships.

P073 FROM SILOS TO BUCKETS: A QUALITATIVE STUDY OF HOW SEXUAL HEALTH CLINICS CAN ADDRESS MENTAL HEALTH & SUBSTANCE USE NEEDS

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Background In 2016–17, we surveyed clients of six sexual health clinics in Greater Vancouver. Consistent with studies from the US and Europe, we measured high rates of mental health and substance use (MHSU)-related service needs (39%). As a next step, we interviewed sexual health providers to characterize barriers and opportunities to addressing clients' MHSU needs.

Methods We conducted in-depth interviews with 22 providers (14 nurses, 3 physicians, 3 administrators, 2 other health professionals) from six sexual health clinics in British Columbia.

Results Providers consistently affirmed that MHSU-related concerns (including both 'chronic' conditions related to mood or anxiety and episodic crises) co-occur with sexual health concerns among clients presenting to sexual health clinics. In particular, anxiety was frequently cited—sometimes in association with a client profile that constituted low risk for sexually

transmitted infections (STI). Providers struggled to differentiate event-specific anxieties from more chronic, underlying anxiety-related conditions. Three barriers constrained the providers' abilities to effectively address MHSU service needs: 1) clinic mandates or funding models (specific to STI/HIV or reproductive health); 2) 'silo-ing' (i.e., physical and administrative separation) of services; and, 3) limited familiarity with MSHU service referral pathways. In response to these barriers and acknowledging the prevalence and prominence of MHSU concerns among clients, participants described actionable solutions. 1) Reduce silos, by clarifying referral pathways from sexual health clinics to MHSU providers. 2) Co-locate sexual health and MHSU services. 3) Assess the broader health needs of high-anxiety and low-STI risk clients who frequently access sexual health services.

Conclusion Sexual health clinicians in British Columbia generally affirm the results of previous, quantitative and client-focused research showing high rates of MHSU-related needs among sexual health clinic clients. Providers prioritized specific short-term (referral-focused) and long-term (healthcare reorganization) solutions for improving access to MHSU for those using sexual health services.

Disclosure No significant relationships.

P075 STI AND HIV INFECTIONS AMONG MSM REPORTING EXPOSURE TO GONORRHEA OR CHLAMYDIA: IMPLICATIONS FOR EXPEDITED PARTNER THERAPY

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Background Expedited partner therapy (EPT) is not recommended for U.S. men who have sex with men (MSM), due, in part, to concerns that STI and HIV infections may remain undiagnosed in EPT-treated partners who do not seek medical attention. To estimate how often infections might be missed, we assessed bacterial STI and new HIV diagnoses among MSM presenting as contacts to *Chlamydia trachomatis* (Ct) or *Neisseria gonorrhoeae* (GC).

Methods MSM attending New York City sexual health clinics are routinely tested for HIV, syphilis, and urogenital and extra-genital Ct and GC. We measured the number and percent of visits, during 2016–2018, with diagnoses of new HIV infection, or alternate/additional bacterial STI, among MSM who had: reported contact to STI, a clinician diagnosis of contact to GC or CT, and no reported contact to syphilis.

Results A total of 3,549 MSM had 4,390 visits eligible for analysis. Overall, 14.6% (640/4,390) visits resulted in bacterial STI diagnoses other than those to which exposure was reported. Among MSM-visits for exposure to Ct-only, 12.4% (177/1,430) resulted in GC diagnoses (including 81 rectal GC infections). Syphilis was diagnosed at 4.4% (159/3,652) of visits for Ct or GC exposure (49 primary/secondary, 49 early latent, 61 late latent). Twenty-eight new HIV diagnoses were made (3 acute, 25 non-acute infections); 8 among visits for Ct-only exposure, 20 for GC exposure.

Conclusion MSM reporting contact to Ct or GC, have other, concurrent bacterial STI that will be inadequately treated with therapy directed at only the STI to which they report exposure. A substantial number of HIV infections may remain undiagnosed if sex partners to MSM with Ct and GC do not receive HIV testing. Opportunities to offer HIV pre-exposure prophylaxis may also be missed. Our findings support examining and testing MSM exposed to Ct or GC rather than using EPT.

Disclosure No significant relationships.

P076 DO PRESCRIPTIONS FOR EXPEDITED PARTNER THERAPY GET FILLED? FINDINGS FROM A MULTI-JURISDICTIONAL EVALUATION, US, 2017–2018

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Background Expedited partner therapy (EPT) is commonly provided by prescription, however, the effectiveness of prescription-EPT has not been studied, and will depend on how often prescriptions are filled. We examined whether EPT-prescriptions get filled at retail pharmacies when the cost barrier is removed.

Methods Clinical sites diagnosing large numbers of *Chlamydia trachomatis* (Ct) infections and providing EPT-prescriptions were recruited. An industry partner developed voucher cards redeemable, with prescription, for free azithromycin, 1g, in any pharmacy in states where EPT is legal. Voucher cards were distributed to clinical sites. Providers prescribing EPT recorded index-patient age, gender, and prescription date on a tear-off tab accompanying each card, retained these tabs, and dispensed vouchers, along with EPT-prescriptions, to index-patients. A standard pharmacy interface captured unique voucher codes, prescription data, age, sex of the person redeeming the card. Pharmacy data were downloaded from an industry portal, linked with data from tear-off tabs, and analyzed. We considered redeemed cards a surrogate for filled prescriptions, and assessed patient and provider characteristics associated with redemption.

Results During September, 2017–June, 2018, 30 sites in New York City (NYC), New York State outside NYC, and Maryland enrolled; 580 EPT discount cards were dispensed by providers and 40% (234/580) redeemed at pharmacies. Redemption differed significantly by: index-patient gender (women, 44% versus men, 32%, $p=0.005$), and age in years (≤ 18 , 23% versus >18 , 45%, $p<0.001$). Most cards (57%) were redeemed same-day. Among sites dispensing ≥ 10 cards, redemption was 41% (212/521), range 6–78% (median, 36%); redemption of cards distributed at STD clinics was 38% (51/136). After excluding a high-volume site with an onsite pharmacy, there was no association between index-patient gender and card redemption.

Conclusion Less than half of EPT-prescriptions were filled, despite medication being dispensed for free, suggesting prescription-EPT to treat Ct may result in low partner-treatment rates, especially among adolescents.

Disclosure No significant relationships.

P077 **PILOTING AN ALGORITHM TO GUIDE CLINICAL TREATMENT DECISIONS FOR SYPHILIS NOTIFIED PARTNERS IN ROTTERDAM, THE NETHERLANDS**

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Background Partner services are crucial for syphilis control. The Sexual Health Centre (SHC) in Rotterdam introduced an algorithm to guide decisions for presumptive partner treatment (PPT) for syphilis. It aimed to identify partners at greatest risk for infectious syphilis and further transmission, who should be treated presumptively (without awaiting laboratory confirmation). Those deemed less likely to be infected were offered testing, and treatment or follow-up consultation as appropriate.

Methods To assess the performance of the PPT algorithm, we reviewed all notified partners of men who have sex with men (MSM) diagnosed with syphilis in the SHC from 1 February to 31 December 2017. The algorithm is a 12-parameter binary decision tree with two possible outcomes: 'presumptive treatment' or 'await lab results'. We calculated sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) to evaluate the algorithm against clinical outcomes.

Results Among all consultations, 12% (16/135) had syphilis. The algorithm indicated presumptive treatment in 74% (100/135) of consultations. Among those, 86% (86/100) tested negative, all of whom reported their last sexual contact within the previous eight weeks. Among partners where the algorithm indication was to wait, 6% (2/35) tested positive. The algorithm sensitivity and specificity were 88% (14/16), and 28% (33/119), respectively, with a PPV of 14% (14/100) and NPV of 94% (33/35). The algorithm indication was followed in 81% (110/135) of consultations; 83 clients were offered direct treatment, and 52 standard testing. Among 47 MSM with negative results at 1st consultation, 22 (47%) had no documented follow-up.

Conclusion While PPT can prevent further transmission, it may lead to overtreatment. This algorithm identified most MSM with infectious syphilis, and 'overtreatment' of some notified partners is warranted, given the large proportion who were within 8 weeks of last sexual contact. We recommend inclusion of this algorithm into routine sexual health practice.

Disclosure No significant relationships.

P078 **BARRIERS AND FACILITATORS TO EXPEDITED PARTNER THERAPY: A SURVEY OF FAMILY PHYSICIANS IN BRITISH COLUMBIA, CANADA**

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Background In British Columbia (BC), rates of chlamydia and gonorrhoea have been increasing over the last two decades. Expedited partner therapy (EPT)—providing medications to sex partners of patients diagnosed with chlamydia or gonorrhoea without a prerequisite medical examination—improves partner treatment, reduces reinfection, and prevents onward transmission. We sought to understand the perspectives of family physicians (FPs) on offering EPT to inform strategies to support this practice.

Methods FPs were invited to complete an online 17-question survey through the mailing list of Divisions of Family Practice (DoFP), geography-based networks of FPs across BC that represent over 90% of FPs. The survey queried practice demographics, experience diagnosing sexually transmitted infections (STIs) in the past year, and perceived barriers and facilitators to EPT to descriptively explore associations between these factors.

Results 146 FPs answered the majority of questions and were included. Most were female (99/146, 67.8%), between 30 and 59 years old (118/146, 80.8%), served an urban or suburban population (107/146, 73.3%), and engaged in general practice (108/146, 74.0%). The median years in practice was 9 (interquartile range: 4–21). The vast majority had diagnosed an STI within the past year (136/146, 93.2%). Most (91.1%) reported diagnosing chlamydia and 45.6% reported diagnosing gonorrhoea in the past year. The most commonly reported barriers were having inaccurate information about sex partners (88/146, 60.3%) and medicolegal concerns (87/146, 59.6%). Commonly reported facilitators were having a healthcare professional for follow-up after prescribing EPT (110/146, 75.3%), improved remuneration (93/146, 63.7%), having a legal framework (92/146, 63.0%) and clear clinical guidelines around EPT (87/146, 59.6%).

Conclusion Over 90% of FPs surveyed had diagnosed an STI in the prior year, underscoring the importance of engaging FPs in STI prevention strategies. Developing tools, such as a clear legal framework for EPT and clinical guidelines, may enable FPs to prescribe EPT.

Disclosure No significant relationships.

P079 USING THEORY AND EVIDENCE TO OPTIMISE AN ACCELERATED PARTNER THERAPY INTERVENTION IN A CHLAMYDIA PARTNER NOTIFICATION TRIAL

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Background Accelerated Partner Therapy (APT) is a method of partner notification (PN) which includes remote assessment, self-sampling and treatment of the sex partner(s) of a person diagnosed with STIs. Using the Behaviour Change Wheel approach, we sought to understand, and then systematically moderate, the psychological and behavioural challenges involved in delivering and receiving APT as part of LUSTRUM, a UK-based chlamydia PN trial.

Methods We conducted 11 focus groups with patients (n=30) and the public (n=26), and five focus groups with healthcare professionals (n=30) involved in PN. Initial thematic analysis explored the barriers and facilitators to each essential and sequential step in APT, from the perspective of each role in this interpersonal, relay intervention. Further analysis specified a series of theoretically based, and evidence-informed approaches that can be used to methodically reduce the various barriers to uptake and implementation of APT

Results Active, intervention components that can enhance staff delivery, index patient and sex partner uptake of APT included providing: clearer information for all about the overall sequential steps involved in APT (highlighting shared roles and responsibilities); a stronger focus upon *what* healthcare professionals, index patients and their sex partners should do in relation to each step of APT, including written checklists for staff and index patients; essential messages supporting PN and self-management of sex partners engaging in APT; pertinent information about *why* to engage in APT (in relation to considering key consequences).

Conclusion This is the first study to provide evidence-based and theoretically informed approaches to enhance contemporary PN. These findings informed the development of an intervention manual, training resources for staff and online video materials. Together, these materials detail, in highly specific and replicable ways, the optimal methods to reduce barriers to implementation of APT and utilise factors that facilitate implementation thereby potentially improving PN outcomes for chlamydia.

Disclosure No significant relationships.

P080 INVESTIGATING THE EFFECTS OF ACCELERATED PARTNER THERAPY ON CHLAMYDIA TRANSMISSION IN BRITAIN: A MATHEMATICAL MODELLING STUDY

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Background Understanding the effects of partner notification (PN) on chlamydia transmission is critical for implementing optimal control strategies. Accelerated partner therapy (APT) aims to reduce the time to partner treatment and increase the proportion of partners treated. As part of LUSTRUM, a PN trial in the UK, our objective was to study the effects of APT interventions on partner treatment and chlamydia transmission using a mathematical model.

Methods We developed a deterministic, population-based chlamydia transmission model including the process of PN. We considered a heterosexual population aged 16–34 years and calibrated the model to sexual behaviour and chlamydia prevalence data reported by 3,671 participants in Britain's third National Survey of Sexual Attitudes and Lifestyles (Natsal-3, 2010–2012) using Approximate Bayesian Computation (ABC). We investigated the potential effects of APT on chlamydia transmission by reducing the time to partner treatment and increasing the proportion of treated partners compared to standard PN.

Results The median prevalence of chlamydia in the model was 1.8% (95% credible interval (CrI): 1.6%–2.6%) in women and 1.7% (95% CrI: 1.1%–2.1%) in men. Overall, chlamydia-positivity in partners of index cases was 55% (95% CrI: 31%–79%), and higher in partners of symptomatic index cases (76%) than asymptomatic index cases (33%). Reducing the time to partner treatment without achieving higher proportions of partners treated had only small effects on reducing chlamydia prevalence. In contrast, the model predicts that a potential increase in the proportion of partners treated from current levels in the UK (36%, 95% CrI: 13%–96%) by 25% would reduce chlamydia prevalence by 14% (95% CrI: 3%–40%) in women and by 14% (95% CrI: 3%–39%) in men within 5 years.

Conclusion Our results suggest that APT, through an increase in the proportion of partners treated, would be an effective method to reduce ongoing chlamydia transmission in the UK.

Disclosure No significant relationships.

P083 DESIGNING ONLINE HIV INFORMATION, TESTING AND CLINICAL CARE PATHWAYS TO ADDRESS USERS' EXPECTATIONS AND EMOTIONS

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Background Advances in STI/HIV diagnostics and digital health enable people to self-sample, self-test and receive results remotely. However, concerns remain about poor support and linkage to care. We explored how people access online HIV resources and how technology can facilitate testing, to inform development of software linking those with reactive results to care, and those with negative results to testing/retesting for HIV and other STIs, health promotion and biomedical interventions (e.g. PrEP).

Methods A prototype was developed following the eClinical Care Pathway Framework which consists of an interdisciplinary 9-step approach. A convenience sample of people (n=28, aged 25–60, 36% female, 57% MSM, ethnically diverse, 6 people living with HIV) participated in semi-structured interviews and 'think-aloud' exercises exploring the following user journey using existing online and remote testing resources: contemplating testing→searching for information online→choosing how to test→ordering a test→experiences using HIV self-sampling/self-testing→receiving a result→engaging with care. The content and sequence of a paper prototype HIV online results service and negative/reactive pathways were cognitively tested. Findings informed the design of a software prototype which was iteratively developed with further user testing. Qualitative data were analysed thematically.

Results Existing HIV online and remote testing resources failed to 1) meet participants' needs and expectations related to information provision/support and 2) address anxieties related to testing. Participants expressed strong emotions about the wording and sequence of text with negative/reactive pathways, and highlighted the need for the resource to provide a rationale for collecting sensitive data. Adjusting the way in which information was provided and reactive results were presented attenuated, but did not remove, associated negative emotions. Some participants felt people choosing self-sampling should not receive reactive results online.

Conclusion Tailoring information, careful wording, and clear messaging and signposting throughout online HIV testing/diagnosis care pathways are essential to address expectations,

attenuate strong emotional reactions, and support linkage and engagement with care.

Disclosure No significant relationships.

P084 GEOGRAPHICAL PROXIMITY AS BARRIER IN SEXUAL HEALTH CLINIC UTILIZATION, EVEN IN INFRASTRUCTURE RICH COUNTRIES

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Background The greater Rotterdam area of the Netherlands consists of 15 municipalities. The sole center of sexual health (CSH) plays a crucial role in finding people unaware of their STI/HIV status. We investigated the association between CSH utilization and sociodemographic and geographical factors. The primary focus was on geographical proximity.

Methods We linked CSH consultation data from STI tested heterosexual clients to the population registry for the years 2015–2017. In this analysis, logistic regression was performed to investigate the importance of proximity. We stratified by age (15–24 and 25–44 years) and ethnicity, since CSH access policies may affect utilization. Proximity was operationalised as straight-line distance between centroid address of a 4-digit postal code and CSH address. Distance was divided into six categories: <10th percentile (<1.8 km), 10–25th percentile (1.8–2.9 km), 25–50th percentile (2.9–6.1 km), 50–75th percentile (6.1–9.9 km), 75–90th percentile (9.9–17.3 km) and >90th percentile (>17.3 km).

Results In total, 19,287 out of the 1.5 million inhabitants aged 15–44 utilized the CSH in the study period. Our data suggest that larger distance to the CSH is strongly associated with lower utilization. For instance, the odds ratios for utilization by 15–24-year-old Surinamese, adjusted for sex, were 0.70 (95% CI: 0.59–0.84), 0.61 (0.52–0.71), 0.52 (0.44–0.63), 0.34 (0.28–0.45) and 0.23 (0.13–0.43) for the different percentiles respectively, compared to <10th percentile (overall P<0.001). Although the association was observed for all ethnic groups, including native Dutch, the strength of the association varied by ethnic group.

Conclusion Geographical proximity effects healthcare utilization even in an infrastructure rich country. The extent to which GPs compensate for lower CSH utilization for those further away from the CSH is unclear. Further research will address the role of the GP in STI healthcare to develop an optimal strategy for offering local STI testing services.

Disclosure No significant relationships.

P085 **RELATIVE CONTRIBUTION OF GENERAL PRACTICES AND SEXUAL HEALTH CENTRES IN STI CONSULTATIONS IN THE NETHERLANDS**

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Background Dutch estimates suggest that general practitioners (GPs) perform two-third of all STI consultations, and centres for sexual health (CSH) account for most of the remaining consultations. Yet, a comparison of consultation rates by both providers is hampered due to separate surveillance systems. We assessed the distribution of STI consultations (defined as urogenital *Chlamydia trachomatis* (CT) test-rates) in five regions.

Methods Data (2011 to 2016) on laboratory testing and diagnosis of urogenital CT were retrieved from CSH at public health services and laboratories in five Dutch geographical regions, aggregated by sex and age category (15–24 and 25–64 years). Regions included Amsterdam, Rotterdam, Northeast –Netherlands (N-NL), Twente and Maastricht. Using negative binomial regression, we tested for time-trends in CT test-rate per 10,000 population at GPs and CSH within five regions and differences between the providers by region.

Results The five regions included in this study varied from mostly rural (N-NL) to highly urban (Amsterdam and Rotterdam). The relative contribution of GPs in consultation rate decreased over time in Amsterdam (60.0–47.8%), Twente (78.6–61.4%), Maastricht (59.2–47.2%), N-NL (82.4–76.9%), but not in Rotterdam (65.4–67.0%). This decrease resulted from an increase in all CSH consultation rates and a slight decrease in GP consultation rate (except for Rotterdam). Women and persons aged 25–64 years were more likely to be tested by GPs compared to CSH (relative risks of 5 regions ranging from 1.47–4.76; 1.58–7.43 respectively). All regions

combined, the average yearly positivity rate was 9.2% at the GP and 10.7% at the CSH.

Conclusion GPs are still a major contributor in STI consultations, yet the CSH- contribution has increased between 2011 and 2016. In urban regions, the CSH has a considerable role, whereas in rural areas the GP provides most consultations. An explanation for differences may be CSH accessibility.

Disclosure No significant relationships.

P086 **SOCIAL BONDS AS A STRATEGY OF PRACTICAL ASSISTANCE FOR SEX WORKER HEALTHCARE**

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Background Sex Workers (SW) present greater vulnerability to sexually transmitted infections. There is a need to stimulate an active screening in the vulnerable population in the area covered by a Primary Health Care (PHC) team. The main goal of this study is to present an alternative healthcare assistance approach, applied to a specific area where a high index of SW can be found within the Southern Region of Brazil.

Methods Experience case from a Brazilian PHU regarding adhesion to the unit, local interventions, and rapid test triage in SW was carried out in the health post, in order to promote sexual and reproductive healthcare in an interval of 5 years.

Results Work related to the depicted area started with weekly visits as an approach strategy while offering health care services. Later on, a family planning was conducted and it included providing access to condom. The SW didn't accept the activities proposed by the PHC. The acceptance of the professional team amongst the community was slow, there was mistrust on the real interest for SW healthcare. The continuity of care was regarded as one of the strategies that was more effective to improve the quality of life of SW. Adhesion to prenatal services, offer of family planning and application of rapid testing for STIs were the most relevant activities that had been implemented. Within 173 applied tests, 135(78%) were women, of these 27 (15,6%) presented pregnancy, and 11(6,3%) were trans women. 38(21,9%) were men. Within these tests, 10(6,3%) were positive for HIV, 35(20,3%) for syphilis and 1(0,6%) for HCV.

Conclusion An effective intervention was possible when the health professional had the following scope: action at local level, engagement of local commerce, improve housing, and to involve the whole community in promoting better healthcare. Future studies should be designed to investigate the role of PHC in the SW healthcare.

Disclosure No significant relationships.

P087 PROVIDERS' VIEWS ON BARRIERS AND FACILITATORS OF BACTERIAL STI TESTING AMONG GBMSM LIVING WITH OR AT RISK FOR HIV

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Background Bacterial STI testing is a necessary component of sexual health care for MSM living with and at risk for HIV. Guidelines recommend testing at least once a year or more often if at ongoing risk. As part of a larger mixed methods study with the overall goal to prioritize new STI testing interventions, our aim was to determine barriers and facilitators to offering bacterial STI testing to MSM according to healthcare providers in Toronto, Canada.

Methods In 06/2018–07/2018, we circulated invitations for an online, anonymous survey to an estimated 172 providers in Toronto. Providers were eligible if they provided care for ≥ 1 MSM per week and were involved in the decision-making process in providing a STI test (e.g., taking sexual histories, ordering tests).

Results Of 93 respondents, 68% worked in primary care, 32% worked in public health/sexual health clinics, 70% were physicians and 30% were nurses or other allied health professionals. Most (67%) saw between 1–10 MSM clients per week. Among respondents working in primary care (n=63), barriers to offering testing 'sometimes' or more often were: insufficient consultation time (64%), difficulty introducing testing during unrelated consultations (52%), forgetting to offer testing (46%), patient reporting no sexual activity (30%) and patient refusal (25%). Among all respondents, preferred practice changes to improve testing were: express testing/fast-track testing services (89%), provider alerts when patients are due for testing (87%), selfcollected specimen sampling by patients (84%), standing orders for tests (79%), and nurse-led STI testing (78%). Primary care providers were more in favour of provider alerts whereas providers at sexual health clinics favoured patient reminders.

Conclusion Among those whose practice incorporated sexual health care for MSM, providers were in favour of initiatives to simplify and expedite bacterial STI testing (including self-collection of samples), prompts/reminders for testing, and expanding testing delivery to other healthcare professionals.

Disclosure No significant relationships.

P088 USING ELECTRONIC SCREENING AND FEEDBACK WITH ADOLESCENTS TO DECREASE SEXUAL HEALTH RISKS IN THE EMERGENCY DEPARTMENT

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Background Adolescents account for 1 in 4 sexually transmitted infections (STIs) diagnosed annually in the United States. Many adolescents seek care in emergency departments (ED) for acute medical problems which offers an opportunity to screen for risk behaviors including sexual health. As emergency medicine provider time is focused on the acute medical problem, using technology may be an acceptable and effective alternative to identify and decrease screening risky sexual behaviors.

Methods Adolescents aged 13–18 years participated in a randomized controlled trial of an electronic health behavior screening and feedback tool in a pediatric emergency department. All participants were surveyed about risky behaviors at the baseline ED visit and 3 months later, and only intervention arm participants received immediate individualized electronic feedback about their risk behaviors, normative comparisons and brief educational information, including on birth control and condoms. In this secondary analysis, we used Chi-squared analyses to compare differences in 3-month STI risk defined as sexually active and reporting inconsistent condom use.

Results A total of 296 adolescents including 55% females enrolled in the study with 72% (n=212) completing the 3 month follow-up survey. At baseline 23% (69/296) reported ever having sex and 67% (46/69) reported using a condom at last sex. At follow-up 16% (17/105) of the intervention group and 23% (25/107) of controls reported having sex in the last 3 months. Of those sexually active, 35% (6/17) of intervention group compared to 56% (14/25) of control group reported not always using condoms in the last 3 months (p=0.19). STI risk at 3 months was 6% (6/105) for intervention participants compared to 13% (14/107) for controls (p=0.07).

Conclusion Electronic sexual health screening in the emergency department increases opportunities to assess, identify, and intervene in risky sexual behaviors in adolescents and may contribute to a decrease in risky behaviors.

Disclosure No significant relationships.

P089 EVALUATING ONLINE AND CLINIC-BASED STI SCREENING SERVICES: A CASE STUDY OF UMBRELLA SEXUAL HEALTH SERVICES, UK

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Background Digital technologies are increasingly being adopted to increase STI screening uptake. From August 2015, the

sexual health service in Birmingham, UK has provided free online home-based sampling in addition to a clinic-based service. The objectives of the study were to: - assess whether there were differences between the groups accessing screening online and in clinic; - evaluate the health outcomes associated with screening by setting; - analyse the interactions between online services and clinic-based services in terms of patient usage, and changes in access over time.

Methods A retrospective analysis of the clinic and online databases was undertaken to identify patients who undertook home-based and clinic-based testing between January and December 2017. Statistical analyses were undertaken to assess the uptake of screening by population group and identify predictors of screening uptake in different settings.

Results Overall 31,901 online testing kits were requested, with 18,087 returned, which equated to 14,667 patients. In the same period, 44,047 appointments were conducted in clinic, for 36,209 patients. A higher proportion of patients accessing online screening compared to clinic-based services were female (66.3% vs 52.1%, $p < 0.001$), aged < 25 (52.5% vs 41.5%, $p < 0.001$), white (74.4% vs. 40.1%, $p < 0.001$), asymptomatic (79.6% vs. 49.4%, $p < 0.001$), and a lower proportion were from the two most deprived socio-economic groups (38.8% vs. 50.5%, $p < 0.001$). There were also differences in positivity rates for chlamydia and gonorrhoea (7.25% vs. 9.98% and 1.53% vs 3.47%, $p < 0.001$).

Conclusion This study provides valuable insights into differences in patient characteristics between those accessing online and clinic based services. This knowledge will allow those involved in planning and delivering services to understand how different service elements can complement each other. Our findings can be used to ensure that digital health services are integrated effectively alongside other types of services, in the context of limited resources, both in the UK and internationally.

Disclosure No significant relationships.

P090 UNDERSTANDING YOUNG PEOPLE'S PRIORITIES FOR SEXUALLY TRANSMITTED INFECTION (STI) SCREENING

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Background It is important that STI screening provision reflects the priorities of young people, as they bear the greatest burden of disease. Such provision has become possible in a wider range of settings but there are constraints due to budget pressures. The objectives of the study were: • To assess how young people prioritise different characteristics of STI screening; • To analyse whether there are differences across socio-demographic groups; • To predict participation rates for different service configurations.

Methods Eight qualitative focus groups were used to design a discrete choice experiment (DCE) to analyse the choices made by young people. DCEs are an attribute-based survey method which involve respondents making choices between hypothetical scenarios, comprising two or more alternatives. The DCE

included the following service characteristics: waiting times for appointments, waiting times for results, type of consultation, staff attitude, type of screening test, STIs tested for, and setting. The DCE was administered to 2000 young people who were part of an online panel in the UK, with quotas set to ensure inclusion of minority ethnic groups.

Results Analyses indicated that all seven service characteristics investigated were statistically significant factors for participants. Feeling that staff were non-judgemental was the most important characteristic to young people. Being tested for all STIs, having a full consultation and getting results quickly were also characteristics identified as important. Further analyses revealed some heterogeneity in priorities by gender, ethnicity and age group.

Conclusion This study provides valuable insights into the service characteristics that are seen as the most important by young people. This knowledge will allow those involved in providing and designing services to understand the relative importance of different service characteristics. At a time when sexual health services are facing pressures, such findings can be used to inform service development to ensure that decision-making is informed by young people's priorities.

Disclosure No significant relationships.

P091 ESTIMATING NEONATAL HERPES SIMPLEX VIRUS INFECTIONS USING CHAPMAN'S CAPTURE-RECAPTURE METHOD, FLORIDA, 2011–2017

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Background Neonatal infection with Herpes Simplex Virus (nHSV) is a reportable condition in Florida. Healthcare providers are required to report cases of nHSV, and clinical laboratories are required to report the results of tests in which HSV is detected. However, electronic laboratory reporting (ELR) to the Florida Department of Health is incomplete, and results are not captured in the repository used for case-based reporting of other nationally reported sexually transmitted infections. We estimated the incidence of laboratory-confirmed nHSV in Florida using provider-reported cases alone, ELR alone, both provider and ELR reports, and the incidence yielded by a capture-recapture methodology.

Methods Provider-reported cases of nHSV (infants ≤ 60 days of age with HSV infection confirmed by culture or polymerase chain reaction) during 2011–2017, and laboratory reports of HSV-positive culture or PCR results in the same age group, over the same period, were extracted and analyzed. Provider-reported cases were matched with ELR results using name, date of birth, and specimen collection dates. Chapman's estimator for capture-recapture was used to estimate nHSV incidence in Florida. Rates of nHSV infections per 100,000 live births were calculated.

Results Providers reported 113 nHSV cases and ELR identified 197 nHSV cases during 2011–2017. Of these, 44 cases were common to both datasets, leaving 266 unique nHSV reports. Given the number of unmatched cases, Chapman's estimator suggests 501 (95% C.I. 401–600) nHSV cases occurred in Florida during the study period. The incidence of nHSV using

only provider–reports was 7.4 cases/100,000 live births; ELR-only was 12.8; combined provider and ELR reports was 17.3; and Chapman’s estimator was 32.7.

Conclusion The incidence of nHSV measured using current provider- and ELR-reporting may substantially underestimate the disease burden in Florida. Expanding the number of healthcare facilities and laboratories electronically reporting nHSV infections and encouraging providers to report nHSV cases could help address the gap in reporting.

Disclosure No significant relationships.

P092 **HERPES SIMPLEX VIRUS TYPE 1 EPIDEMIOLOGY IN LATIN AMERICA AND THE CARIBBEAN: SYSTEMATIC REVIEW AND META-ANALYTICS**

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Background We aim to investigate the epidemiology of herpes simplex virus type 1 (HSV-1) in Latin America and the Caribbean.

Methods Systematic review and meta-analytics guided by the Cochrane Collaboration Handbook and reported following the PRISMA guidelines.

Results Thirty-one relevant reports were identified including 35 overall (and 95 stratified) seroprevalence measures, and five and seven proportions of virus isolation in genital ulcer disease (GUD) and in genital herpes, respectively. Pooled mean seroprevalence was 57.2% (95% CI: 49.7–64.6%) among children and 88.4% (95% CI: 85.2–91.2%) among adults. Pooled mean seroprevalence was lowest at 49.7% (95% CI: 42.8–56.6%) in those aged ≤10, followed by 77.8% (95% CI: 67.9–84.8%) in those aged 10–20, 82.8% (95% CI: 73.1–90.8%) in those aged 20–30, 92.5% (95% CI: 89.4–95.1%) in those aged 30–40, and 94.2% (95% CI: 92.7–95.5%) in those aged ≥40. Age was the strongest source of heterogeneity in seroprevalence, explaining 54% of variation. Evidence was found for seroprevalence decline over time. Pooled mean proportion of HSV-1 isolation was 0.9% (95% CI: 0.0–3.6%) in GUD and 11.1% (95% CI: 3.1–22.3%) in genital herpes.

Conclusion HSV-1 is a widely prevalent infection in this region, but its epidemiology appears to be slowly transitioning, with still limited contribution for HSV-1 in genital herpes.

Disclosure No significant relationships.

P093 **PERFORMANCE OF FOUR DIAGNOSTIC ASSAYS FOR DETECTING HERPES SIMPLEX VIRUS TYPE 2 ANTIBODIES IN MIDDLE EAST AND NORTH AFRICA**

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Background Assessments of commercial assays in detecting herpes simplex virus type 2 (HSV-2) antibodies have shown variable sensitivity and specificity, and variation in performance by global population. We aimed to evaluate performance of four assays in detecting HSV-2 antibodies in a composite Middle Eastern and North African (MENA) population. The assays are two ELISA kits: HerpeSelect® 2 ELISA IgG and

Euroimmun Anti-HSV-2 (gG2) ELISA (IgG), and two immunoblot (IB)/Western blot (WB) assays: HerpeSelect® 1 and 2 Immunoblot IgG and Euroimmun Anti-HSV-1/HSV-2 gG2 Euroline-WB (IgG/IgM).

Methods Blood specimens were drawn from blood donors between 2013–2016 in Doha, Qatar. Twenty specimens from ten nationalities (Egypt, Iran, Jordan, Lebanon, Pakistan, Palestine, Qatar, Sudan, Syria, and Yemen; total=200) were randomly selected and tested for HSV-2 antibodies.

Results In the six possible assay comparisons, Cohen’s kappa statistics indicated fair to good agreement, ranging between 0.57 (95% CI 0.28–0.86) and 0.69 (95% CI 0.44–0.95). Meanwhile, positive percent agreement ranged between 50.0 (95% CI 18.7–81.3%) and 63.6% (95% CI 30.8–89.1%); negative percent agreement ranged between 97.8% (95% CI 94.4–99.4%) and 99.5% (95% CI 97.0–100.0%); and overall percent agreement ranged between 95.8% (95% CI 91.9–97.9%) and 97.5% (95% CI 94.2–98.9%). The two ELISA kits demonstrated comparable sensitivities and specificities ≥50% and >98%, respectively, with respect to the IB/WB assays.

Conclusion The study provided, for the first time, primary data on performance of these assays in diagnosing HSV-2 infection in MENA populations. Findings support comparable performance and utility of these assays, and demonstrate challenges in establishing seropositivity (versus seronegativity).

Disclosure No significant relationships.

P094 **AN ASSESSMENT OF RISK FACTORS FOR HSV-2 INFECTION IN MALAWIAN WOMEN USING TWO CLASSIFICATIONS FOR THE HERPESELECT 2 TEST**

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Background The Focus HerpeSelect 2 ELISA IgG Test, used to diagnose herpes simplex virus type 2 (HSV-2) infection, is inexpensive, convenient, and widely used. However, past studies document poor specificity of this test in African populations. Increasing the index value cutpoint for a positive result improves specificity, but no studies to our knowledge have examined whether the correlates of HSV-2 infection change when the cutpoint for positivity changes. We investigated whether associations between select demographic and sexual risk factors and HSV-2 serostatus varied when the cutpoint for positivity was increased.

Methods We sampled women (n=218) from the *Umoyo wa Thanzi* project, an ongoing community-based cohort study in rural Malawi. Using multinomial logistic regression and accounting for village-level clustering, we examined unadjusted and adjusted associations between select risk factors and HSV-2 serostatus. HSV-2 serostatus was coded in two ways: the manufacturer’s recommended cutpoints (<0.9=negative, 0.9–1.1=indeterminate, >1.1=positive), and modified cutpoints (<0.9=negative, 0.9–3.5=indeterminate, >3.5=positive).

Results We assessed associations between HSV-2 serostatus and age, bacterial vaginosis (BV), and partner concurrency under

each set of cutpoints. Measures of effect were weaker using the manufacturer's cutpoints compared to the modified cutpoints. Age was not significantly correlated with positive vs. negative serostatus using the manufacturer's cutpoint (relative risk ratio (RRR)=1.03, 95% CI: 0.97–1.09), but the association strengthened using the modified cutpoint (RRR=1.09, 95% CI: 1.01–1.17). Using the manufacturer's cutpoint, the RRR for BV was 1.73 (95% CI: 0.71–4.19) vs. RRR=2.70 (95% CI: 0.94–7.79) for the modified cutpoint. For partner concurrency, the RRR using the manufacturer's cutpoint was 1.47 (95% CI: 0.71–3.07), vs. RRR=3.45 (95% CI: 1.12–10.57) for the modified threshold.

Conclusion Changing the test cutpoints affected observed associations with previously-identified HSV-2 risk factors. HSV-2 prevention interventions informed by correlates of HSV-2 infection must be aware that different target populations may emerge depending on which cutpoints are adopted.

Disclosure No significant relationships.

P095 AGE DISPARITY AND SOCIODEMOGRAPHIC CORRELATES OF HERPES SIMPLEX VIRUS TYPE 2 (HSV-2) SEROPOSITIVITY IN SOUTH INDIA

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Background Age, gender, sexual history, marital status, education, socioeconomic status and geographic location are known risk factors of Herpes simplex virus type 2 (HSV-2) seroprevalence. There is a paucity of data on the potential association between increasing age difference between sex partners and HSV-2 infection. This study investigated the relationship between increasing age difference between sex partners and HSV-2 infection in Mysore, India, due to a lack of studies documenting this phenomenon in HSV-2 seropositive individuals in India.

Methods This study presents one section of a larger comparative study conducted between October 2016 and July 2017 in collaboration with the Public Health Research Institute of India, that assessed drug use and risky sexual behavior among adults in Mysore, India. Study personnel conducted structured interviews with men and women to assess demographic variables, reproductive health, risky sexual behavior and relationship history. ELISA testing (Focus Diagnostics HerpeSelect® 2 ELISA IgG, Focus Technologies, Cypress, CA) was used to determine the presence of HSV-2 antibodies.

Results There were 351 participants included in the study. The prevalence of HSV-2 in this sample was 9.4% (95%CI: 6.3%, 12.5%). HSV-2 infection was correlated with partner age difference and religio. The odds of HSV-2 infection significantly increased among the study participants with an increase in the age difference with their sex partner (OR: 1.22, 95% CI: 1.06, 1.40). The odds of HSV-2 infection was significantly lower among Hindus as compared to non-Hindus (OR: 0.19, 95% CI: 0.04, 0.84). There was no significant difference in

the prevalence of HSV-2 infection by sex, education, or occupation.

Conclusion HSV-2 seroprevalence was relatively low in this population compared to regional and global rates. HSV-2 seropositivity was associated with an increasing partner age difference. This highlights the need for further research in this area in different Indian settings to determine what the dynamics of this phenomenon.

Disclosure No significant relationships.

P096 VULVAR ZOSTER

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Background Herpes Zoster infection is part of the two distinct syndromes of infections secondary to varicella-zoster. The other syndrome being the primary infection of varicella (chickenpox) which is a contagious but benign illness. Reactivation of this primary infection results to herpes zoster or shingles. Shingles is a uniquely localized disease with unilateral radicular pain and a vesicular rash limited to the area of the skin innervated by a single dorsal root or cranial sensory ganglion. Clinically significant pain usually accompanies the dermatomal rash of herpes zoster. This pain may persist for weeks, months, or even years after the herpes zoster rash has healed, a debilitating complication known as (PHN) postherpetic neuralgia. This condition disables a individuals infected with shingles especially among the elderly. We are presented with a rare case of vulvar zoster in a 52 year old nulligravid. The case presented with pain, pruritus, rashes and eventually ulcers along the dermatomal line of the vulva. Clinical improvement was noted upon treatment with an anti-viral.

Disclosure No significant relationships.

P099 RISK OF ACQUIRING HIV INFECTION AMONG EXPOSED INFANTS IN SELECTED PRIMARY HEALTH CARE FACILITIES IN IBADAN OYO STATE NIGERIA

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Background In 2016, Nigeria recorded 37,000 new HIV infections among children out of the total of 60,000 new infections in West and Central Africa, representing 62 per cent of the new infections. This study was conducted to determine the outcomes of HIV exposed infants and the risk of acquiring HIV infections at the final outcome of 18 months

Methods This is a retrospective cohort study of exposed infants between January 2015–December 2016. A proforma was used to abstract information from clinic records on socio-demographics characteristics, ARV prophylaxis, mode of delivery, birth weight, infant prophylaxis, Early infant diagnosis (EID), referral to ART. Cox proportion hazard regression model was

used to determine the risk of acquiring HIV infection at 18 months among the exposed infants.

Results A total of 170 exposed infant were recruited and more than two-third of the infants were males (74.1%) with median age was 4±3 months. One hundred and fifty (88.2%) received infant prophylaxis and 116 (68.2%) had EID done at 6 weeks. Of the 170 exposed infants 19(11.1%) were positive at 18 months final outcome of which 4(21.1%) died. Time from being confirmed HIV positive to starting ART was 4.0 ±2.1 months. COX regression showed that the risk of acquiring HIV infection in females (Adjusted HR = 0.56, 95% CI 0.37–0.87), babies who received infant prophylaxis (Adjusted HR= 0.5, 95% CI 0.1 -0.9), infants whose maternal CD4 count < 500 (Adjusted HR= 1.1, 95% CI 0.4 -2.6) and time of starting ART > 3 months (Adjusted HR= 3.5, 95% CI 1.8–11.5).

Conclusion The positivity rate among studied exposed infants was high. Continuous placement of HIV positive mothers and exposed infants on prophylaxis, timely initiation of ART will go a long way in reducing the burden of pediatric HIV.

Disclosure No significant relationships.

P100 BIDIRECTIONAL ASSOCIATION BETWEEN HUMAN IMMUNODEFICIENCY VIRUS AND PSORIASIS: SYSTEMATIC REVIEW OF COHORT STUDIES

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Background Human immunodeficiency viral (HIV) induce production of autoantibodies could attack the person's immune system. Patients with HIV infection might present with more severe complications of psoriasis, a chronic autoimmune inflammatory skin disease. But there were insufficient evidences prove the risk between HIV and psoriasis.

Objectives Systematic review was performed to explore the association between HIV and psoriasis, to provide risk assessment and improve patient outcomes.

Methods We used the search strategy: '(psoriasis OR psoriatic arthritis) AND (AIDS OR HIV OR acquired immune deficiency syndrome OR human immunodeficiency virus OR CD4 OR CCR5-delta32)' in searching the Cochrane Library, PubMed and EMBASE electronic databases without language restrictions in May 2018.

Results Four cohort study (187954 participants) were included in this review. Studies report the results of the incidences of psoriasis with patients with HIV infection. While the total incidence on current data of psoriasis was 0.46%, HIV patients had higher risk than normal for developing newly diagnosed with psoriasis whether receiving substance treatment or not. However, psoriasis patients in general do not appear to have increased infection rates of HIV.

Conclusion The available evidence shows that HIV is a potential risk factor for psoriasis. The evidence at the present stage only supports the relationship between HIV infection and psoriasis, but more literature is needed to support such relevance.

Disclosure No significant relationships.

P103 OPTIMIZATION OF DATA AUDITS TO ACHIEVE EPIDEMIC CONTROL AND QUALITY OF CARE IN KAJIADO CENTRAL SUB-COUNTY

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10.1136/sextrans-2019-sti.294

Background Every Month, health care providers submit copies of the MOH 731 reports to the SubCounty Health records and information officers. The data is then uploaded into the DHIS and becomes available for consumption by all the relevant stakeholders. Without a regular onsite audit of the data before uploading it, several errors may occur ranging from data entry transcription errors, arithmetic errors to outright inconsistencies with the source documents. Such errors render it unusable and incorrect. In order to correct this, Kajiado Central SubCounty, adopted a timely onsite data review and audit to identify and address the gaps reflected.

Methods The SubCounty Health management team receives and reviews the monthly reports by the fifth of every month. Any gaps identified are either corrected instantly with the staff submitting the report or an on-site mentorship report is developed. Upon uploading, the DHIS reports are downloaded and cross-checked with the MoH 731 and the source documents for consistency.

Results After a year of instituting such reviews, the data consistency between DHIS, MOH 731 and registers improved from 45% to 90%. The linkage and transitioning to ART for newly identified increased from 44.4% to 90%. Additionally, Maternal and infant prophylaxis improved from 99% and 88% to 97% and 100% respectively for those on PMTCT/ART however due to over reporting on maternal prophylaxis after cleaning there was a decline from 99% to 97%. N/B There is a graph which i was unable to attach here which i communicated same to Yurim Park.

Conclusion Regular review of monthly reports at the collection point helps to quickly identify reporting gaps. Consequently, accurate gaps identification led to the correct remedial action on the technical areas and hence improvement on the indicators.

Disclosure No significant relationships.

P107 SOCIO-CULTURAL FACTORS INFLUENCING CONDOM USE INTENTIONS AMONG AFRICAN MIGRANT YOUTH IN SOUTH AFRICA

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Background Although the condom use behaviours among youth in South Africa has been studied extensively, very little is known about the socio-cultural factors that influence intentions to use condoms during sexual intercourse among young people generally and African migrant youth in particular. This

study utilized the theory of planned behavior to explore socio-cultural factors that influence condom use intentions among African migrant youth in South Africa.

Methods Using a qualitative research approach and snow-ball sampling procedures, indepth interviews were conducted with 20 migrant youth from other African countries, aged between 20-25 years and residing in Cape Town, South Africa.

Results Most African migrant youth residing in South Africa have acceptable levels of knowledge about condoms and condom use and linkages to HIV prevention and safer sexual practices. Traditional norms on sexual behaviour prohibit young migrants to freely discuss safer sexual choices. Gendered norms in sexual relationships, acculturation and cultural expectations of referent others reportedly influence intentions to use condom during sexual intercourse.

Conclusion The nexus among socio-cultural norms, acculturation and safer sexual choices are shown to be crucial to any HIV prevention interventions among African migrant youth in South Africa.

Disclosure No significant relationships.

P109 **PREVALENCE AND FACTORS ASSOCIATED WITH ANY DEPRESSIVE SYMPTOM AMONG HIV-INFECTED ADOLESCENTS IN THE REPUBLIC OF CONGO**

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Background To describe the frequency of any depressive symptom and associated factors among adolescents (10 - 19 years old) living with HIV in Brazzaville and Pointe Noire, Republic of Congo (RoC).

Methods Adolescents aged 10 to 19 years, on antiretroviral treatment, followed in the two Ambulatory Treatment Centers in Brazzaville and Pointe-Noire, RoC were included in this cross-sectional study. Between April 19 and July 9, 2018, face-to-face interviews were conducted with all participants using a standardized questionnaire that include the nine-item of the Patient Health Questionnaire (PHQ-9). Bivariate and multivariable log-binomial model were used to estimate the prevalence ratio (PR) and 95% confidence interval (95%CI) assessing the strength of the association between predictors and presence of depressive symptoms defined as PHQ-9 score ≥ 9 .

Results A total of 135 adolescents were interviewed. Overall, 67 (50%) were male, 81(60%) were 15–19 years old. PHQ-9 was ≥ 9 among 52 (39%) of participants. In bivariate analysis, the proportion of participants with PHQ-9 score ≥ 9 was higher among participants who learnt about their HIV status after a prolonged illness; those who reported been sexually active, drinking beer, aged 15–19, stopped school, forget to take antiretroviral treatment more than 2 times in the 7 days preceding the interview, having lost both parents, and not having family support in taking ART and attending HIV care. In multivariable analysis, the following factors remained statistically significant: being 15–19 years old (PR:2.07;95% CI:1.06–4.04), having stopped school (PR:1.60;95%CI:1.06–2.42) and reporting instances of omission to take antiretroviral treatment more than 2 times in the 7 days preceding the interview (PR: 2.06;95%CI:1.23–3.45).

Conclusion The prevalence of depressive symptoms among HIV-positive adolescents is high and is associated with older

age, poor compliance, and dropping-out of school. Active screening for depression during routine medical visit and proper management is needed.

Disclosure No significant relationships.

P113 **RISK BEHAVIORS FOLLOWING HEPATITIS C TREATMENT AMONG GAY AND BISEXUAL MEN LIVING WITH HIV IN MELBOURNE, AUSTRALIA**

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10.1136/sextrans-2019-sti.297

Background Hepatitis C virus (HCV) elimination among gay and bisexual men (GBM) living with HIV is feasible in many high-income countries. There is concern that risk behaviours following treatment may lead to reinfection and adversely impact HCV elimination goals. We examined risk behaviours prior to and following HCV treatment commencement among sexually active GBM living with HIV.

Methods Data were drawn from co-EC, a prospective study aiming to treat and eliminate HCV among people living with HIV. Pre and post-HCV treatment commencement changes in self-reported sexual and injecting drug-related behaviours among sexually active GBM attending primary and tertiary care clinics in Melbourne were assessed using McNemar's test. Modified Poisson regression with robust variance was used to examine factors associated with risk behaviours following treatment commencement.

Results Of 120 males who completed both a pre and post-treatment commencement questionnaire, 90 reported ≥ 1 male sex partner before or after treatment commencement. Among these 90 sexually active GBM, there was no significant change pre- to post-treatment in condom-less anal intercourse with casual partners (52.5%/56.6%, p 0.513) or injecting drug use (41.2%/45.9%, p 0.344), but a significant decrease in group sex (34.4%/21.1%, p 0.011). Post-treatment commencement, condom-less intercourse (adjusted prevalence ratio (aPR) 1.80, 95%CI 1.07–3.03, p 0.026) and group sex (aPR 4.53, 95%CI 1.76–11.67, p 0.002) was highest amongst those who had reported these behaviours pre-treatment. Post-treatment commencement, injecting drug use was associated with the use of crystal methamphetamine during follow-up (aPR 4.36, 95%CI 1.27–14.94, p 0.019).

Conclusion HCV-related risk behaviours were common among sexually active GBM before and after HCV treatment and primarily occurred among the same men. There was no significant evidence of increasing risk behaviour following treatment. More frequent post-treatment HCV testing may be justified among GBM engaging in these behaviours to identify potential HCV reinfection and provide prompt re-treatment to prevent further transmission.

Disclosure No significant relationships.

P115 SOCIO-DEMOGRAPHIC PROFILE OF HIV SEROPOSITIVITY IN A TERTIARY CARE NORTH INDIAN HOSPITAL: A TEN YEAR RETROSPECTIVE STUDY

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10.1136/sextrans-2019-sti.298

Background All over the world, with 36.9 million people living with HIV/AIDS, the latter continues to be a major public health problem having tremendous social and economic impact. However, increasing global awareness and availability of effective treatment and prevention programmes, promise a hope of controlling the pandemic.

Methods Serum samples of 53,357 clients who attended ICTC, Sri Guru Ram Das University of Health Sciences (SGRDUHS), Amritsar, Punjab (India) from January 2007 to December 2017, were tested for HIV infection as per NACO guidelines using 3 kits with different antigen preparation/test principles viz. Comb AIDS RS, Meriscreen HIV -1-2 WB & Signal-HIV after a pre-test counseling & taking informed consent.

Results Of the total 53,357 clients tested for HIV infection, 630 (1.2%) were found to be HIV positive. Seropositivity was higher in males 387/630 (61.42%) compared to females 243/630 (38.57%) although females 29911/53357 (56.05%) outnumbered the males 23426/53357 (43.9%) in voluntary HIV testing. No transgender visited our ICTC during this period. Heterosexual route was the major route of transmission seen in 507/630 clients (80.47%). Main age group affected was 35-49 years 224/630 (35.55%), followed by 25-34 years 185/630 (29.36%), >50 years 107/630 (16.98%), 15-24 years 77/630 (12.22%) & <15 years only 37/630 (5.9%).

Conclusion Barring 2011, total number of clients tested each year has shown an ascending trend which can be attributed to increasing global awareness about the disease, decreasing associated stigma, expanded media coverage and the widespread availability of anti-retroviral therapy (ART). Although overall prevalence is low at 1.2%, IDU prevalence saw two peaks viz. 33.33% (4/12) in 2007 and 20% (14/70) in 2012 and currently 8.2% (4/49) in 2017 puts the spotlight on HIV burden in this risk group and suggests the need for the scaling up of focused preventive efforts in high-risk groups.

Disclosure No significant relationships.

P122 TREATMENT OUTCOMES IN HIV CARE AMONG CHILDREN AND ADULT IN HIGH VOLUME ART SITES IN RIVERS STATE, NIGERIA

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10.1136/sextrans-2019-sti.299

Background The HIV program involves sequential steps: HIV testing, diagnosis, linkage to care, retention and viral-suppression. Access to Antiretroviral-Therapy with appropriate regimen, continuity of care, technical competence of service providers on counselling and client focus are required to meet the bench mark for quality and standards of care. Most often

than not, retention in care of People Living with HIV is a public health issue. This study aims to review retention and variations in treatment outcomes among adult and children in high-volume ART sites in Rivers State Nigeria

Methods This is a retrospective cohort-study investigating one-year treatment outcomes of adults (15 years and above) and children (0-14 years) who started ART between January 2017-December 2017 across 6 high-volume ART sites in Rivers State Nigeria, supported by the USAID funded SIDHAS project and Global Fund. A treatment current of 1000 and above was the rationale for choosing the high-volume ART sites. The study involved secondary data collection, using the Retention-Audit-Determination-Tool (RADET).

Results A total of 3704 records of individuals who started antiretroviral therapy were reviewed, 4.7% (177) and 96.5% (3577) accounted for children and adult respectively. Treatment outcomes after one-year on treatment showed that 61.0% (108) of children were active, 2.8% (5) dead, 19.2% (34) transferred-out and 35.6% (63) lost-to-follow-up. Adults had 80.8% (2891) active outcome, 1.3% (48) dead, 2.7% (99) transferred-out, 12.2% (437) Lost-to-Follow-Up and 0.3% (12) stopped-treatment

Conclusion Positive treatment-outcome is important for viral-load suppression, reduced morbidity and mortality. Transferred-Out is considerably high among children and even more for Lost-to-Follow-Up outcome among children. We found variation in attrition between children and adults. Higher mortality rate was recorded among children as compared to adults. A well-planned children and adult counseling-methods, follow-up tracking, family-centered approach and client understanding of lifelong-ART are required in Patient Management, Monitoring to improve treatment-outcomes for PLHIV especially children on ART

Disclosure No significant relationships.

P123 HIV SEROPOSITIVITY AND EARLY SYPHILIS STAGE PREDICTIVE OF OCULAR SYPHILIS DIAGNOSIS IN BRITISH COLUMBIA, CANADA: 2010-2018

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Background The incidence of syphilis has been increasing worldwide in the last 20 years, and disproportionately affecting people living with HIV. Additionally, several jurisdictions have reported increasing incidence of ocular syphilis (OS). If untreated or treatment is delayed, OS can lead to permanent blindness. We assessed characteristics of OS cases in British Columbia (BC), and sought to identify risk factors that may be associated with OS diagnosis, including factors related to HIV co-infection (e.g. CD4 count, viral load).

Methods This case-control study matched OS cases to syphilis controls (1:4) diagnosed in BC between January 2010 - March 2018. Demographic and clinical data were extracted from the provincial sexually transmitted infection database and analyzed using the chi-squared test. A multivariate logistic model was developed to assess factors associated with OS.

Results Between 2010–2018, 5681 syphilis cases were diagnosed in BC, including 61 (1.1%) diagnosed with OS. The proportion of syphilis cases with OS increased from 0.48% in 2010 to 2.99% in 2018 ($P \leq 0.05$). Among OS cases, median age was 47 years, 88.5% were male and the most common ophthalmologic diagnosis was panuveitis (44.3%). At the time of syphilis diagnosis, 50.8% of OS cases were HIV-positive compared to 25.8% of controls ($P \leq 0.001$). Among individuals with HIV co-infection, OS cases had higher viral loads (42.9% vs 79.7% were suppressed; $P \leq 0.001$) and lower median CD4 counts (470 vs 615 cells/mm³; $P \leq 0.05$) than controls. Factors associated with OS were primary/secondary stage of syphilis (adjusted odds ratio [aOR] 4.06; 95% confidence interval [CI] 1.52–10.8), early latent stage of syphilis (aOR 3.71; 95%CI 1.39–9.95), and HIV-positive serostatus (aOR 2.49; 95%CI 1.27–4.88).

Conclusion OS incidence and proportion increased over the study period in BC. These findings highlight the importance of vigilance for OS, particularly those in the early stages of syphilis and those living with HIV, to avoid diagnostic and treatment delays.

Disclosure No significant relationships.

P124 ATTITUDES AND BELIEFS REGARDING HIV AND AIDS AMONG IMMIGRANTS IN MOPANI DISTRICT, SOUTH AFRICA

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Background Sub-Saharan Africa faces and is severely affected by many conflicts. Human Immunodeficiency Virus (HIV) and Acquired Immunodeficiency Syndrome (AIDS) threaten both the physical and financial well-being of individuals in struggling countries. Research indicates that negative attitude towards HIV/AIDS as well as persons infected with the virus persist despite the increased knowledge of prevention. This research aims to explore and describe the immigrants' attitudes and beliefs regarding HIV and AIDS in the Mopani district, Limpopo Province.

Methods A quantitative descriptive design was used. The target population was all immigrants at Mopani district in Limpopo province and the sample comprised of males and females. Data was collected using a questionnaire with closed and open-ended questions. Ethical standards were maintained.

Results The study revealed that many participants expressed discriminatory practice towards individuals infected by HIV and those with AIDS. Many viewed promiscuity and the disease called Makhume (meaning illness caused by the omission of purification rites following the death of a family member) as the cause for HIV and AIDS.

Conclusion The findings may hinder the achievement of healthy lives and promotion of well-being at all ages if not addressed appropriately. The collaboration of various departments (Health, Social development, Education, and etc.) in the Mopani district is required to change these negative attitudes and beliefs that influence immigrants' behaviour. In addition, the use of audio-visuals and peer teaching may help to change their attitudes since they have shown to be most successful in changing the attitudes.

Disclosure No significant relationships.

P125 LOW RATE OF HIV TESTING AMONG PRISONERS IN IRAN: FINDINGS FROM NATIONWIDE REPEATED BEHAVIORAL SURVEYS

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Background Prisoners are disproportionately at increased risk of HIV infection. Despite the importance of assessing HIV testing rates among key populations at risk of HIV, our understanding of HIV testing practices of Iranian prisoners is limited. This study utilizes data from two repeated behavioral survey studies to shed light on the prevalence and correlates of HIV testing among Iranian prisoners.

Methods Data were obtained from two consecutive surveys in 2009 (N = 5913) and 2013 (N = 5430) using a multistage random sampling approach including both large and small prison settings. Having a recent HIV test result was defined as having an HIV test result over the last 12 months. Biological and survey data were collected through dried blood spot testing and standardized risk assessment questionnaire, respectively. Descriptive statistics including frequencies, percentages, and 95% confidence intervals (CI) were reported. Bivariable and multivariable logistic regression models were built to compare the odds of having a recent HIV test result among different subgroups of prisoners.

Results Most participants had never tested for HIV (68.7% in 2009 and 62.2% in 2013). Only 9.9% (in 2009) and 11.6% (in 2013) of the participants had a recent HIV test result. Older age (AOR=1.50), lifetime history of drug use (AOR=1.87) and sexual intercourse (AOR=1.42), and self-perceived risk of HIV (AOR=0.74) were significantly associated with recent HIV testing in 2009. Female sex (AOR=4.03), multiple incarcerations (AOR=1.40), alcohol consumption (AOR=1.23), and STI (AOR=1.79) and HIV knowledge (AOR=1.62) were significant correlates in 2013.

Conclusion HIV testing is extremely low among prisoners in Iran. There is an urgent need to revisit current HIV testing policies across Iranian prisons and identify the barriers to HIV testing within the prison settings. Scaling up rapid tests as well as routine opt-out HIV testing services could help encourage prisoners to further use the available harm reduction facilities inside prisons.

Disclosure No significant relationships.

P127 DISPARITIES BETWEEN HIV TESTING LEVELS AND THE SELF-REPORTED HIV-NEGATIVE STATUS OF SEXUALLY ACTIVE COLLEGE STUDENTS

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Background Despite the availability of rapid point-of-care human immunodeficiency virus (HIV) testing, the use of a self-reported HIV status has its own value, especially in research studies. Sexually active people without prior HIV testing should report as 'HIV status unknown' or 'never tested' instead of 'HIV negative' when they answer the question item on HIV status. The study aimed to assess the

prevalence of HIV testing and the disparities between HIV testing levels and self-reported HIV status in college students in Hong Kong.

Methods College students were recruited in four Hong Kong universities. Recruited subjects completed a structured questionnaire about their sexual behaviours. The prevalence of HIV testing and the inaccurate disclosure of HIV status (reporting an HIV-negative status without prior HIV testing) was estimated in sexually active students, and men who have sex with men (MSM) students, respectively.

Results Two hundred and fifty five students were included in the analysis. 16.1% of subjects were MSM. Overall, 81.6% of subjects reported that they had never had any HIV testing. 65.9% of subjects had inaccurate self-disclosure. Among subjects who had inconsistent condom use, only 20.2% of the subjects had HIV testing and 66.7% of the subjects had inaccurate self-disclosure. Among MSM students, only 36.6% of the subjects had HIV testing before and 61.0% had inaccurate self-disclosure. Among MSM student who had inconsistent condom use, only 35.1% of the subjects had HIV testing and 62.2% had inaccurate self-disclosure.

Conclusion It was alarming to find the low prevalence of HIV testing but the high prevalence of inaccurate HIV status disclosure among sexually active college students, especially among MSM. The study findings raised the methodological issue of using a self-reported HIV status. Biological testing should be used whenever feasible, and public health interventions to promote HIV testing should be continued.

Disclosure No significant relationships.

P128 HIV+ WOMEN 50+ STIGMATIZED AND DISCRIMINATED

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Background Women living with HIV 50+ years and older are facing stigma while disclosing their status to their family friends, community, and partners. Women living with HIV are empowering and educating each other. Women face different issues (stress, depression, isolation, trauma or mental health issues). Disclosure of HIV status present challenges, there is need to support around women how to disclose and when. Women also are at higher risk of being criminalized by law for no-disclosure.

Methods We created social group in safe places for women living with HIV to come together to learn from each other regarding the issues they face. Women can speak about relationship, medications, health issues, and accessing services and program. Build each other's capacity skills. They gain a sense of connection through cooking, sewing, knitting. Peers who run the group are trained. The sessions were conducted in different sessions in the event. We administered pre- and post-session questionnaire to determine the effectiveness of the sessions. Demographic of those attending the group 87% identify as female, 13% identify as transwomen. Age 45–50+ 28%, 50+ 72% attended group session.

Results (50) women attended this group sessions and received information and connected with other women living with HIV. 10 women reported that they have come out of isolation and are now support and mentoring other women in their communities. 5 women have been engaged in advocacy at the

community and represent women in various working groups and committees.

Conclusion We are confident that social groups for women living with HIV help women to seek services, remain in care, reduce isolation and promote adherence. Meaningful involvement is more that inviting women at decision making tables but also addressing barriers that hinder women from engaging, addressing stigma, and other personal barriers that women might have.

Disclosure No significant relationships.

P137 MODELLING FACTORS DETERMINING PAKISTAN'S HETEROGENEOUS HIV EPIDEMIC IN PEOPLE WHO INJECT DRUGS

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Background Pakistan's HIV epidemics among people who inject drugs (PWID) vary widely across different cities and has increased dramatically over time. To help guide future HIV programming, we used statistical and mathematical modelling to identify possible causes for these differing HIV epidemics.

Methods Cross-sectional integrated biological and behavioural surveillance (IBBS) data describing high-risk behaviours and HIV status among PWID were collected by the Canada-Pakistan HIV/AIDS Surveillance Project (HASP) over five rounds from 2005–2017. We used regression analyses to identify city-level associations between the prevalence of HIV infection and different risk behaviours. We then developed a dynamic HIV transmission model to reflect these associations. The model was calibrated to the IBBS dataset to estimate relative risks of HIV transmission due to each risk factor, and their respective population-attributable fractions (PAFs) over 10-years. Lastly, we investigated the prevention benefit that could be achieved if these behaviours were reduced across different settings to the lowest observed values.

Results Multivariable statistical analyses identified professional injecting use at last injection ('Proflnj') and heroin use within the past month ('HeroinUse') as key high-risk behaviours associated with city-level HIV infection, with HIV prevalence increasing by 4% and 2% for every 10% increase in the prevalence of each respective behaviour. Modelling projections estimated that Proflnj and HeroinUse increased the relative risk of HIV transmission by 7.9 (95%CrI 4.6–14.0) and 2.2 (1.1–3.7) times, respectively, with 10-year PAFs across all cities being 52% (37–61%) and 21% (3–34%), separately, and 61% (51–66%) combined. Lowering each behaviour's prevalence across all cities to the lowest observed prevalence (11% Proflnj, 0% HeroinUse) reduced overall relative HIV incidence by 43.9% (36.9–47.7%) and 44.1% (11.0–60.5%) over 10-years, respectively.

Conclusion Pakistan's HIV epidemic is heterogeneous, with professional injecting and heroin use likely large contributors to the differing epidemics. Interventions focussed on these behaviours, especially professional injecting, could substantially reduce HIV incidence.

Disclosure No significant relationships.

P138 HIGH STI PREVALENCE AMONG HIV-EXPOSED WOMEN PLANNING FOR PREGNANCY IN RURAL, SOUTHWESTERN UGANDA

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Background Many HIV-affected couples desire children. STIs increase risks of infertility, poor maternal and infant outcomes, and HIV acquisition. We introduced STI testing in southwestern Uganda to characterize STI epidemiology among HIV-exposed women planning for pregnancy.

Methods The Healthy Families PrEP study is enrolling 150 HIV-uninfected women planning for pregnancy with a partner known or suspected to be living with HIV. At enrollment, women are offered comprehensive safer conception counseling, including TDF/FTC as PrEP. We integrated STI testing for *Chlamydia trachomatis* (CT), *Neisseria gonorrhoea* (NG), *Trichomonas vaginalis* (TV) (via GeneXpert), and Syphilis (via immunochromatographic rapid testing confirmed by RPR). We calculated STI prevalence and compared differences among women with and without STI (Fisher's exact test).

Results Between June 2018 and January 2019, 63 women completed baseline STI testing. Median age was 28 (IQR 24–31) years. Seventeen participants (27%) had STIs, including CT-14%, NG-3%, TV-8%, Syphilis-6%, and 5% with two STIs. Women with STI were less likely to report prior pregnancy (13/17 (76%) vs. 45/46 (98%), $p=0.02$) and trended towards being more likely to report prior stillbirth (4/17 (24%) vs. 3/46 (7%), $p=0.08$). Women with STI were less likely to report having relationship power to negotiate condom use (7/17 (41%) vs. 27/46 (59%), $p=0.26$) and were younger (median age 26 vs. 29). PrEP uptake was high in both groups (16/17 (94%) vs. 42/46 (91%), $p=1$).

Conclusion We describe a 27% curable STI prevalence among HIV-exposed women planning for pregnancy. Women with STI were less likely to have had a prior pregnancy and trended towards prior stillbirth, possibly due to undiagnosed STI. In an HIV-endemic setting with social pressures to conceive children, infertility may contribute to increased HIV and STI exposures and prevalence. These data highlight the importance of integrating STI testing into HIV prevention programs to maximize the health of women, children, and families.

Disclosure No significant relationships.

P139 THE RACIAL IMPACT OF AIDS TRENDS AMONG WOMEN IN SAO PAULO, BRAZIL

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Background In the Sao Paulo State (SPS), the AIDS epidemic decreased among women, due to early diagnosis, antiretroviral

use and prevention. This study aimed to analyze the trends of women living with AIDS (WLWA) and the HIV infection in pregnant women (PW-HIV) in the Sao Paulo City (SPC) and SPS, according to race/skin-color, from 2007–2016.

Methods Trend study using polynomial regression models performed with reported cases of WLWA and PW-HIV compared to SPC and SPS according to race/skin-color and diagnosis period. The annual number of WLWA and PW-HIV in each of the categories studied was considered as the dependent variable (Y), and the independent variable (X) was the time, represented by the calendar years, referring to the study period. The goodness of fit via r^2 and $p<0.05$ were used to determine which models and data were most appropriate.

Results In the period from 2007–2016, 18,571 AIDS cases in the SPS and 7,078 in the SPC reported among women were analyzed. In the SPS, WLWA presented a decreasing linear trend with first order modeling, with a higher fall rate among white women [$Y=1,093-101X$; $r^2=0.97$; $p<0.001$] than in black [$Y=237-15X$; $r^2=0.88$; $p<0.001$], and mixed color/race [$Y=600-35X$; $r^2=0.89$; $p<0.001$]. In the SPC, the same trends were observed among white women [$Y=362-34X$; $r^2=0.97$; $p<0.001$], black [$Y=108-6X$; $r^2=0.81$; $p<0.001$], and mixed color/race [$Y=263-12X$; $r^2=0.86$; $p<0.001$]. For PW-HIV, 12,676 cases in the SPS and 4,160 in the SPC were analyzed. White PW-HIV showed a decreasing linear trend, being more expressive in the SPS [$Y=681-21X$; $r^2=0.89$; $p<0.001$] than in the SPC [$Y=191-5X$; $r^2=0.64$; $p=0.005$]. In the SPS and the SPC, among black and mixed color/race PW-HIV the trend presented stability.

Conclusion To reduce the social inequalities, the care network must discuss specific strategies to improve the access to health care services and antenatal care services for black and mixed color/race WLWA and PW-HIV, prevention measures, sexual and reproductive health care, including access to long-acting contraceptives.

Disclosure No significant relationships.

P140 THE RISING HIV EPIDEMIC AMONG KEY POPULATIONS: AN URGENT NEED FOR A FOCUSED TARGETED PREVENTION RESPONSE IN PAKISTAN

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Background HIV Surveillance data has been used extensively to guide HIV prevention program in Pakistan since 2004. The 5th round of surveillance was conducted in 23 cities to determine the progression of the HIV epidemic, profile risk behaviors and program coverage among key populations to inform HIV prevention programs in Pakistan

Methods A total number of 5,660 FSWs, 6,773 MSM, 5,191 Transgenders and 4,062 PWIDs participated in the study using diverse sampling techniques to draw representative samples. Behavioral data were collected using structured questionnaires while blood samples were tested using two rapid HIV tests following WHO protocol. Informed consent was obtained and all participants were linked with HIV programs. Moreover, all positive subjects were linked to HIV treatment care and support. International ethical guidelines were followed and ethical

approval for the study was obtained from PMRC ethics review board in Pakistan.

Results Overall, weighted prevalence of HIV among PWID was 38.4% (95% CI: 37.9, 38.9), 7.1% (95% CI: 6.8, 7.4) among TGs, 5.4% (95% CI: 5.2, 5.6) among MSM and 2.2% (95% CI: 2.1, 2.3) among FSWs. Among key HIV risk behaviors condom use at last sex was 27.7% in TGs, 50% in FSWs, 24% in MSM and 15.8% in PWID, who also shared syringes extensively (31%). Approximately 5% of TG, 16.9% of FSW and 4.0% of MSM reported having sex with a PWID in past year. Only 24.6% PWID, 15% TGs, 8.3% FSWs and 13.3% MSM utilized HIV prevention programs in the past year, which explains the escalating trends of HIV among these populations.

Conclusion The HIV epidemic in Pakistan is growing rapidly and is following a rapidly propagating Asian HIV epidemic pattern. Pakistan needs to quickly scale-up services for key populations to contain the epidemic and to prevent a further spread to other KP members and into general population.

Disclosure No significant relationships.

P141 FACTORS ASSOCIATED WITH HIV-RELATED STIGMA AMONG INDIVIDUALS ACCESSING ANTIRETROVIRAL THERAPY IN BRITISH COLUMBIA, CANADA

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Background Despite public health messaging that antiretroviral therapy (ART) has improved health outcomes for people living with HIV (PLWH) and is effective in preventing HIV transmission, many PLWH continue to experience HIV-related stigma. It is critical to assess HIV-related stigma experienced by PLWH accessing ART in the modern HIV treatment era.

Methods The STOP HIV/AIDS Program Evaluation (SHAPE) study is a longitudinal cohort of PLWH ≥ 19 years of age in British Columbia, Canada. This cross-sectional analysis uses SHAPE baseline survey data (collected January 2016-August 2018) and linked clinical registry data to examine factors associated with HIV-related stigma among individuals accessing ART. HIV-related stigma was self-reported using the ten-item Berger HIV stigma scale. Multivariable linear regression quantified the relationship between key explanatory variables and stigma.

Results Among 627 participants, 136(22%) identified as women, 326(52%) were aged ≥ 50 at enrolment, 374(60%) identified as men who have sex with men, and 133(21%) self-reported Indigenous ethnicity. The median stigma score was 47.5 (Q1-Q3: 32.5-62.5; range: 0-100). In the multivariable model, reporting injection drug use (IDU) in the past year ($\beta=4.54$, 95%CI= 0.23,8.86) or selecting "prefer not to answer" when asked about IDU history ($\beta=9.52$, 95%CI= 4.77,14.28); experiences of lifetime violence ($\beta=7.62$, 95% CI= 3.67,11.56); and having a mental health disorder diagnosis ($\beta=5.30$, 95%CI= 1.88, 8.73) were associated with higher stigma scores. Higher stigma scores were also associated with

being 40-49 years old ($\beta= 6.21$, 95%CI= 1.58,10.85) compared to <40 ; age ≥ 50 had no significant association. Living in a city with a population $\geq 100,000$ ($\beta=-4.66$, 95%CI= -8.53,-0.78) was associated with lower stigma scores.

Conclusion Age, city size, IDU experience, violence, and mental illness were independently associated with HIV-related stigma. These findings provide support for an intersectional investigation into how these factors propagate stigma and how this experience impacts the health and wellbeing of PLWH in this setting.

Disclosure No significant relationships.

P142 CHARACTERISTICS OF HIV-1 PRETREATMENT DRUG RESISTANCE AND ITS IMPACT ON COMBINED ANTIRETROVIRAL THERAPY IN BEIJING

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Background From 2013, the expanded strategies for the initial of combined antiretroviral therapy (cART) were administered in Beijing to the infected individuals whatever their CD4 cell counts, hence, the increasing trend of HIV-1 epidemic has been alleviated. Pretreatment drug resistance was monitored, yet its impact on cART and the derivation of acquired drug resistance should be well delineated.

Methods Treatment-naïve individuals with HIV-1 were recruited from September 2012 to April 2013 in Beijing You'an Hospital. The patients were followed up after the initial of cART. HIV-1 *pol* gene fragment was amplified using One-Step RT-PCR at stage of pretreatment and follow-up virological failure. The genotypic drug resistance was interpreted with Stanford University HIV Drug Resistance Database, with CPR algorithm and HIVdb program. The genotypes were determined using MEGA6.0 after multiple alignment by gene cutter, with reference to BLAST and RIP.

Results Totally, 324 treatment-naïve infections were recruited, and about 272 cases (84.0%) were infected via MSM. The top three subtypes or CRFs were CRF01_AE (60.5%), CRF07_BC (18.5%) and B (15.4%). 13 individuals were observed to possess PDR (4.0%), at a low prevalence. The accumulative rate of virological failure was 9.5%, which were observed in 31 cases, and the cohort maintenance rate of 75.4%. The PDR induced virological failure to develop acquired drug resistance (ADR) in three individuals, at a contributive rate of 23.1%. Some persons gained virological failure at 0.3-0.6 years post cART. Lower CD4 cell counts were prone to accompanied with the majority of virological failure (23.3%). The dynamic fluctuation of acquired drug resistance were observed by single genome amplification.

Conclusion There was a low prevalence of transmitted drug resistance in treatment-naïve individuals in Beijing, and the TDR might convey 23% virological failure. The first-line cART obtained good performance of virological suppression, and the virological failure would be rectified by shift to second-line cART.

Disclosure No significant relationships.

P143 **MEDICATION REVIEWS FOR PEOPLE LIVING WITH HIV (PLWHIV)**

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10.1136/sextrans-2019-sti.311

Background As people are living longer with HIV, patients present with multi-morbidities and polypharmacy. To reduce the risk from drug-drug interactions, the multi-disciplinary team within our large city centre sexual health centre, carry out medication reviews for patients with polypharmacy (classed as >5 drugs excluding anti-retrovirals) on an ad-hoc basis. This audit aims to identify the proportion of HIV patients who have had a documented medication review (DMR) in the past 15 months and to re-audit following introduction of a service improvement to ensure that 90% of our patients have a DMR prior to clinician appointments.

Methods Study samples were obtained from a randomly selected week of booked HIV clinic appointments. Data was collected from electronic patient records for a look back period of 15 months.

Results In the initial audit, from a study sample of 203 PLWHIV, 29% of the total population and 21% of those with polypharmacy had a DMR. 39 interactions were identified, three minor and 36 significant. All 39 interactions required an intervention. The re-audit had a study sample of 180 PLWHIV, 94% of the total population and 97% of those with polypharmacy had a DMR. 135 interactions were identified, 113 minor and 21 significant. 121 of these interactions required an intervention.

Conclusion The combination of anti-retroviral treatment with polypharmacy significantly increases the chance of potentially serious drug-drug interactions. To deliver safe and effective patient care and to ensure we are minimising the risk of adverse drug events as a result of these interactions, it is essential that a medication review is carried out for all our patients, ideally with every change in treatment but at the very least, every 15 months to meet national standards. Subsequently, our pharmacy team are completing medication reviews for each patient, prior to clinician appointments, supporting patients to get the most from their medicines.

Disclosure No significant relationships.

P145 **AN INTRA-FAMILIAL TRANSMISSION OF HIV-1 CRF02_AG WAS RECONSTRUCTED BY MOLECULAR EPIDEMIOLOGY**

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Background Mother to child transmission (MTCT) plays an important role in children HIV infection, and in China, about 0.1% to 0.4% individuals were infected through MTCT. Nucleic acid amplification testing was powerful tool to assess the effect of prevention of MTCT, mainly by qualification NAT. Here, we described an intrafamilial transmission event by molecular epidemiology.

Methods A pregnant woman with seroconversion during pregnant healthcare was followed up by epidemiology

survey, together with her husband and newborn. Viral RNA was extracted for the amplification of HIV-1 gag gene and pol gene fragments with One-step RT-PCR. The positive PCR products were subject to DNA sequencing. The sequences of gag gene and pol gene were codon-based aligned and analyzed with MEGA 6.0 to construct neighbor-joining tree, respectively. The genotypic drug resistances were interpreted by Stanford University HIV drug resistance database.

Results The proband was the pregnant woman, with seroconversion of anti-HIV-antibody screening by Wantai HIV-1/2 Ab kit during pregnant healthcare. Afterward, her husband and son at age of eight months were diagnosed as HIV-1 infection by HIV-1 antibody screening and RT-PCR, respectively, although her son was RT-PCR negative one day after birth. Neighbor-joining (NJ) tree indicated that the three individuals were infected by HIV-1 CRF02_AG, forming a close subcluster with high genetic homogeneity (bootstrap value, 95%). The sequences from the husband were closer to the root or the ancestor of the tree, and the topology structure indicated the transmission timing and evolution relationship, from father to mother and child, as shown by seroepidemiology.

Conclusion An intra-familial transmission of HIV-1 CRF02_AG was reconstructed by molecular epidemiology and the possible transmission relationship was elucidated. Contagious diseases screening should be reinforced during healthcare before marriage or pregnancy-deliver. Prevention of mother-to-child transmission should be timely and efficiently administered upon diagnosis of infection in pregnant women, to avoid the secondary intra-familial transmission and improve the population quality at birth.

Disclosure No significant relationships.

P148 **TRANSCONTINENTAL DISSEMINATION OF THE MAJOR HIV-1 CRF01_AE LINEAGES CIRCULATING IN CHINA**

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Background While HIV-1 CRF01_AE has caused a large epidemic in Mainland China, and distinct lineages related to transmission among various high-risk populations have been identified, whether its transmissions have dispersal outside remains poorly understood. We aimed to characterize and quantify the genetic relationship of HIV-1 CRF01_AEs circulating in Mainland China and in other countries globally.

Methods Phylogenetic and molecular clock analyses were carried out for all available CRF01_AE pol sequences deposited in two databases (the Los Alamos HIV sequence database and the UK HIV Drug Resistance Database) to characterize the possible linkages between CRF01_AE variants in Mainland China and the rest of the world.

Results We found that all five major lineages associated with the transmission in Mainland China were detected in the rest of the world, as following the Vietnam (n=228), Kingdom (n=48), Japan (n=18), Hong Kong (n=6), Czech Republic

(n=4), Thailand (n=3), Australia (n=1), Russia (n=1), Sweden (n=1) and Malaysia (n=1). Therein, 84% sequences mixed among CN.01AE.HST/IDU-2, most of which were sampled before 2010 and born in Southeast Asia. 14% sequences clustered with CN.01AE.MSM-4 and -5. A distinct sub-cluster with small divergence that consisted of 15 Japanese variants was formed inside CN.01AE.MSM-4 and the tMRCA of CN.01AE.MSM-4 and the latter sub-cluster were around 1996 and 2006. For other four major lineages, we have not found any significant transmission cluster structure for specific geographical regions.

Conclusion This results demonstrated the Chinese CRF01_AE variants have disseminated to other countries but have not scaled, and the immigrant modes of CRF01_AE variants from Asia to global has changed. Our study provided the evidences of regional and global dissemination of Chinese CRF01-AE lineages and highlighted the importance of shaping the newest global landscape of HIV and the necessity to implement the effective measures to reduce global spread of HIV.

Disclosure No significant relationships.

P149 EVOLUTION: A TEXT MESSAGING POWERED INTERVENTION FOR CONNECTION, SUPPORT AND HIV ERADICATION

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Background To reach the UNAIDS goal of 90–90–90, young people worldwide must experience improved linkage to care, retention in care and viral load suppression (VLS). This goal highlights needs for accessible mHealth approaches. The EVolution intervention is one such approach with automated and live text-messaging and a triggered alert system for timely support. Our goals included: 1) address concerns in young people's lives (housing, utilities, and mood); 2) increase appointments kept; 3) improve VLS rates.

Methods HIV positive youth at clinic sites with access to a mobile texting device, and at least one additional criterion: newly diagnosed; not linked to care; out of care for at least six months; viral load greater than 200 copies/mL were recruited. The intervention uses automated two-way text messages for HIV-specific medication/appointment reminders, monthly housing/utilities needs assessment and semi-weekly mood checks. Self-reported client challenges trigger action alerts and timely live two-way text messaging with case management. Results were examined over 6-months.

Results 102 youth enrolled. 89 participated in the program for ≥ 6 months. Most participants were young, average age 22.33 (SD=2.08), male (91%), Black (93%) and men who have sex with men (MSM) (82%). Eighty-one percent of youth responded to at least one text in 89,120 total exchanges. Texts triggered 395 alerts, most often for missed medication, housing issues and missed appointments. Seventy-nine youth kept at least one appointment for HIV medical care. Twenty-five participants newly achieved VLS and 35

maintained VLS during the 6 months. A significantly greater proportion of participants were virally suppressed at 6 months versus baseline ($p=0.18$).

Conclusion This text messaging intervention, which could be replicated in diverse settings, led to improved health and communication in a sample of young people at-risk or experiencing poor HIV outcomes. This presentation introduces an innovative streamlined communication approach with HIV positive youth, which addresses important health and social needs.

Disclosure No significant relationships.

P151 HIV EPIDEMIC AMONG CRACK USERS IN CENTRAL BRAZIL: EPIDEMIOLOGICAL BASIS FOR INTERVENTIONS

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Background Global strategies have been discussed and implemented worldwide to reduce the number of new HIV infections among key populations. In Brazil, there is a large lack of knowledge about groups that are highly vulnerable to this infection, such as drug users. Therefore, this study aimed to investigate the epidemiological profile of HIV infection in institutionalized crack users in the Central Region of Brazil.

Methods Between 2012 and 2013 we conducted a cross-sectional study of 919 crack users who were being treated at mental health referral institutions in two major cities located in the Central-West Region of Brazil. All were interviewed and tested for anti-HIV by the enzyme-linked immunosorbent assay (ELISA). Univariate and multivariate Logistic regression were done to identify the association of HIV and behaviors variables. This study was approved by the Research Ethics Committee of the Federal University of Goiás.

Results Of the total number of individuals recruited, 85.2% were male (84.5%), young (median: 30 years old, IQR: 18–68) and basic schooling (median: 8 years of study, IQR: 0–18). Of the total, 2.6% (95% CI: 1.7%–3.8%) were anti-HIV positive, ranging from 2.2% (95% CI: 1.4%–3.6%) in men and 4.4% (95% CI: 2%–9.2%) in women. Logistic regression analysis revealed that the antecedent of life on the street (adjusted OR: 4.0, $p = 0.023$), sexually transmitted infection (adjusted OR: 4.4, $p = 0.014$), use of improvised pipe for crack use (adjusted OR: 7.9; $p = 0.010$) and having sex in the last year with a partner known to have HIV/AIDS (adjusted OR: 8.7; $p = 0.001$) were predictors of HIV infection.

Conclusion Effective HIV prevention and control strategies should be implemented for this specific group including the community-based and community-led programs, with an emphasis on health education, harm reduction measures, and control of sexually transmitted infections, especially among homeless people.

Disclosure No significant relationships.

P152 THE EPIDEMIOLOGY OF HIV INFECTION AMONG YOUNG ADULTS IN BRAZIL

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Background Brazil has a strong HIV prevention public health program since 1980s that includes continuous and free nationwide distribution of male and female condoms, rapid test triage, and education communication strategies. Even so, the detection rate of HIV has increased, achieving 14.3/1000,000 individuals aged 15–24 years (2017). Regarding this alarming situation, we aimed to access the HIV prevalence and associate characteristics in young Brazilian adults (aged 16 to 25 years).

Methods Data from POP-Brazil Study, a cross-sectional, nationwide, multicenter study with sexually active men and women who use the public health system in Brazil were obtained. Trained primary health care professionals asked participants about sociodemographic characteristics and presence of HIV. Additionally, they invited to undergo a rapid HIV test. Those individuals that not answered the question or did not take the laboratorial test were considered missing values. The measures were weighted by population size in each capital and by sex.

Results Of 8,581 participants, 3,009 do not provided information about HIV, and 49 (1.54%, CI95% 0.83%–2.25%) reported positivity or were reagent in the rapid HIV test, without significant differences between Brazilian regions. The positivity was significantly higher in men than women (2.7% vs. 0.6%, $p < 0.001$), as well as in non-married participants ($p < 0.001$), those with more than two partners in the last year ($p < 0.009$), homosexual intercourse ($p < 0.001$) or non-vaginal sexual behavior ($p < 0.001$). The use of condom in the first sexual intercourse was not significant different between the groups of infection.

Conclusion The high prevalence of HIV is even more concerning taking into account the high proportion of missing individuals. Association of HIV with homosexual intercourse and non-vaginal sexual behavior were more frequently in male. Despite the sustained Brazilian public health program, this particular age range need to be on the focus of prevention strategies.

Disclosure No significant relationships.

P153 ARE PARTURIENT WOMEN ON ANTI-RETROVIRAL THERAPY COMPLYING WITH THE RECOMMENDED SIX-MONTHS EXCLUSIVE BREASTFEEDING?

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Background Exclusive breastfeeding is recommended for the first six months in HIV-exposed infants in sub-Saharan Africa. This cost-effective and high impact strategy has proven to promote healthy infant growth, development and survival of children in resource poor settings. Despite antenatal and post-natal counselling and support on the choice of feeding for HIV-exposed infants, the practice of EBF remains low in sub-Saharan Africa. Given the paucity of data on the topic in the study setting, we examined the prevalence of six-month exclusive breastfeeding.

Methods We followed up parturient women enrolled in the East London Prospective Cohort Study with the aim of determining the rate and determinants of exclusive breast feeding in the region. Relevant items on demographic, lifestyles and duration of EBF were obtained using structured interviews. Binary logistic analysis was fitted to examine the significant determinants of EBF.

Results Six infants died within the first six months in the cohort. Of the parturient women with complete responses (469), the prevalence of exclusive breastfeeding for the recommended six months was 32% ($n=150$). Women who were unemployed in the past 12 months had a higher likelihood of exclusively breastfeeding their infants for 6 months compared to women who were employed [AOR:1.68, CI:1.08–2.63]. Also, women who did not consume alcohol beverages in the past 12 months had a higher odds of exclusively breastfeeding their infants [AOR:1.77, CI:1.12–2.78]. Adherence to antiretroviral therapy [AOR:0.83; CI:0.53–1.29], disclosure of HIV serostatus to sexual partners [AOR:0.98; CI:0.51–1.94] and marital status [AOR:1.32; CI:0.86–2.02] were not significantly associated with exclusively breastfeeding of infants for six months.

Conclusion Very low rate of exclusive breastfeeding for six months among HIV-infected parturient raises serious concern for mother-to-child transmission, morbidity and mortality of exposed-infants in the study setting. Intervention strategies to promote and monitor compliance with exclusive breastfeeding recommendations require targeted research.

Disclosure No significant relationships.

P154 DIFFUSE SKEWING OF TH17/TREG RATIO IN THE ANORECTAL MUCOSA OF HIV+MSM WITH HPV-ASSOCIATED DYSPLASIA

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Background Anal Human Papillomavirus (HPV) infection is common in MSM. While most HPV infections resolve spontaneously, some persist and cause anal intraepithelial neoplasia (AIN) that can progress to anal cancer. To better understand the mucosal immunopathogenesis of HPV/AIN, we compared mucosal T cell subsets between AIN-free mucosa and AIN lesions within HIV+ART+ MSM.

Methods Anal swabs from 46 participants were used to 1) screen for 46 mucosal HPV types by microsphere-based genotyping and 2) test for HIV RNA levels by RT-PCR. AIN-free mucosa was biopsied, and (where applicable) additional biopsies were taken from histology-confirmed areas of AIN. Treg markers (CD25, FoxP3) and a Th17 marker (CCR6) were assessed by flow cytometry. Statistical comparisons were assessed between groups (Mann-Whitney) and within the same individual (Wilcoxon).

Results Th subsets were first compared between clinically normal mucosa and AIN lesions within AIN+ individuals, and no lesion-specific alterations were apparent. When we compared clinically normal mucosa between study groups, participants with high-grade AIN had a reduced Th17/Treg ratio compared to participants with no AIN (HGAIN= 7.83, No AIN= 19.75; $p = 0.007$) or participants with low-grade AIN

(LGAIN= 14.1; $p= 0.017$). This difference was primarily driven by an increase in Treg frequencies (HGAIN= 4.00%, LGAIN= 2.38%, No AIN= 1.88%; $p= 0.048$), and participants with HPV16/18 also had significantly higher Treg frequencies (HPV16/18= 4.02%, No HPV16/18= 2.68%; $p= 0.021$). Th17 frequencies did not vary with HPV status, HPV16/18 positivity or AIN stage. No mucosal parameters were associated with anorectal HIV RNA detection.

Conclusion HPV infection and high-grade AIN were associated with diffuse mucosal Treg infiltration, reducing the mucosal Th17/Treg ratio in participants with high-grade AIN. While changes in T cell immunology did not increase HIV RNA shedding in ART+ MSM, their effect on ART-naïve men or HIV susceptibility in HIV-negative men will be interesting areas for future research.

Disclosure No significant relationships.

P156 STUDY ON THE EFFECT OF SLANDC-MEDIATED ADCC IN HIV-1-INFECTED PATIENTS

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Background Antibody-dependent cell-mediated cytotoxicity (ADCC) mediated by natural killer (NK) cells plays a critical role in HIV-1 infection. As a novel subset of dendritic cells (DCs), 6-sulfo LacNAc-expressing DCs (slanDCs) also express CD16. However, the levels of slanDC-mediated ADCC during HIV-1 infection are not well addressed.

Methods Forty-five HIV-1-infected subjects were enrolled and 19 HIV-1 negative individuals were used as healthy controls (HCs). The complex of gp120 and anti-gp120 was used to stimulate peripheral blood mononuclear cells (PBMCs) and the level of TNF-alpha secreted by slanDCs was detected using intercellular staining of flow cytometer.

Results The counts of slanDCs in HIV-1-infected and treatment naïve patients were significantly lower than those of HCs and those receiving anti-retrovirus therapy (ART) ($P=0.0331$, $P<0.0001$). The number of slanDCs in HIV-1-infected patients with ART was significantly higher than those who did not receive ART, indicating that ART could help HIV-1-infected individuals to recover the number of slanDCs. The level of slanDC-mediated ADCC evaluated as the level of TNF-alpha production by slanDCs stimulated by the complex of gp120-anti-gp120, was significantly lower in HIV-1-infected subjects as compared with HCs and those receiving ART ($P=0.0011$, $P=0.0002$). The expression of CD16 (MFI) by slanDCs from HIV-1-infected patients receiving ART was significantly higher than that from HIV-1-infected untreated and HCs ($P=0.0014$, $P=0.0003$), and the expression of CD16 (MFI) in slanDC was positively correlated with the ADCC effect ($P<0.0001$).

Conclusion The slanDC-mediated ADCC existed in HIV-1-infected patients and the level could be enhanced by ART, suggesting an alternative pathway involved in ADCC in HIV-1 infection.

Disclosure No significant relationships.

P157 CROWDSOURCING METHODS TO ENHANCE HIV AND SEXUAL HEALTH SERVICES: A QUALITATIVE SCOPING REVIEW OF EVIDENCE

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Background Crowdsourcing, a process where non-experts and experts work together to solve a problem, may be useful for developing HIV and sexual health interventions, programs, and research. This qualitative scoping review examines evidence on crowdsourcing to improve HIV and sexual health services.

Methods We searched four databases in June 2018. Studies were included if they involved crowdsourcing activities, focused on HIV/sexual health, and described the methodology in sufficient detail. We used a content-analytic approach to describe major findings related to types of crowdsourcing models, phases of implementation, advantages, and disadvantages.

Results Our search strategy yielded 431 citations. A total of 17 studies were included for analysis. Four studies were from high-income countries, seven from middle-income countries, one from a low-income country, and five were global. Crowdsourcing was used to develop interventional materials to promote condom use, engage the community in sexual health campaigns, and inform policy changes in sexual health. We identified five types of crowdsourcing models: open contests, hackathons, open forums, extraction of data from social media platforms, and incident reporting systems. Open contests solicit solutions to problems and award prizes to finalists based on predetermined criteria. Hackathons are intensive, approximately 72-hour contests that bring together people to complete a specific task. Crowdsourcing projects shared four common phases: preparation, soliciting crowd inputs, judging submissions, and sharing solutions. Advantages of crowdsourcing included higher potential for innovation due to crowd heterogeneity, encouragement of multisectoral collaboration, empowerment of vulnerable populations, and creation of cost-effective and culturally appropriate intervention strategies. Disadvantages included temporal transience and the challenge of sustaining engagement over time.

Conclusion This scoping review revealed diverse applications of crowdsourcing in HIV/sexual health programs and research. Further crowdsourcing research is needed in low and lower-middle income countries.

Disclosure No significant relationships.

P159 INFLUENCE OF HIV STATUS AND OPIOID MISUSE ON STI RISK AND INFECTION: RESULTS OF A PILOT STUDY

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Background The United States (US) is experiencing record rates of sexually transmitted infections (STI) and opioid misuse, and has in excess of 1.1 million individuals living with HIV. Risk reduction interventions can vary greatly by drug of choice and sexual orientation. This pilot study sought to examine STI risk as a factor of drug misuse and HIV status.

Methods From 1 Jul to 21 Dec 2018 we recruited individuals from a sexual minority support organization also providing syringe exchange services (Springfield, IL). Participants completed surveys of risk and behavior and were screened (genital and oral) for chlamydia (CT) and gonorrhoea (GC). Drug use was categorized as: none; opioids only (e.g. heroin, hydrocodone); stimulants only (e.g. methamphetamine, cocaine); and combined.

Results The 54 participants were: 94% male; had a mean age of 41 years; and were 76% white race. Stratified by opioid use (yes/no)/HIV status (pos/neg), participants for each category were: yes/pos=6; yes/neg=27; no/pos=6; and no/neg=15. The 2 identified infections were one oral GC and one genital CT. Among the 50 who identify as male, reported orientation was: 26 heterosexual, 20 homosexual, 3 bisexual (1 missing); and reported drug use was: 14 none, 4 opioids, 7 stimulants, and 25 combined. Drug category was strongly associated with sexual orientation (60.0% of homosexuals reported none vs 72.0% of heterosexuals reporting combined; $p=0.003$) and employment (64.5% of unemployed reported combined vs 22.2% employed; $p=0.008$). Drug type use was not significantly associated with: race; ever being diagnosed with a STI; giving or receiving sex for money or drugs; engaging in anonymous hookups; or group sex (though reported by 26% of participants).

Conclusion Given the reported risky behaviors of study participants, actual STI prevalence was surprisingly low. The data show drug use differences by sexual orientation and employment status, indicating areas for further intervention research.

Disclosure No significant relationships.

P161 ADOPTING A POLITICAL ECONOMY APPROACH TO HIV RESEARCH: A CASE STUDY OF ONGOING CONFLICT IN UKRAINE

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Background Armed conflict erupted in eastern Ukraine in 2014. Ukraine has the highest HIV rates in Europe, there is concern that the epidemic can worsen in the current climate. Past research on HIV prevalence in conflict zones has been limited and the few studies that exist yield contradictory results. In this paper we describe the historical events leading up to the current conflict and explore its politico-socio-economic consequences as related to HIV risk.

Methods This project takes a political economy approach to examine Ukraine as a case study to understand the impact of conflict on HIV and HCV. We undertook archival research to examine the structural factors related to the current conflict and its politico-socio-economic consequences. Political economy draws upon economic, political, historical, cultural and sociological approaches to examine the evolution of states, markets and society. This perspective accounts for a wide range of factors that influence the downstream realities of people living with HIV. It illuminates the structural parameters of conflict within which the epidemics exists.

Results Preliminary results reveal that the social, political, and economic turmoil leading up to the armed conflict can be traced back to Ukraine's formation as a sovereign state following the dissolution of the Soviet Union. These factors have also been associated with the beginning of Ukraine's HIV epidemic. High inflation, deep recessions, and a burgeoning kleptocracy led to civil unrest and the ousting of the president which was followed by backlash from Russia. The ensuing conflict has ignited several factors known to contribute to HIV risk such as violence, migration and increased mobilization of armed forces might be expected to exacerbate prevalence.

Conclusion Ukraine as a case study presents a unique opportunity to examine the influences of conflict on the HIV epidemic before, during and possibly post conflict.

Disclosure No significant relationships.

P162 UNSUPPRESSED VIRAL LOAD (VL) BY HIV EXPOSURE CATEGORY AMONG PEOPLE LIVING WITH HIV IN BRITISH COLUMBIA(BC), CANADA: 2005–2015

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Background We examined trends and determinants of unsuppressed VL among PLWH stratified on the basis of HIV exposure category over 10 years in BC, Canada.

Methods The analysis included all PLWH in BC from 04/2005 to 03/2016 identified in the provincial STOP-HIV database. This database includes: positive HIV test results, antiretroviral therapy (ART) dispensing information, laboratory data, physician billing data, hospital discharge abstracts and vital statistics linkages. For each year, individuals were classified as having an unsuppressed VL if they: 1) were newly diagnosed; 2) had any VL ≥ 200 copies/mL measure; or 3) did not have a VL measured. We examined factors associated with unsuppressed VL using generalized estimating equations to build a multivariable logistic regression model.

Results Among 9778 PLWH in BC during the study period, 80.7% were male and the median age at diagnosis was 37 years. Among those with HIV exposure information, 49.0% were men who have sex with men (MSM), 33.6% were people who use injection drugs (PWID), 16.0% had only heterosexual exposures and 1.4% had other exposures. 16.4% had missing exposure information. The proportion of those with unsuppressed VL decreased from 66.5% in 2005 to 24.5% in 2015 ($p < 0.001$, test of trend). Among MSM, unsuppressed VL declined from 60.0% to 19.8%; among PWID from 75.6% to 33.3% and among heterosexuals from 62.0% to 24.5%. In the multivariate model, PWID (aOR=1.72; 95% CI 1.58–1.88) and heterosexuals (aOR=1.20; 95% CI 1.10–1.32) had increased odds of unsuppressed VL, compared to MSM. Age, sex, year ART initiation, ethnicity, health authority residence and hepatitis C antibody status were also associated with unsuppressed VL ($p < 0.01$ for all).

Conclusion Across BC, the proportion of PLWH with unsuppressed VL fell markedly between 2005 - 2015 from 66% to 25%. However, PWID and those with heterosexual exposures require additional supports to maximize the benefits of ART.

Disclosure No significant relationships.

P163 HIV CARE AND TREATMENT SERVICES FOR FEMALE SEX WORKERS: UTILISATION OF AND SATISFACTION WITH THE SERVICES IN KAMPALA, UGANDA

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10.1136/sextrans-2019-sti.324

Background We estimated the prevalence and factors associated with utilisation of HIV services among FSW in Kampala, Uganda.

Methods Between October 2017 to January 2018, we conducted a cross sectional study among FSW aged 18+ years at a research clinic. The women were enrolled through their routine three monthly visits. At each visit, women received a comprehensive HIV prevention, care and treatment package, peer-led health education sessions, psycho-social support, sexually transmitted infections (STIs) screening and treatment, general health care and reproductive health services. We defined utilisation as clinic attendance for services by FSW at least once within the last six months. Data on socio-demographic characteristics, clinic attendance, HIV sero-status, sexual behaviour, illicit drug and alcohol use were collected. We used log binomial model to identify factors associated with utilisation of clinic services.

Results Eight hundred and seventy four women were included in the analysis, mean age was 32 years (SD= 6.98). The overall prevalence of utilisation of clinic services was 708/874(81%) and 662/874(76%) reported satisfaction with the clinic services. Forty percent reported poor accessibility to the clinic, and of these 222/324 (69%) reported high transport-costs challenges. All women (100%) knew their HIV status, of these 463(53%) were HIV positive, of whom 455/463(98%) were receiving ART. Seventy six percent had been treated for STIs in the last three months, and 454 (52%) reported partner violence. In the adjusted analysis, utilization of clinic services was more likely among HIV positive women (aRR=1.19; 95%CI: 1.11–1.28) and those who had been treated for STIs in the last three months (aRR= 1.32; 95%CI: 1.18–1.48).

Conclusion Prevalence for utilisation of clinic services was relatively high. Those who utilised the clinic were more likely to be HIV positive women and those treated for STIs. However, interventions targeting FSW to improve utilisation of HIV care services should be considered.

Disclosure No significant relationships.

P166 DETERMINANTS OF VIRAL NON-SUPPRESSION AMONG CHILDREN IN A HIV PROGRAM IN KENYA: A CROSS-SECTIONAL STUDY

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Background Kenya has an estimated 86,300 children living with HIV (CLHIV) on antiretroviral therapy (ART) of whom a third are not virally suppressed. Looking at predictors of viral non-suppression guides the program in designing intervention strategies to abate inauspicious treatment outcomes.

Methods This was a cross-sectional study that used de-identified electronic medical records of the Christian Health Association of Kenya HIV/AIDS project database. We included all CLHIV aged 9 years and below who were active in care as of 30th September 2018 and had been on ART for at least 6 months with a recent viral load result. We defined non-suppression as a result of ≥ 1000 copies/mm³ which was our

outcome of interest. Predictor variables studied were age, sex, duration prior to ART initiation and duration on ART, ART regimen, orphan status, baseline WHO staging and adherence. Bivariate analysis and multivariate logistic regression were used to establish determinants of non-suppression.

Results We included 1,066 CLHIV of whom 51.3% were female, median age was 7.5 years (IQR 5.7– 9) and a quarter were orphans. Median duration on ART was 51 months (IQR 31–79), 20.4% were on second line ART regimen with an overall viral suppression rate of 88%. Children who had been on ART for a longer duration (>5 years) were more likely to be suppressed [aOR=0.38, (95% CI)=0.17–0.86), p=0.02]. A protease inhibitor containing regimen was associated with non-suppression on bivariate analysis [OR=2.43, (95% CI = 1.04–5.65), p=0.039] however this was not significant in multivariate analysis. Non-adherence to ART increased five-folds the odds of non-suppression [aOR=5.47, (95% CI = 1.12–26.69), p=0.035] whereas those who were orphans were more likely to be suppressed [aOR=0.56, (95% CI = 0.37–0.86), p=0.007].

Conclusion CLHIV within our study population had sub-optimal viral suppression. Innovative strategies to address adherence remains crucial in addressing non-suppression.

Disclosure No significant relationships.

P167 PCR DETECTION OF HIV PROVIRAL DNA IN BRAIN TISSUES FROM DEAD HIV/AIDS IN ZAMBIA

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Background The prevalence of HIV-associated neurocognitive disorders (HAND) was highly prevalent in Zambia. But very little is known about the effect of ART on HIV subtype C associated neurological disease.

Methods Brain and lymphnodes tissues: from autopsies of dead HIV+/AIDS patients, provided by local hospitals. First, frozen tissue blocks were cracked, DNA was extracted. Then, Env V2-V5 region of HIV proviral DNA was amplified by PCR with clade C specific primers. 2.0 µg of template DNA was employed with Fast Start HF and platinum pfx DNA. Finally, phylogenetic trees were drawn.

Results Out of 12 HIV/AIDS cases detected, 6 cases were found to be HIV DNA positive for at least 1 positive in total 7 different brain tissues (FL,PL,TL,OL,H,C,BG), and their lymphnode samples were also HIV positive the same time. So HIV infection rate of brain was 50%. For the 2 ART non-treated cases, 85.7% (12/14) of the samples of different tissue was HIV positive, while it was 17.6% (6/34) in 7 ART treated cases. All DNA sequences were blasted as HIV subtype C, and clustered with subtype C reference strains.

Conclusion In this study, the HIV infection rate in all brain tissue samples in untreated cases (87.5%) was much less than that in treated cases (17.6%), It suggested that ART may help control the spread of HIV infection in brain tissues.

Disclosure No significant relationships.

P168 MULTIDRUG RESISTANT TUBERCULOSIS IN TB/HIV CO-INFECTED PATIENTS IN RIVERS STATE, NIGERIA

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Background Tuberculosis poses a serious health problem worldwide with a high mortality rate, especially in immunocompromised individuals. The emergence of drug-resistant forms of tuberculosis further burdened with high prevalence of HIV threatens to make this important human disease difficult to manage. Nigeria is currently listed among the 30 high burden countries for TB, TB/HIV and DR-TB. This study was carried out to determine Mycobacterium tuberculosis resistance pattern to first-line anti-TB drugs (rifampicin and isoniazid) in TB patients who were HIV seropositive in Rivers State.

Methods Two hundred and sixty HIV sero-positive patients ≥ 18 years old were recruited from three health care facilities in Rivers State. The subjects were separated into two groups consisting of 130 TB/HIV co-infected patients on anti-tuberculosis treatment and 130 HIV seropositive patients, suspected of having tuberculosis and yet to commence anti TB treatment. Sputum samples were processed by line probe assay (MTBDRplus by HAIN Lifescience). Analysis were carried out with the SPSS v20 software.

Results Of the 260 recruited HIV seropositive subjects, 159 were positive for TB: 127 from the treatment exposed group and 32 from the treatment naïve group. Among all the TB/HIV co-infected subjects, MDR-TB was detected in 10.1% (16/159) of the study subjects. Among the treatment experienced group, MDR-TB was detected in 11.0% (14/127), INH-monoresistance in 15.7% (20/127) and RIF-monoresistance in 11.8% (15/127) while 6.3% (2/32) of treatment naïve subjects had MDR-TB, 12.5% (4/32) had INH-monoresistant TB and 6.3% (2/32) had RIF-monoresistant TB.

Conclusion Primary MDR-TB was prevalent in Rivers State (6.3%). This implies a high level of ongoing transmission of MDR-TB in TB/HIV co-infected individuals within the community. The DOTS program needs to be strengthened to capture TB/HIV co-infected individuals early enough to manage them promptly.

Disclosure No significant relationships.

P169 ASSOCIATION BETWEEN CXCR4 AND TRAIL PATHWAY EXPRESSION IN CD4 T LYMPHOCYTES FROM HIV+ ART-NAÏVE PATIENTS

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Background HIV infection is characterized by immune cells depletion, apoptosis is one of the main mechanisms described. It has been reported that, the union of HIV to coreceptor CXCR4 can induce Fas independent apoptosis on T cells. In a few *in vitro* studies it has been proved that stimulation of

CXCR4 with gp120, can cause upregulation of TRAIL receptors and consequent sensitivity to apoptosis by this pathway. In this work, our aim was to measure if CD4+T lymphocytes from HIV+ patients, had and increased expression of TRAIL ligand and death receptors (DR) 5/4 and coreceptor CXCR4 and, evaluate its association

Methods Ten HIV+ ART naïve patients and seven HIV-donors were recruited. The immunophenotyping of CD4+T lymphocytes was performed with CD3+/CD4+ labeling, after that the TRAIL death receptors DR4 and DR5 as well as the TRAIL ligand and the coreceptor CXCR4 were measured for expression and MFI (median fluorescence intensity) by flow cytometry in whole blood samples

Results CD4+T lymphocytes from HIV+ patients showed an augmented expression and MFI of both death receptors and TRAIL ligand compared with the healthy controls; on the other hand, expression of coreceptor CXCR4 was increased in the HIV+ group and the MFI showed a significant difference compared to healthy subjects. Correlations between DR4 and the TRAIL ligand with CXCR4 showed no significance; in contrast, both expression and MFI of DR5 and CXCR5 were significant and showed a strong direct correlation (expression: $p < 0.05$ $r = 0.69$ and MFI: $p < 0.005$ $r = 0.81$).

Conclusion There is evidence of apoptosis triggered by CXCR4 activation, not related to the Fas pathway, which is one of the main causes related to cell depletion in HIV infection. The upregulation of the TRAIL pathway in HIV infected subjects is correlated with the CXCR4 expression, which could be the cause of the reported apoptosis in these patients.

Disclosure No significant relationships.

P170 EFAVIRENZ BASED ANTI-RETROVIRAL REGIMENS IN PAEDIATRICS: A PEEP INTO NEUROPSYCHIATRIC AND BIOCHEMICAL DERANGEMENTS

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Background Combination antiretroviral therapy (ART) has transformed HIV-AIDS into a chronically manageable illness. Efavirenz is an important component for ART regimens. Quality of life should be maintained for the easy continuation of this life-long therapy. Hence the adverse drug reaction (ADR) monitoring has become an important event to achieve good adherence

Objective This study aims to assess the spectrum of clinico-biochemical and neuropsychiatric ADRs for Efavirenz based ART in paediatric HIV patients

Methods Paediatric HIV-1 patients initiated with Efavirenz based ART were followed up for biochemical changes (liver, renal, lipid, haemoglobin parameters) and neuropsychiatric

adverse reactions (NPARs) till 6 months. NPAR(s) were monitored using Developmental Psychopathology Checklist and Sleep Disturbances Scale for Children. Adherence and guardian's literacy status were analyzed for their association with the self-reporting of NPAR(s).

Results NPARs were observed to be maximum at 15th day, followed by a gradual decrease over 1st and 2nd month. Symptoms like learning disorder and psychosis were maximum, followed by hyperkinesia, emotional disorder and somatisation. Domains of sleep problems were maximum at 15th day, followed by a graded decrease in the 1st and 2nd month. Self-reporting was found to be 57.14% and 37.50% in guardian with secondary and primary education respectively. Decreased adherence was noted among 16.67% of patients, managed by proper counseling. While biochemical changes like liver function alterations were observed to be maximum at 6th month (30.39%) and 4th month (7.84%), changes in renal function and lipid parameters were observed to be maximum at 6th month and drop in haemoglobin at 3rd month.

Conclusion Sensitization about NPAR(s) should be ensured at the time of therapy initiation to warrant adherence and spontaneous reporting in order to prevent resistance and treatment failure. ART induced anaemia, altered lipid profile, liver and kidney function derangements could be life threatening. This study thus upsurges the need for focused pharmacovigilance and therapeutic drug monitoring of ART for safer patient outcomes.

Disclosure No significant relationships.

P171 ZBTB5 GENE EXPRESSION IN CD4+ T CELLS AND SYSTEMIC PRO-INFLAMMATORY CYTOKINES IN NAÏVE AND TREATED HIV PATIENTS

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Background Chronic inflammation in HIV infection has been associated with accelerated disease progression. Several external host factors contribute to inflammation like, microbial translocation and coinfections; as well as host intrinsic mechanisms; such as immune activation and the regulation of factors that participate in inflammation pathways. Members of the transcriptional factors ZBTB have been associated with repression of proinflammatory cytokines; the objective of this work was to identify if ZBTB repressors could be contributing to cytokines levels decrease in HIV+ ART-treated patients.

Methods CD4+ T cells were isolated from 12 HIV- and 21 HIV+, subclassified as naïve (n= 8) and treated (undetectable for ≥ 1 year, n=13). Gene expression of ZBTB2, ZBTB4, ZBTB7B, ZBTB17, ZBTB38, BCL6 and ZNF131 was determined by qRT-PCR. Cytokine levels were quantified (IL-1 β , IFN- α , IFN- γ , TNF- α , MCP-1, IL-6, IL-8, IL-10, IL-12, IL-17, IL-18, IL-23, IL-33) by flow cytometry in serum. Kruskal-Wallis test was used for statistical analysis.

Results In naïve patients, only ZBTB7B showed a significant up-regulation (2.76 fold). BCL6, ZBTB4, ZBTB38 had an increase but, were not significant (1.01, 0.91, 0.13 fold respectively); treated patients showed a significant up-regulation in ZBTB7B, ZBTB4 and ZBTB38 (2.23, 1.13, 1.04 fold respectively) and, BCL6 had 1.02 fold, however, it was no

significant. *ZBTB2*, *ZBTB17*, *ZNF131* did not have, all genes were compared to HIV negative subjects. No significant changes were observed in pro-inflammatory cytokines levels, however, in treated patients, IL-1 β , TNF- α , IL-6, IL-10 and IL-12 showed lower levels compared with naïve patients.

Conclusion We showed an increase gene expression of some *ZBTBs* in HIV+ patients compared with healthy donors, these genes have been related to the inflammatory cytokines suppression; we found that this difference was higher in treated patients compared to naïve patients, this could be related to a decrease in TNF- α , IL-6, IL-10 and IL-12 systemic levels.

Disclosure No significant relationships.

P172 ASSOCIATION BETWEEN SHORT-CHAIN FATTY ACIDS PRODUCING BACTERIA AND CD4 T CELLS RECOVERY IN HIV POSITIVE PATIENTS

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Background Antiretroviral Therapy (ART) inhibits HIV replication, allowing immune reconstitution; however, some patients have an insufficient reconstitution, resulting in high levels of immune activation, microbial translocation, inflammation and intestinal dysbiosis. Since microbiota and its metabolites, such as Short-Chain Fatty Acids (SCFA) are linked to immune status, alteration of one or both could be related to poor T cells reconstitution.

Methods HIV+ patients with ART, grouped as immunologic responders, IRs: >350 cells (n= 18), immunologic non-responders, INRs: <350 cells (n= 17) and, healthy controls (n= 14) were recruited. Absolute quantification of Firmicutes, Bacteroidetes, Actinobacteria, Proteobacteria, *Bifidobacterium*, *Clostridium leptum*, *Clostridium coccoides*, *Lactobacillus* and *Faecalibacterium prausnitzii* were measured in stool by qPCR. Levels of butyrate, propionate and acetate were quantified in stool by HPLC. Absolute CD4 nadir count, CD4/CD8 proportion and co-expression of HLA-DR/CD38 were determined by flow cytometry. Comparisons between groups were performed with Kruskal-Wallis test.

Results No differences were found in the four main phyla. Regarding probiotics, there were no differences in *Lactobacillus* and *C. coccoides*; however, IRs have less copies of *C. leptum* and *F. prausnitzii* in comparison to the other groups. In contrast, INRs presented similar amounts of probiotics as the healthy subjects. No differences were found in SCFA levels, except for acetate which was increased in IRs. Concerning the immune status, there was no difference in CD4 nadir; however, IRs had greater variation in this count and, significantly higher CD4/CD8 proportion. Whereas, co-expression of CD4 +HLA-DR+CD38+ was decreased in INRs in comparison with IRs.

Conclusion Immune status from HIV+ subjects directly affects microbiota composition, systemic activation and inflammation. The enrichment of some probiotics, particularly SCFA-producing bacteria, is related to deficient immune reconstitution; however, other gut bacteria could be compensating this decrease. Further studies are necessary to understand how the microbiota and their metabolic products are related to CD4 T cells recovery.

Disclosure No significant relationships.

P173 INVESTIGATING VARICELLA-ZOSTER VIRUS-SPECIFIC T CELLS THROUGH THE LENSES OF HIV

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Background Varicella-zoster virus (VZV), also known as chickenpox virus, constitutes a promising vector for a successful HIV vaccine. As an effort to scrutinize its potential, we are characterizing the susceptibility of VZV-specific CD4 T cells to HIV infection and the phenotypic profile of both CD4 and CD8 T cells.

Methods Blood T cells isolated from a cohort of healthy Kenyan women with pre-immunity to VZV (NCT02514018) were stimulated *in vitro* using 15-mer peptides representing VZV glycoprotein E (gE) and VZV Open Reading Frame 4 (ORF4). CD4 and CD8 T cell memory phenotypes were characterized by flow cytometry based on the expression of CCR7/CD45RA. The activation status of VZV-specific CD4 T cells was measured by the expression of HLA-DR, CD69, and CD25 after 6-day stimulation with gE and ORF4 peptides. Susceptibility to HIV infection was assessed using *in vitro* infection with a CCR5-tropic virus. DMSO and CMV peptides were used as negative and positive controls, respectively.

Results A similar frequency of central memory CD4 T cells (T_{CM}) (median 24%, IQR 18%-32%) and effector memory CD4 T cells (T_{EM}) (median 27%, IQR 20%-32%) was observed in our cohort. The predominant CD8 memory subtype was T_{EMRA} (median 28%, IQR 21%-40%) followed by T_{EM} cells (median 12%, IQR 8%-19%) (n=45). Preliminary results show our ability to expand VZV-specific cells in culture using gE and ORF4 as stimuli and that these cells highly express the marker HLA-DR. Their susceptibility to *in vitro* HIV infection is currently under investigation using CMV-specific cells as comparator.

Conclusion A viral vector able to sustain CD8 T_{EM} responses without fueling the immune system with HIV target cells constitutes an ideal candidate for an HIV vaccine. Hence, our study sheds light on key aspects of VZV-specific immunity that will help determining its future as a vector in an HIV vaccine.

Disclosure No significant relationships.

P176 HIV ACQUISITION AND ANTIRETROVIRAL THERAPY INITIATION IN A YOUTH COHORT IN SOWETO AND DURBAN, SOUTH AFRICA

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Background South African young women and other key populations have amongst the highest HIV incidence globally, and antiretroviral treatment (ART) initiation remains challenging. We measured HIV incidence, ART initiation, adherence, status disclosure and related support within 3 months from HIV diagnosis for youth who acquired HIV during follow-up study visits.

Methods The AYAZAZI cohort study enrolled 425 self-reported HIV-negative or status-unknown 16–24 year olds from Soweto and Durban, South Africa (2014–2016). Participants completed interviewer-administered questionnaires (assessing socio-demographics, sexual behaviour and history, HIV-related service utilization, ART adherence, HIV disclosure and support) and underwent HIV rapid testing at enrolment and every 6 months for 4 visits.

Results 13/425(3.1%) enrollees were HIV-infected at enrolment. 12/412(2.8%; n=5 Durban, n=7 Soweto) with median age of 19 (IQR17–21) years, acquired HIV during their first year of follow-up (IR=2.54[95%CI:1.5–4.4] per 100 person-years); 6/12 were females, 5/12(42%) identified as LGBTQ, 10/12(83%) were sexually active and 5/10(50%) used a condom at last sex. Three months after HIV diagnosis, 10/12 (83%) reported they were medically advised to initiate ART, and 8/12(67%) had initiated ART. Fear of provider judgement was the most common reason for ART non-initiation (3/4;75%). A third (4/12) had not accessed any HIV-related medical or support services since diagnosis, commonly because of a disbelief of HIV test results (4/4; 100%). Of those who initiated ART, 5/8(63%) said they forgot a dose once or more per week. Eighty-three percent (10/12) had disclosed their HIV status to someone. The most common source of support related to HIV was from friends (7/12; 58%). 2/12(17%) rated that taking ART makes the risk of HIV infection a lot lower.

Conclusion HIV incidence was 2.5 per 100 person-years amongst our youth cohort; immediate ART uptake and adherence was sub-optimal; awareness of HIV prevention benefits of ART was low. Biomedical technologies and improved support systems for HIV-infected youth are needed.

Disclosure No significant relationships.

P179 COMMUNITY BASED LOCAL RAPID HIV TESTING CAMPAIGNS TO EXPAND HIV DIAGNOSTIC COVERAGE

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Background The UNAIDS 90–90–90 programme aims to increase healthcare access for asymptomatic HIV patients, ensuring their well-being and disrupting the transmission network of the virus. The city of Porto Alegre, is one of the cities with the worst HIV indicators in Latin America. One of the strategies currently being implemented to address this is to develop a public Rapid Testing (RT) campaign, with immediate management of HIV, Syphilis and Hepatitis C. The objective of this research is to evaluate the initial results of the strategy in 2018.

Methods Cross-sectional study using the time series approach for all RTs conducted in public testing events in 2018, through data mining, with WEKA software.

Results Among the 4157 RTs carried out, reactive test results were observed as follows: 97(2.3%) HIV, 626(15%) syphilis and 156(3.7%) for Hepatitis C. The characteristics of this population are: 2004(48%) women, 375(9%) homo/bisexual, 710(17%) under 25 years and 1001(24%) elderly. In the HIV reactive subgroup, 29(30%) women, 29(30%) homo/bisexual, 11(11%) under 25 years, 17(17%) elderly, 54(56%) syphilis co-infection and 14(14%) for Hepatitis C reactive test, it should be noted that these results differ in proportion to published municipal/national data.

Conclusion The availability of RTs in public spaces facilitated early diagnosis in young and homosexual/bisexual populations. However, the campaign also observed participation from other populations such as the elderly and homeless, who are guaranteed by law priority access to health services. The amplification of healthcare access through RTs made early diagnosis possible in asymptomatic individuals. According to data mining, this strategy reached population groups which differ from those observed in Epidemiological Bulletins of previous years. The recommendation to also encourage the provision of ART to the elderly and homeless can be an effective strategy that should be evaluated in future research.

Disclosure No significant relationships.

P180 VIRTUAL ACADEMIC DETAILING TO IMPROVE QUALITY OF HIV HEALTH CARE

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Background Academic Detailing (AD) is a scientific dissemination strategy that is characterized by the one-by-one orientation to improve the quality of care. It has been used

frequently in some developed countries about HIV management. HIV is a public health concern in all spheres of health care and its guidelines need to be constantly updated. The objective is to present the development of the virtual strategies for improvement of quality of health of HIV care in Latin America community-based Primary Care (PC) practices.

Methods A descriptive study of the development of a learning object was carried out to improve effectiveness of care of HIV by the PC physicians. The structure and elements of a traditional AD strategy were adapted by an educational outreach program.

Results The development of a learning object led to the compilation of materials necessary for the professional practice of HIV treatment, including models for notification, prescription, segmental examinations and the development of a flow for decision making, including multidisciplinary aspects such as contraception, social benefits, control of opportunistic infections, and others. The instructional design was structured to facilitate navigation, and can be used as support material during consultations, and can be easily accessed by mobile or computers.

Conclusion After the START and TEMPRANO studies trials, which are tools extensively used in the management of HIV, PC practices assume a pivotal part of the care of people living with HIV. The Guidelines' priority agenda of updating includes a number of other chronic and acute illnesses, however, especially in developing countries, there is no sheltered schedule for the physician to undertake lifelong education that includes so many updates. Virtual AD has the potential to reach out a large number of physicians, even with difficult access or time, without losing the one-by-one training feature.

Disclosure No significant relationships.

P181 EPIDEMIOLOGICAL INFORMATION ON HIV IN THE MANAGEMENT OF THE CASCADE OF CARE IN HEALTH SERVICES

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Background According to UNAIDS, an estimated 100,000 cases of new HIV infections were reported in Latin America in 2017. At the time, Antiretroviral Therapy (ART) was already being offered for these new cases, and was largely prescribed in the Primary Health Care (PHC) system. The objective of this study is to evaluate the epidemiological profile of new cases of HIV infection in a Porto Alegre City, with some of the worst HIV indicators in Latin America.

Methods A cross-sectional study, was carried out using a time series analysis, with data from Brazilian Information Systems. Data mining with WEKA software had been applied to evaluate the variables. The inclusion criteria were HIV diagnosis in the 2017 year, over 13 years who live in Porto Alegre City.

Results The incidence of HIV cases was 777 in Porto Alegre, in which the population is 1.500.000 inhabitants. There were 308(39.6%) women, 71(34.8%) blacks and mulattoes and 40 (5.1%) were pregnant. Of these, 60(7.7%) presented viral load above 100,000 copies/mL and 267(34.3%) below 10,000

copies/mL. The number of people with CD4 count below 200 was 26(3.3%) and 455(58.5%) people had a time interval shorter than 3 months between the diagnosis and the beginning of ART. ARTs with Tenofovir/Lamivudine/Dolutegravir and Tenofovir/Lamivudine/Efavirenz were prescribed in 566 (95%) of the 590 patients who started ART. Among the 777 cases, 521(67%) were diagnosed through the Rapid Test, which are offered primarily in PHC.

Conclusion The role of PHC was seen to be effective in reaching 90–90–90 Targets, since it has increased the diagnosis of HIV to immunocompetent individuals, facilitating easy access to first-line ART in short period of time. Future studies should be designed to investigate the role of PHC in the cascade of care for individuals with HIV. Information obtained from data mining can be applied to organize strategic interventions focused on local realities.

Disclosure No significant relationships.

P183 PREDICTORS OF *CHLAMYDIA TRACHOMATIS* AND *NEISSERIA GONORRHOEAE* ASYMPTOMATIC INFECTION IN HIV PATIENTS

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Background The prevalence of sexually transmitted infections (STIs), namely *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG), is rising, possibly as a consequence of the adoption of risky sexual behaviour as HIV infection prognosis improved. Most STIs are asymptomatic. Accordingly, treating only symptomatic patients has only a minor impact on the prevalence of such infections. This study aims to identify risk factors for asymptomatic CT and NG infection in a population of patients with HIV infection.

Methods We retrospectively evaluated the clinical records of 218 adult patients with HIV infection who were screened for NG and CT infection from July 2017 to June 2018 in a tertiary care teaching hospital. Urine, rectal, oropharyngeal and vaginal samples were tested by nucleic acid amplification test (NAAT). The association of independent variables with STIs occurrence was evaluated using logistic regression.

Results We identified 45 cases of STIs (25 NG, 20 CT), 20.64%. All patients were male. Although 95.6% of identified infections were extragenital, 96 (44%) patients collected only genital samples. In univariate analysis, STI was significantly associated with younger age, being a men who has sex with men (MSM), a higher CD4+ T cell count, having classic symptoms of STI in another location and a positive treponemic test. In a multivariate model being MSM (OR 5,011; 95%CI 1,286 - 19,519; p= 0,020) and having classic symptoms of STI in another location (OR 8,586; 95%CI 3,342 - 22,062; p=0.00) were independent risk factors.

Conclusion Although HIV patients are a risky population, with a high prevalence of STIs, it is not homogeneous and so it matters to identify those who had classic symptoms of STI in another location. Screening only in genital samples will miss the majority of infections.

Disclosure No significant relationships.

P184 **VAGINAL MICROBIOTA ASSOCIATED WITH ONCOGENIC HPV IN A COHORT OF HPV-VACCINATED WOMEN LIVING WITH HIV**

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Background The role of the cervico-vaginal microbiome in the incidence and persistence of HPV infection is not well understood, particularly in the context of HIV infection. It is critical to understand this relationship in women living with HIV (WLWH) due to much higher rates of HPV-related disease in this population.

Methods WLWH were offered three doses of qHPV vaccine in a multi-centre study. Visits were at months -3, 0, 2, 6, 12, 18, 24, and annually thereafter. Participants provided health data, HPV DNA samples, and cervico-vaginal swabs for microbiota sequencing (cpn60 amplicon). Persistent HPV was defined as the same HPV type in samples detected at ≥ 2 consecutive visits.

Results 283 cervico-vaginal microbiota samples from 186 women were sequenced (1–3 samples/woman). Samples were taken between 3–8 years post-vaccination. Participants were predominantly Black (39.2%) and Caucasian (37.1%). At baseline, the median age was 38 years (range: 13–66, IQR: 32–45), median CD4 count was 490 cells/mm³ (IQR: 370–680), and 67.4% had an HIV viral load <50 copies/mL. At the time of microbiota swab collection, median CD4 count was 619 (IQR: 409–794). Samples taken at the time of incident HPV detection (n=44) displayed significantly higher relative abundance of *Gardnerella vaginalis* A than samples without incident HPV. Samples from women with persistent oncogenic HPV infection (n=41) had greater relative abundances of *Porphyromonas uenonis* and *Prevotella timonensis* than samples without persistent HPV.

Conclusion This data supports previous reports of an association between *Gardnerella vaginalis* subtype A and HPV incidence. *Porphyromonas uenonis* and *Prevotella timonensis* should be further explored as potential co-factors in HPV persistence.

Disclosure No significant relationships.

P186 **NEISSERIA GONORRHOEAE INFECTIONS AMONG PEOPLE LIVING WITH HIV ON ART AT STI CLINIC IN KUMASI, GHANA**

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Background HIV infection is a risk factor for the acquisition and transmission of other sexually transmission infections

(STIs). Antiretroviral therapy (ART) suppresses viral load and generally improves the lives of people living with HIV (PLHIV) including resumption of sexual activities. This may lead to an increase in STI rates. We determined the prevalence of *Neisseria gonorrhoeae* among PLHIV who have been on ART

Methods This cross sectional study conducted among PLHIV between June and August 2018 employed a sensitive multiplex real time Polymerase chain reaction (PCR) assay that simultaneously detects the seven most common bacterial pathogens responsible for STI's. PLHIV attending a specialist STI clinic at Suntreso Government Hospital in Kumasi, Ghana who had been on antiretroviral therapy (ART) for more than 5 years were eligible for enrolment into the study. Informed consent was obtained prior to enrolment. Data was analysed using SPSS version 16.

Results There were 400 PLHIV enrolled into the study consisting of 224 (56.0%) males and 176 (44.0%) females. Majority 324 (81.1%) of the participants were asymptomatic. Overall, 245 (61.3%) of enrolled patients were positive for at least one of the seven pathogens tested. *Neisseria gonorrhoeae* was the most common pathogen 44 (10.1%) detected followed by *Mycoplasma genitalium* (26; 6.4%) and *Chlamydia trachomatis* (5; 1.3%). Only 3.9% of the participants with gonorrhoeae had symptoms.

Conclusion *Neisseria gonorrhoeae* remains an important causative pathogen for STI in persons living with HIV. There is the likelihood of most of these infections going undetected since most of them did not have symptoms. Improved diagnostic methods like PCR are needed to identify and treat such STIs effectively when PLHIV who are on ART.

Disclosure No significant relationships.

P187 **ANAL CANCER AND PRECURSOR LESIONS IN HIV-INFECTED PERSONS: A CLINICAL COHORT STUDY**

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Background Infection with high-risk human papillomavirus increases the risk of developing anal cancer (AC). AC is rare in general populations (incidence rate: 1.8 cases per 100,000 each year). However, recent studies have seen an increased number of AC among people living with HIV-1 infection (PLWH). We aimed to investigate AC regarding its incidence rate and sociodemographic characteristics in a HIV clinical cohort in the southeastern United States.

Methods Electronic health records between 2006 and early 2018 from an academic HIV Clinic at the University of Alabama at Birmingham were reviewed retrospectively. The HIV clinic treats more than 30% of total PLWH in Alabama. Patients with at least two clinical visits and aged 18 and above at HIV diagnoses were included. Age at AC diagnosis, self-reported race and sexual orientation were tested in univariate analyses. All significant variables were fitted in a multivariable logistic model adjusting for nadir CD4 counts and highest viral load (VL) prior to AC diagnoses or last clinical visits for non-AC subjects.

Results Among 4,484 PLWH (1632 whites, 2676 blacks, 176 other races; 1031 women, 3429 men, 24 transgenders) over a total follow-up of 22188 years, there were 43 ACs (all men, 24 whites, and 18 blacks). The median age at AC diagnoses was 52; 36 were men who have sex with men (MSM) and 7 were heterosexual men ($P < 0.0001$). The incidence was 267.2 cases per 100,000 men each year. Being male ($P < 0.0001$), MSM ($P < 0.0001$), white ($p = 0.03$), aged 45–54 years ($p = 0.02$), and with low nadir CD4 ($p < 0.0001$) were independently associated with AC.

Conclusion AC incidence among HIV-infected men was 148.4 times higher with earlier onset than general populations. However, public awareness of AC screening, specifically among the targeted population is lacking. This study can be valuable for the development of related screening programs and clinical practice guidelines for PLWH in the region.

Disclosure No significant relationships.

P189 EVALUATION OF APTIMA HIV-1 QUANT ASSAY PERFORMANCE USING PLASMA AND DRIED BLOOD SPOTS

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Background The Hologic *Aptima* HIV-1 *Quant* Assay that is currently available on the Panther system is FDA-cleared for plasma viral load monitoring. We compared to other assays for use with dried blood spots (DBS) and for early infant diagnosis (EID) using plasma and DBS.

Methods Spiked dilution panels of plasma and DBS were made using negative donor blood and subtype B and subtype C HIV-1 stocks. Patient samples included plasma from HIV-1-infected adults, plasma from HIV-1-infected infants and exposed uninfected infants, and DBS from infected adults. Samples were run on *Aptima Quant* and either *Abbott Real-Time HIV-1 Quant* assay or Hologic *Aptima HIV-1 Qual* assay.

Results *Aptima Quant* and *Abbott Quant* were comparable: the 95% limit of detection was 42cp/ml for *Aptima Quant* and 91cp/ml for *Abbott Quant*. EID comparisons showed that *Aptima Quant* and *Qual* had 100% sensitivity and 98.9% specificity with overall agreement between the assays of 98.4%. *Aptima Qual* had a slightly lower limit of detection (95% limit of detection was 27cp/ml for *Aptima Qual* and 65 cp/ml for *Aptima Quant*). With spiked DBS, all 16 DBS with >30cp/ml on *Aptima Quant* were detected on *Aptima Qual*, 10/12 (83%) with '<30 detected' on *Aptima Quant* were detected on *Aptima Qual*, and 2 of 14 (14.3%) with 'not detected' on *Aptima Quant* were detected on *Aptima Qual*. Among 200 DBS from infected adults, overall agreement between the *Aptima Quant* and *Aptima Qual* was 90% when '<30 detected' was counted as positive. 13 DBS from uninfected adults were negative on both assays.

Conclusion The Hologic *Aptima HIV-1 Quant* assay performed similarly for viral load and EID on both plasma and DBS samples. Our data suggest the '<30 detected' result could be used as the indeterminate range for *Aptima Quant* using DBS, as recommended by the new WHO guidelines.

Disclosure No significant relationships.

P190 THE ROLE OF HELPLINE COUNSELING IN HIV STATUS DISCLOSURE AMONG SEXUAL PARTNERS: A CASE STUDY OF TOLL FREE HELPLINE IN UGANDA

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Background Globally, 35.3 million people were living with HIV at the end of 2012. Sub-Saharan Africa remains most severely affected, with nearly 1 in every 20 adults living with HIV and accounting for 71% of the people living with HIV worldwide. Uganda has sustained some impressive response to HIV/AIDS epidemic grounded in a multi-sectoral approach coordinated by Uganda AIDS Commission. The response to stop and control HIV/AIDS has yielded many useful strategies and yet mistakes and missed opportunities. HIV/AIDS continues to be a major socio-economic challenge and is among the leading causes of morbidity and mortality given the increasing new infections due to status non-disclosure among sexual networks. Feedback from the Helpline indicate that those infected fear to disclose their HIV status to their sexual partners for many reasons thus the Helpline comes in to fill this gap through telephone counseling with timely responses

Methods Data from Telephone calls received from those fearing to disclose their HIV status to their sexual partners was reviewed. A random selection of feedback responses was sampled to find out how the Helpline was helping the community deal to with the problem

Results Sampled 400 positive feed backs from community members who had benefited from Helpline counseling revealed that timely telephone counseling empowered them to disclose their HIV status to their sexual partners because of the prevention benefits discussed with Helpline counselors. The helpline empowered and educated callers about HIV and other STIs status disclosure benefits especially prevention of new infections

Conclusion The results of this study reveal that Helpline counseling can be a helpful resource in HIV/STIs prevention by empowering those infected to disclose their status with their sexual partners to protect and prevent new infections.

Disclosure No significant relationships.

P191 SOUTH INDIAN LONG-DISTANCE TRUCK DRIVERS STILL AT HIGH-RISK FOR HIV/STI

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Background In a typical year, it is estimated that there are about 5 million long-distance truck drivers delivering goods on 3.3 million kilometers of roadways in India. Due to their high-risk behavior, truckers have long been considered a bridge population associated with the spread of sexually transmitted infection (STI) including HIV. The last national study of HIV prevalence in Indian truck drivers, completed in 2008, found an overall HIV prevalence of 4.6% and 2.7% for syphilis among long-distance truck drivers.

Methods Between July and December 2018, a cross-sectional study among long-distance truck drivers was carried out in four union halls in Mysore, Karnataka. After undergoing an informed consent process, all participants answered an interviewer-administered questionnaire. Blood samples were screened for HIV, Hepatitis B and HCV (ERBA ELISA, Trans Asia Biomedicals Ltd, Mumbai, India). Detection of Treponemal Antibodies was carried out using a Rapid Plasma Reagen test kit (ARKRAY Healthcare Pvt. Ltd., India).

Results The prevalence of HIV infection was 2.2% (95%CI: 1.1–4.0); Hepatitis B, 2.6% (95%CI: 1.4–4.6); and syphilis, 1% (95%CI: 0.3–2.5). There were no cases of HCV detected. Prevalence of any of the STIs was 5.9% (95%CI: 3.9–8.5). The mean age was 43.9 years (SD±7.49), 93% were married, 87% had no education or less than 10 years of education. About 81% reported their religion as Hindus. A majority (61.5%) belonged to a backward caste, scheduled caste or scheduled tribe. Religion and income were significantly associated with being diagnosed with any STIs.

Conclusion While prevalence for HIV and common STI appear to be going down in this population, rates are still moderately higher than those found in the general population. There is a need for continued interventions to prevent truckers from bridging HIV and Hepatitis to the general population.

Disclosure No significant relationships.

P192 HEALTHCARE WORKER RELATED STIGMA AND DISCRIMINATION TOWARDS PEOPLE LIVING WITH HIV IN ONE OF THE GOVERNMENT HOSPITAL IN BOHOL

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Background Stigma and discrimination of people living with HIV (PLHIV) are one of the most under researched area of HIV and provided a large gap in the HIV evidence bases. The major complication of this stigma becomes evident in the health seeking behavior of patients suspected to have HIV. The study primarily aimed at assessing the stigma and discrimination to the people living with Human Immunodeficiency Virus among health care workers at Governor Celestino Gallares Memorial Hospital.

Methods This study utilized a descriptive design. It made use of a standardized questionnaire assessing the personal profile of the respondents in terms of service affiliation and trainings on PLHIV stigma and discrimination received, and the seven identified domains of stigma and discrimination.

Results The findings revealed high levels of stigma and discrimination among the respondents on fear related to drawing of blood from a patient living with HIV or AIDS patient 81.59%, observation on healthcare workers providing poorer quality of care to a patient living with or thought to be living with HIV than other patients 77.04% and dressing the wounds of a patient living with HIV or AIDS patient 75.23%. On the other hand, low percentage was registered on attitude towards key populations ranging from 5.5%-13.61%. Further, the study have revealed that the institution have only 8.2% of personnel who were trained on PLHIV stigma and discrimination.

Conclusion Grounding on the findings, the researcher highly recommends integration of Stigma and Discrimination Orientation/Trainings on hospital personnel catering to key populations and PLHIV to reduce the current level of stigma and discrimination. Increasing the understanding and correcting misconceptions on PLHIV and its accompanying stigma and discrimination to health care personnel through orientation and trainings would provide better avenue on the provision of high quality HIV access to the targeted populations.

Disclosure No significant relationships.

P193 ASSESSING WOMEN PERSPECTIVES ON HIV TRANSMISSION RISK IN RURAL UPPER WEST REGION OF GHANA: A QUALITATIVE STUDY

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Background Despite the steps taken by the Government of Ghana towards preventing or eliminating mother-to-child transmission (MTCT) of HIV in line with key international recommendations and guidelines, MTCT of HIV prevalence rate still remain high in the rural Upper West region of Ghana. This study explored the perspectives of rural women on circumstances that may facilitate HIV transmission and prevention in a high MTCT of HIV prevalence districts.

Methods Qualitative methods involving 6 focus group discussions were conducted using semi-structured interview guide in three rural districts. A purposeful sampling method was used to select eligible participants. The data were analyzed using a thematic framework approach.

Results The study findings show that all participants have heard of HIV and AIDS. Both pregnant women and breastfeeding mothers' had knowledge that HIV can be transmitted from the mother to the child. With regards to specific transmission routes and stages of transmission, during pregnancy, during labour and delivery and through breastfeeding were mentioned. However, knowledge on MTCT was inadequate since some participants did not know that wet-nursing was one of the transmission routes. Wet-nursing practices were prevalent in these communities. Some reasons given for the practice included initial breast milk of the mother not good for the baby's consumption or health because it is dirty or contaminated. To get rid of the initial milk, a breastfeeding mother is engaged to breastfeed (wet-nurse) the new-born as custom demands until the so-called dirty breast milk is gotten rid of. Other traditional risky practices were circumcision and giving of tribal marks to the newborn by traditional birth attendants.

Conclusion The findings of our study revealed that traditional practices which could have negative outcomes on maternal and child health are still carried out in the study settings. Interventions that seek to change social behaviours by addressing cultural norms is desirable.

Disclosure No significant relationships.

P195 CREATION OF AN HIV CASE DEFINITION TO ASSESS THE QUALITY OF HIV CARE IN THE PRIMARY HEALTHCARE SETTING IN CANADA

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Background People living with the human immunodeficiency virus (PLHIV) have ongoing healthcare needs as HIV has become a chronic condition for those in treatment. With the success of antiretroviral (ARV) medications, AIDS-related illnesses are no longer the biggest threat to PLHIV, rather, emerging complications and ARV toxicities are of concern. For this reason, HIV care is now transitioning to primary care. To be able to assess the quality of HIV care in these settings a valid case definition is required. Our objective was to develop and validate a case definition for HIV applicable to the Canadian Primary Care Sentinel Surveillance Network (CPCSSN) database.

Methods Electronic Medical Record data from CPCSSN (exclusively primary care data) was used to develop a retrospective cohort between 2009 and 2016. We identified all possible records of HIV in the dataset based on the presence of HIV codes, keywords and ARVs. Every combination of codes, keywords and ARVs were analyzed to see which resulted in the most accurate definition of PLHIV. To assess the validity, we linked the data to a LHIV cohort (external reference standard) in Newfoundland and Labrador; and, a random sample of the CPCSSN database which was reviewed by two experts to confirm HIV status (internal reference standard). Sensitivity, specificity and predictive values were measured.

Results It was determined that the presence of an HIV keyword in the EMR along with either an ICD code or taking 3 or more ARV drugs was the most accurate algorithm for predicting PLHIV. Compared to internal and external references, the algorithm showed (97.1% and 95.0% sensitivity, 100% and 80% specificity), respectively.

Conclusion This is the first Canada-wide study investigating the utilization of primary healthcare by PLHIV. This case definition will contribute to future research and improvements in providing care to PLHIV in a primary care setting.

Disclosure No significant relationships.

P196 WIR-CENTER FOR SEXUAL HEALTH AND MEDICINE: A CARE MODEL TO COUNTER HIV/STI IN GERMANY

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Background Increasing incidence of sexually transmitted infections (STI) in Germany has shown the necessity of easily accessible sexual health services. Walk In Ruhr (WIR), a unique inter-institutional Center for Sexual Health and Medicine in Germany, unites the Outpatient Clinic, Public Health Department and four community-driven NGO. Together, they provide counseling, testing and treatment for different target groups (e.g. youth, MSM, swinger) in one building. Innovative methods in preventing HIV/STI [Online Partner Notification tool (PN), PrEP, Online Risk Test (ORT), HIV/STI-self-sampling-kit 'teST-It'] are developed and tested here. Health Advisers offer counseling, outreach-work and guidance to specialists.

Methods During a 21-month-evaluation-period, supported by the German Ministry of Health, clients completed a quantitative survey. Additional surveys, conducted independently by the WIR for PrEP- and 'teST-It'- users were included, the ORT, the PN usage and HIV/STI test diagnosis and treatment were analyzed.

Results The evaluation is ongoing. Until 2/2019 approx. 3.200 surveys will be completed. Initial results show that target groups differ regarding age, gender, sex-orientation, visit reason and WIR institutions they approach. Additional studies show that a quarter of the clients are HIV-positive. 10.5% of the clinic's patients and 10% of the Public Health Dept. clients were tested STI-positive. Treatment of *C. trachomatis* and *N. gonorrhoeae* was successful in 98% of all cases and in 93.5% of all *M. genitalium* cases. PrEP usage has been rising (144 new PrEP users since 10/2017) and the PN tool has been used 208 times since 06/2017. Since 12/2017, 4502 persons used the anonymous ORT. 'teST-It' is available since 09/2018.

Conclusion In contrast to common care concepts, WIR achieves high levels of recognition and acceptance among different target groups and the average population. The opportunity to access different organizations helps to meet the medical and counseling needs of the clients to reduce further transmission of HIV/STI.

Disclosure No significant relationships.

P198 DOLUTEGRAVIR ROLLOUT AND EXPECTED PREVALENCE OF PRETREATMENT DRUG RESISTANCE TO ANTIRETROVIRAL THERAPY AMONG KENYAN WOMEN

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Background The prevalence of pretreatment HIV drug resistance (PDR) to efavirenz-based ART is increasing in East Africa, which may decrease the effectiveness of antiretroviral therapy (ART) programs. The recent implementation of dolutegravir-based ART is an important strategy to address PDR. However, concerns about a potential increased risk of neural tube defects associated with use of dolutegravir by women at the time of conception will likely prevent a large proportion of women from using this drug.

Methods We developed an HIV simulation model to project the prevalence of PDR among Kenyan women prior to initiating ART, as well as to evaluate multiple health outcomes

among men and women, including rate of virologic failure, over a 15-year time horizon, starting in 2019. The model simulated the emergence and transmission of resistance mutations to efavirenz-based ART, calibrated to the Kenyan epidemic. Our base-case scenario assumed dolutegravir coverage gradually increased such that, by 2022, 100% of men initiating ART receive dolutegravir and only 40% of women initiating ART receive dolutegravir.

Results In 2019, the baseline PDR prevalence among women was 11.5%. In the base-case scenario, PDR prevalence peaked in 2021 to 12.3% and by the end of 2034 was 8.6%. On average over 15 years, among patients with PDR to efavirenz, 61.7% of men and 59.2% of women achieved viral suppression. When we assumed 100% dolutegravir coverage for women by 2022, PDR prevalence among women was 7.8% by the end of 2034.

Conclusion Although efavirenz-associated PDR prevalence is projected to decrease over time as dolutegravir coverage expands, the prevalence of PDR will remain high among women, even several years from now. It remains important to identify cost-effective strategies to address PDR in populations for whom dolutegravir is not an option, particularly women.

Disclosure No significant relationships.

P199 TRENDS IN MOTIVATION AND SETTING FOR HIV TESTING AMONG PEOPLE NEWLY DIAGNOSED WITH HIV IN BRITISH COLUMBIA, CANADA, 2003–2007

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Background In British Columbia (BC), Canada, new HIV testing guidelines introduced in 2014 recommended routine offer of HIV testing in an effort to diagnose HIV earlier. We assessed changes in motivation and setting for HIV testing that resulted in a new diagnosis of HIV to evaluate this strategy.

Methods In 2013, questions about who initiated testing (provider, client, or other/unknown), test setting (healthcare, community [e.g. outreach, peer], or other), and reason for testing (e.g. recent risk event, routine test, diagnosed with another sexually transmitted or bloodborne infection [STIBBI]) were added to the HIV case report form. Trends from 2003 to 2017 were assessed using Cochran-Armitage tests. HIV testing volumes were determined from the provincial laboratory, which performs >95% of all HIV tests in BC.

Results HIV testing increased from 223,300 episodes in 2013 to 337,900 in 2017. New diagnoses of HIV decreased from 265 in 2013 to 186 in 2017 (cumulative total 1,193). An increasing trend was noted for reporting testing in a health-care setting compared to community or other settings ($p<0.01$), especially among men who have sex with men

($p<0.01$) and people who inject drugs ($p<0.01$). Provider initiated testing was reported by half of all new HIV diagnoses and remained stable ($p=0.86$). There was a decreasing trend for reporting recent risk event/exposure ($p=0.03$) and being notified as a contact ($p=0.01$) as the reason for testing, and an increasing trend for reporting being diagnosed with another STIBBI ($p=0.03$). There was no trend in reporting the reason for testing as routine test ($p=0.74$).

Conclusion Routine offer of HIV testing may be increasing the proportion of HIV diagnosed in healthcare settings. The increase in proportion of new HIV diagnoses due to diagnosis of another STIBBI highlights the importance of co-testing of HIV and other STIBBIs.

Disclosure No significant relationships.

P202 DEVELOPING A DATABASE WITH SENSITIVE HEALTH INFORMATION: A PROFILE OF PEOPLE LIVING WITH HIV IN NEWFOUNDLAND AND LABRADOR

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10.1136/sextrans-2019-sti.350

Background In Newfoundland and Labrador (NL), people living with HIV (PLHIV) primarily receive care through an interdisciplinary HIV specialty clinic, however, HIV care has been transitioning to primary healthcare elsewhere. Developing a comprehensive cohort of PLHIV to help improve healthcare has long been the vision of researchers, clinicians and decision makers. The objective of this study was to develop a de-identified cohort of PLHIV in NL, to be used to inform policy and prioritize healthcare system changes to optimize HIV healthcare in NL and to address gaps in care for PLHIV.

Methods Data was collected from a number of different databases and PLHIV were identified as having HIV from three sources: 1. NL Public Health Laboratory data; 2. HIV Clinic data; 3. Medical Administration data.

Results The finalized dataset included 317 people who had been diagnosed with HIV in NL as of 1994 and 251 were still alive at the end of data collection. The final database contained a total of 178 variables describing PLHIV health and health care utilization. Only 7% of PLHIV were identified by all three sources suggesting no single provincial HIV data custodian captures all those living with HIV in the province.

Conclusion It is important that policy be implemented to merge siloed data sources in order to provide researchers, clinicians and decision makers with the accurate and complete data that is required to conduct sound and precise research, provide appropriate care and allocate resources to health initiatives that can improve the quality of life for PLHIV.

Disclosure No significant relationships.

P204 SERODISCORDANCE AND SEX PARTNER CONCURRENCY: EVIDENCE FOR RACIAL DISPARITIES IN HIV AMONG GAY AND BISEXUAL MEN (MSM)

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Background There are extreme racial disparities in HIV infection among MSM in the U.S. These disparities may in part be explained by racial differences in the transmission potential (i.e. mixing between infected and uninfected individuals) and structure (i.e. density) of sexual networks. The objective was to determine whether the association between HIV serodiscordance and sex partner concurrency differed by race among MSM sex partner dyads.

Methods Data came from the Understanding Sexual Health in Networks Study, an ongoing longitudinal cohort among MSM ages 18–45. Participants completed an egocentric sexual network survey with questions about 3 most recent sex partners in the past 3 months. An HIV serodiscordant partnership was defined as a dyad with a positive status index and a negative or unknown status partner or vice versa. Summary statistics, chi-squared tests, and logistic regressions adjusted for the nested structure of the data were used for hypothesis testing.

Results 163 MSM reported on 354 (median: 3, range: 0–3) sex partnerships. MSM were 63.2% Black (BMSM), on average 29.4 (SD 5.96) years old, and 33.6% reported condom use at last sex. There were no differences in age or condom use by race. Among partnerships, index BMSM (vs. non-BMSM) were more likely to report serodiscordant partnerships (48.8% vs. 14.4%, p -value<0.001) but not sex partner concurrency (87.4% vs. 77.8%, p -value 0.29). Among BMSM, sex partner concurrency was significantly associated with 4.97 higher odds (95% CI: 2.26, 10.91) of having a serodiscordant partnership, and this association was not significant among non-BMSM.

Conclusion Among BMSM dyads, we found evidence of the necessary and sufficient causes for HIV transmission including mixing between infected and uninfected individuals (i.e. serodiscordance) combined with dense sexual network structures (i.e. sex partner concurrency) and we did not find this evidence among non-BMSM dyads. These factors may help explain persistent racial disparities in HIV.

Disclosure No significant relationships.

P205 HIV NON-B SUBTYPES IN SAN FRANCISCO: MIGRATION BUT LITTLE LOCAL TRANSMISSION

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Background Several HIV non-B subtypes and recombinants have been documented at low frequencies in the US. We

characterized the viral diversity, epidemiology, and extent of local transmission and migration of non-B subtypes in San Francisco.

Methods Viral sequences from patients in care at local public and private health providers (2000–2016) were matched to the San Francisco Department of Public Health HIV/AIDS case registry. Phylogenies were reconstructed for the *pol* region of subtypes A1, C, D, G, CRF01_AE, CRF02_AG, and CRF07_BC sequences, with reference sequences from the LANL HIV database. Local transmission and global migration frequencies were compared based on phylogenetic topology. Epidemiologic associations between non-B subtypes and patient characteristics were assessed by multivariate logistic regression.

Results Of the 11,382 viral sequences subtyped, 10,669 were matched to 7,236 registry cases. Fourteen non-B subtypes and CRFs were observed. Among registry cases, 141 (2%) had non-B subtypes or CRFs, and 72 (1%) had unnamed recombinant forms. The proportion of non-B subtypes increased over time. Of the 146 non-B transmission linkages identified, 104 (71%) appeared to represent migration from outside the study dataset, of which 86 (83%) had no close linkage to US reference strains. Twenty-six cases (18%) appeared to be local transmission, clustering with other sequences in this analysis. Of the 77 registry cases born outside of North America, 54 (70%) were phylogenetically linked to the case's region of birth. Cases with non-B subtypes or CRFs were associated with Asian/Pacific-Islander race/ethnicity (aOR=3.17; p <0.001), non-US birth country (aOR=11.02; p <0.001) and HIV diagnosis after 2009 (aOR=4.81; p <0.001).

Conclusion Non-B subtypes were present at low but increasing frequency in San Francisco. Local transmission of non-B subtypes appeared to be limited, as most non-B infections were likely acquired outside the US. Knowledge of subtype diversity can provide a better understanding of HIV global migration patterns, and inform treatment and prevention efforts.

Disclosure No significant relationships.

P206 THE SPECIFIC CONTRIBUTION OF EACH DATA SOURCE IN A POPULATION-BASED ADMINISTRATIVE DATA COHORT FROM MANITOBA, CANADA

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Background In the development of administrative data case-definitions for HIV, it is important to understand the contribution of each data source to prevalence estimates, especially as it pertains to generalizability of methods.

Methods HIV case-definitions were constructed from four population-based databases available in Manitoba: physician claims, hospital discharge, pharmaceutical dispensations, and provincial laboratory tests. Performance was assessed using sensitivity, specificity, positive/negative predictive value (PPV & NPV), and Youden's index (YI). Cases identified by HIV case-definitions, and those reported to public health surveillance

were compared using annualized incidence. The distribution of those flagged as HIV-positive was compared by database.

Results

The best performing case-definition (YI 0.71) was two or more HIV diagnoses in two years in physician claims, or in hospital discharge abstracts; or 14 or more HAART dispensations in two years; or one positive HIV laboratory. Sensitivity, specificity, PPV and NPV was 82.3% (95%CI: 79.1%-85.5%), 86.8% (95%CI: 84.9%-88.7%), 74.1% (95%CI: 70.6%-77.6%), 91.4% (95%CI: 89.8%-93.1%), respectively. Annualized incidence (2009–2015) calculated from this case-definition was 7.4/100,000 persons (95%CI: 6.8–8.1); annualized incidence calculated from surveillance data was 7.7/100,000 persons (95%CI: 7.1–8.3). Approximately 76% of cases would have been flagged through a positive laboratory; 43% through pharmaceutical claims; 34% through physician claims; and 11% through hospital abstracts. 95% of cases would have been flagged through the combination of laboratory and pharmaceutical databases. Only 4% of cases were flagged in all four data sources.

Conclusion Although the combination of four databases produced the most complete prevalence snapshot, laboratory data was the most important contributor. The combination of laboratory and pharmaceutical databases would have identified the predominant majority of cases in our sample. Findings can be used to inform the construction of administrative data cohorts where the availability of population-based data sources may be more limited.

Disclosure No significant relationships.

P207 BURDEN OF OPHTHALMIA NEONATORIUM AMONG BABIES OF PLHIV AT A DISTRICT HOSPITAL IN KUMASI, GHANA

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Background Ophthalmia neonatorum, also called neonatal conjunctivitis is a complication of *Neisseria gonorrhoeae* and *Chlamydia trachomatis* infections characterized by copious eyes discharge of newborn babies of infected untreated genital women. We examined babies born of women to determine the prevalence of ophthalmia neonatorum.

Methods This descriptive retrospective study reviewed the records of 257 babies aged 3 days to 14 days, of lactating women accessing care at the STI Clinic of the Suntreso Government Hospital in Kumasi Ghana from January to August 2018. Socio demographic characteristics as well as the clinical records and pregnancy details of the babies and mothers respectively were collected. Data was analysed using SPSS version 16.

Results 56 (26.5%) of the 257 babies were from HIV positive mothers who have been on ART for over 2 years. 61.5% (158/257) of the babies had uneventful delivery while 38.5%

(99/257) were delivered through caesarean section on account of breach presentation and foetal distress. 47.3% (122/257) of the mothers were symptomatic for vaginal discharge. A total of 211 (82.1%) of the babies were diagnosed and received syndromic treatment for Ophthalmia neonatorum. Of this number 20.4% (43/211) were babies of HIV positive mothers and represented 76.8% (43/56) of the total number of babies of the HIV positive mothers. The study found a significant association ($p < 0.000$) between babies with Ophthalmia neonatorum (98/122) and symptomatic mothers as well as HIV infection ($p < 0.001$).

Conclusion HIV infection is a risk factor for sexually transmitted infections Ophthalmia neonatorum remains a significant contributor to morbidity among babies born to Persons living with HIV. HIV positive women in the reproductive age group may have to be screened and treated for sexually transmitted infections in order to prevent further transmission to babies.

Disclosure No significant relationships.

P208 TESTING AND TREATING GENITAL AND EXTRA GENITAL BACTERIAL INFECTIONS IN HIV INFECTED PATIENTS: LESSONS LEARNED

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Background Current evidence supports the screening of *Neisseria gonorrhoeae* (NG) and *Chlamydia trachomatis* (CT) in symptomatic disease in all sites with risk for carriage. The purpose is to increase the accuracy of diagnosis and prevent missed asymptomatic infections. This study aims to describe the incidence and aetiology of urethritis, proctitis and ulcers and compliance to additional screening.

Methods Retrospective study of three major syndromes diagnosed in a cohort of HIV positive patients (2430 patients) followed in a tertiary care hospital between July 2017 and June 2018.

Results We identified 86 patients with symptomatic infections. Most of them were in men who have sex with men. Twenty-nine (34%) of these infections were urethritis. Almost half (48%) were by NG, with 3 (10%) additional NG infections detected in the anus and 6 (21%) in the oropharynx. CT caused 7 cases (21%) and in 2 cases it was detected exclusively in other sites. For all urethritis cases, 13 (48%) weren't screened for NG/CT in the anus or oropharynx. Half of NG cases did not make a cure test. There were 17 proctitis: 6 (35%) by NG and 9 (53%) by LGV CT. Nine patients (53%) didn't perform partner screening. Finally, there were 25 diagnosis of ulcers (23 genital; 2 oral). Eleven (44%) had no identifiable cause and 8 (32%) were primary syphilis. Of all cases, 11 (44%) had no screening at other risk sites. More than half of the partners (68%) were screened.

Conclusion The prevention of these infections through screening of all at risk sites, NG cure tests and partner screening can be challenging: it is time consuming, there may be limited interested in the treated patient for cure tests and the partners may be unknown or unwilling to be tested if asymptomatic.

Continued efforts to improve our practice and patient's adherence is essential.

Disclosure No significant relationships.

P209

PRODUCTIVE IMPACT OF ASSISTED REFERRALS AND INCENTIVIZED ENROLLMENT ON THE UPTAKE OF HIV SERVICES IN LAGOS STATE, NIGERIA

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Background Nigeria has the second highest global prevalence of Human Immunodeficiency Virus (HIV), with over two million children (0–17 years) made vulnerable by HIV, having lost either or both parents to Acquired Immune Deficiency Syndrome (AIDS). The Association for Reproductive and Family Health (ARFH) is implementing a five year Local Partners for Orphans and Vulnerable Children (OVC) Project in Nigeria, with support from the United States Agency for International Development (USAID), to mitigate the impact of HIV/AIDS on children and vulnerable households, in Lagos State. Poverty remains a major driver of HIV in Nigeria.

Methods Strategies include HIV Risk Assessments, Assisted Referrals and incentivized enrollment. The Community Volunteers (CVs) accompany those referred for HIV Testing Services (HTS) to health facilities, results are collected and HIV positives are counselled and linked to treatment same day. Incentivized enrollment on treatment is for indigent enrollees, to promote retention. The sum of \$25 is provided in three equal instalments as coupons, redeemed on producing evidence of enrollment on treatment, and two subsequent drug refills.

Results All the 43,495 enrollees (males: 16,908, females: 26,587) know their HIV status. The data subsets include 31,396 OVC (males: 15,482, females: 15,914) and 12,099 Caregivers (males: 1,426, females: 10,673). Increased yield of persons living with HIV was recorded. A total of 3,418 enrollees (males: 865, females: 2553) tested HIV positive and have been linked to treatment. The subsets of HIV positive enrollees include 753 OVC (males: 378, females: 375) and 2665 Caregivers (males: 487, females: 2,178).

Conclusion Implementation of 'Assisted Referrals' and 'Incentivized Enrollment' on treatment, will increase access to HTS, linkage and retention on treatment and adherence for viral suppression, thereby contributing to UNAIDS 95–95–95 Goal. Absolute achievement was recorded on this project, with all the 43,495 enrollees knowing their HIV status and 3,418 that tested positive placed on treatment.

Disclosure No significant relationships.

P210

ALINITY M HIV-1 ASSAY: DESIGN AND PERFORMANCE

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Background HIV is characterized by a high degree of genetic diversity, presenting a challenge for the development of assays for initial diagnosis and subsequent monitoring of therapy

response. Alinity m HIV-1 was developed on the Alinity m System, a fully automated, random/continuous access analyzer, to achieve accurate quantitation across groups, subtypes and circulating recombinant forms (CRF), concurrent HIV-1 confirmation and viral load monitoring in plasma, confirmation in serum.

Methods Abbott's Global Surveillance program was utilized to identify the most conserved target regions across HIV-1 variants. The assay targets two HIV-1 genomic regions and utilizes partially double-stranded probes, RNA-specific sample preparation chemistry, unit-dose lyophilized amplification reagents, and patented Readiflex™ sample processing logistics to deliver a time-to-first-result of 115 minutes. The Alinity m HIV-1 assay was evaluated for key performance attributes.

Results Alinity m HIV-1 demonstrated linearity from 10 to 20,000,000 Copies/mL and demonstrated a within-laboratory SD of ≤ 0.13 Log Copies/mL from 2.3 to 7.4 Log Copies/mL. Probit analysis demonstrated that the assay detected HIV-1 RNA with 95% probability at 13.88 Copies/mL using 3rd WHO HIV-1 Standard (subtype B). The assay exhibited $\geq 95\%$ detection for HIV-1 group M subtypes, groups O and N at 20 Copies/mL. Correlation between Alinity m HIV-1 and Abbott RealTime HIV-1 assays demonstrated a mean bias of -0.03 Log Copies/mL (95% CI: -0.05 to 0.00). Confirmatory method agreement between Alinity m HIV-1 assay and comparator HIV-1 assay was 100%.

Conclusion The Alinity m HIV-1 assay utilizes a state of the art instrument system and dual-target assay design to deliver highly sensitive detection of diverse HIV-1 groups/subtypes and accurate quantitation across a wide dynamic range while facilitating rapid turnaround time (115 minutes) and workflow flexibility. By providing confirmation and baseline viral load measurement in one test, the assay reduces the number of steps required for initial diagnosis of infection.

Disclosure No significant relationships.

P211

REPRODUCTIVE OUTCOME AND FETAL GROWTH IN HIV-INFECTED PREGNANT WOMEN AT A UNIVERSITY HOSPITAL IN VITÓRIA, BRAZIL

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Background The infection by the human immunodeficiency virus (HIV), as well as the acquired immune deficiency syndrome (Aids), a worldwide epidemic, may lead to serious consequences in terms of maternal and fetal morbidity and mortality. The objective of this study was to describe the reproductive outcome and fetal growth in HIV-infected pregnant women and verify its relation to the antiretroviral use and severity of HIV infection.

Methods Cross-sectional study, with 122 pregnant women infected by HIV who had their termination in a university hospital maternity in Vitória, state of Espírito Santo, Brazil, from November 2001 to November 2014. The data was extracted from medical and public records in regard to gestational age, HIV status, antiretroviral use, and fetal dimensions.

Results Preterm birth occurred in 15.6% (19/122), low birth weight (LBW) in 22.1% (27/122) and small for gestational age fetal weight in 19.7% (24/122) of cases, without significant variation due to the HIV-status (only infected or Aids) or anti-retroviral use.

Perinatal death occurred in 4.1% (5/122) of the cases. The Apgar score of less than or equal to 7 in the first minute was observed in 7.4% (9/120) and Zidovudine intravenous in prepartum was used in 92.5% (110/120) of cases. After a follow-up of more than 18 months of post-natal life, vertical transmission (TV) was verified in 6 cases (4.9%; 6/122).

Conclusion LBW, small for gestational age fetal weight, preterm birth and perinatal death occurrences were higher than the expected values in this research, indicating the need for preventive actions.

Disclosure No significant relationships.

P212 PSYCHOSOCIAL FACTORS AFFECTING THE CAREGIVERS OF PEDIATRIC HIV PATIENTS IN RETURNING FOR TREATMENT

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Background Stringent HIV treatment adherence is paramount for expanding life and decreasing mortality (Adefolalu & Nkosi, 2013). However, pediatric adherence to therapy is a complex multifactorial issue that is affected by many issues such as characteristics of the child, caregiver(s), family, regimen, and culture (Haberer and Mellins, 2009). This study aims to explore the psychosocial influences on adherence through examining patient and caregiver return to clinic for treatment. The psychosocial influences we plan to investigate can be divided into the following: Stigma, women's empowerment, socioeconomic factors, stress, and family characteristics.

Methods 67 caregivers of pediatric HIV patients from Shirati Hospital in Tanzania were given quantitative surveys regarding psychosocial barriers to returning the patient for HIV treatment. Survey questions included topics about income, primary caregivers, stigma about HIV, average number of people known with HIV, transportation, stress levels, missed HIV appointments and skipped medication treatments.

Results Data was split into adherent and non-adherent groups. Non-adherent group missed either an appointment or medication dosage for the patient in the past 6 months (G1). Adherent group had not missed either (G2). Percentage male patient: G1: 63.6%; G2: 51.1% Average caregiver age: G1: 39.5 years; G2: 36.5 years Caregiver sex: G1: 41.7% male; G2: 19.2% male Caregiver relationship to patient: G1 41.7% mother; G2: 56.6% mother Person taking patient to clinic is primary caregiver: G1: 63.6%; G2: 80% Patient has more than one caregiver: G1 41.7%; G2: 52.7% Caregiver at clinic believes HIV is shameful: G1: 9%; G2: 31.5% Easily able to get clinic: G1: 25%; G2: 49% Perceived stress levels: G1: 3.37, G2: 2.96 (1–5 scale)

Conclusion Summary of unique findings include the adherent group displaying increased shameful preceptions of HIV. The non-adherent group had an increased average caregiver age and were more likely to be caring for a male patient.

Disclosure No significant relationships.

P216 GENDER-BASED VIOLENCE AND THE ASSOCIATED PSYCHOSOCIAL AND MENTAL HEALTH ISSUES AMONG FILIPINO HIV-POSITIVES

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Background Gender-based violence (GBV) has generated practitioners' and researchers' interest since the surge of the women's movement few decades ago in the Philippines. Meanwhile, HIV-AIDS gained similar attention with the disclosure of the first ever case of the country in mid-80s. Only recently, however, has the intersectionality of these two phenomena been looked into by the research community elsewhere and has yet to be systematically studied locally. This research, therefore, attempts to map out the lived experiences of People Living with HIV (PLHIV) who have undergone gender-based violence (GBV) and looks into the consequent psychosocial and mental health issues.

Methods We used qualitative design to describe and understand the participants' gender-based violence (GBV) experiences relative to their becoming HIV-positives. Data was generated by a partner health non-government organization (NGO), the Action for Health Initiatives, (Achieve, Inc.), by recruiting 24 participants from the highly vulnerable groups of HIV positives, namely: entertainers/sex workers; men having sex with men (MSM); overseas Filipino workers (OFWs), and injecting drug users (IDUs) who were initially part of a survey done on a related study.

Using focus group discussion and in depth interviews, the participants were asked about the gender-based violence that they experienced early in life, about their experience with the Human Immuno-Deficiency virus (HIV), and about the psychosocial impact of these in their lives. In agreement with the partner NGO, the authors did the thematic analysis on the accounts generated.

Results Thematic analysis reveals that the participants experienced various forms of gender-based violence, e.g., sexual, emotional/psychological, economic, verbal, physical; and expressions of stigma and discrimination, which in turn, led to manifestations of psychosocial and mental health issues like trauma, depression, internalized homophobia, greater health risks and risk-taking behaviors, among others.

Conclusion Worth considering is the possibility that the consequent risk-taking and self-injurious tendencies played a role in their eventual contraction of HIV.

Disclosure No significant relationships.

P217 'STIGMA AND LEVEL OF CARE AMONG HEALTH CARE PROVIDERS TO HIV/AIDS PATIENTS'

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Background According to United Nations, 'Philippines has become one of eight countries that account for more than 90 percent of new HIV infections in the region'. (Regencia, 2018) Nonetheless, despite interventions adopted, challenges persist that hinder the efficient implementation of HIV/AIDS program.

Methods The method employed is the Descriptive Correlational Method, a standardized questionnaire on stigma and researcher made questionnaire, to assess level of care and characteristics. Respondents were physicians, nurses, HIV/AIDS Core Team and medical technologists from three different training hospitals in Cagayan de Oro City that underwent Cluster Sampling. Results were statistically analyzed through Spearman Rho for the correlation between characteristics, Stigma and Level of Care and Mean frequency for variables among three training hospitals.

Results Majority of the respondents had an average age of 26 to 30 years old (41.2%), female (62.2%), Roman Catholic (72.5%) and College graduates (72.9%), followed by medical degree holders at 8.4%. Nurses comprised 69.3% followed by physicians at 9.2%, a majority with an average of one (1) to five (5) years in practice (51.4%). Religion, profession, workplace and years of experience were significantly correlated with Stigma and years of practice and place of work showed significant relationship with Level of Care. Stigma was inversely correlated with Level of care. Stigma among three hospitals, public and two private hospitals scored average with the highest mean coming from one private hospital at 113.42 compared to a public hospital with a mean of 107.25.

Conclusion It can be determined that there is marked stigma among healthcare workers in Northern Mindanao towards HIV/AIDS patients with a correlate effect on the care and services provided.

Disclosure No significant relationships.

P218 DETERMINING THE NEUROCOGNITIVE STATUS AND FUNCTIONAL ABILITY TO SCREEN FOR HIV-ASSOCIATED NEUROCOGNITIVE DISORDER (HAND)

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Background To adequately evaluate the extent of neurocognitive impairment in PLHIV, a battery of neuropsychological tests is typically administered which are neither cost effective nor time efficient in the outpatient clinical setting. The aim of the study was to assess neurocognitive status and functional ability of people living with HIV and find a brief screening tool to identify those who would benefit from a full diagnostic evaluation.

Methods The study enrolled 160 Patient living with HIV (PLHIV) (80 pre-ART and 80 On-ART) fulfilling the inclusion and exclusion criteria from March 2014 to January 2019. Neurocognitive assessment and an assessment of Functional ability was done by using the Montreal Cognitive Assessment (MoCA) and Lawton and Brody IADL Scale respectively.

Results The study population consisted of 75.6% males and 24.4% females with mean age of 44±10 years. All of the subjects were literate (61.2% subjects had received up to High school level education) and 76.2% were married. The mean duration of HIV infection among ART naive PLHIV and those

on ART was 2±1.33 years and 3±2.10 years respectively. The overall prevalence of HAND in the study subjects was 52.5%. Of these, 47.5% had ANI and 5% had MND. In MoCA, the most frequently affected domains were Language (97.6%), visuospatial ability (92.9%) and memory (71.4%).

Conclusion The prevalence of HAND in both groups were similar suggesting that neurocognitive impairment starts early in HIV infection. Older age (>40 years) and fewer years of formal education were statistically associated with the presence of HAND. HAND involves both cortical and subcortical regions of the brain. Memory and Visuospatial function impairment had the most predictive potential for detecting the presence of HAND. HAND screening is recommended in all PLHIV at enrolment into care. Simple tools like MoCA can be used in busy outpatient settings by healthcare workers to screen for HAND.

Disclosure No significant relationships.

P219 PROFILE OF PATIENTS WHO UNDERWENT RAPID STI TESTS AT A HEALTH UNIT IN THE BRAZILIAN CAPITAL CITY WITH THE HIGHEST HIV RATE

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10.1136/sextrans-2019-sti.363

Background From 1980 to June 2018, 926,742 cases of AIDS were identified in Brazil, with an average of 40,000 new cases in the five years. Porto Alegre, the capital of the state of Rio Grande do Sul in the south of Brazil, presented a rate of 60.8 cases/100 thousand inhabitants in 2017, more than twice the rate of the state as a whole and 3.3 times higher than the overall Brazilian rate. The guarantee of treatment for all in 2013 contributed to the drop in rates, in addition to expanding access to testing and reducing the time from diagnosis to the start of treatment. The aim here is to evaluate the profile of the patients who underwent a rapid test for HIV and other STIs offered at a primary health care unit in Porto Alegre.

Methods An observational, cross-sectional epidemiological study with six years of collection was completed in December 2018 for the study. Profile differences between patients with positive and negative results were examined for the tests they underwent. The level of significance was 5%.

Results Of the 1717 patients tested, 68.7%(n =1164) were women, 33%(n =385) pregnant, 9.4%(n =140) with more than 12 years education, 3.3% illiterate, and 4.7% street dwellers. Of the total, 7.4% (n =122) were HIV positive, 2.8%(n =39) for hepatitis C, 0.8%(n =9) for hepatitis B, 15.6%(n = 267) syphilis reagents, and 1.4%(n =23) had tuberculosis. Compared with sociodemographic variables, there was a statistical difference in relation to HIV, with a higher proportion of women (p =0.003), and a lower educational level (p =0.02).

Conclusion The results showed a vulnerability to HIV infection related to socioeconomic issues and the female sex. Gestation appears as an opportune time for diagnosis since rapid test should be taken in the first trimester, the third trimester, and at the time of delivery.

Disclosure No significant relationships.

P220 OPPORTUNITIES AND CHALLENGES TO THE RITUALS OF CARE THAT CIRCUMVENT MISDIAGNOSIS AMONGST RAPID HIV TESTERS IN ZIMBABWE

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10.1136/sextrans-2019-sti.364

Background There is uncertainty associated with all medical testing and diagnosis. However, a growing number of studies highlight disconcerting levels of misdiagnosis in the scale-up of HIV rapid testing programmes. Evaluation studies point to user errors as potential sources of misdiagnosis, yet very little has been done to understand the views and experiences of clinicians and primary counsellors who perform rapid HIV testing.

Methods This study draws on interviews with 28 health facility staff who perform rapid HIV tests on a daily basis. The testers were recruited from 11 health facilities across Zimbabwe, eight of which have above average rates of misdiagnosis. Interviews were translated, transcribed and thematically interrogated.

Results Reflecting on their rapid HIV testing practices, potential sources of misdiagnosis included uncertainties associated with new testing algorithms and test kits; reading test results too quickly or too late; misreading of test results if the test produces faint or unclear lines; and failure to record and document test results accurately. Anxiety about potentially making such mistakes and the resulting feelings of guilt and self-blame in the case of a wrong diagnosis being handed out meant that testers found comfort in complying with standard operating procedures and associated quality controls. Misdiagnosis was thus portrayed as a result of deviating from 'rituals of care'. The testers located deviance from the procedures in the wider context of high workloads and growing demands for HIV testing, arguing that distractions, and HIV test kit stock-outs occasionally made it difficult for testers to follow the procedures.

Conclusion Rather than attributing misdiagnosis to malfunctioning test kits or complicated standard operating procedures, testers saw misdiagnosis largely as human error – failure to follow laid out procedures. Their recognition of how a resource-depleted work and HIV testing environment can contribute to misdiagnoses, highlight the need to adequately resource HIV rapid testing programmes.

Disclosure No significant relationships.

P222 LIVING WITH HIV/AIDS IN ADOLESCENCE: FACTORS FOR ADHERENCE TO THERAPEUTICS

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Background Coelho SJ. Living with HIV/AIDS in adolescence: factors for adherence to therapeutics. Dissertation (Master Degree)– Faculdade Israelita de Ciências da Saúde Albert Einstein – (FICSAE) *Israeli College of Health Sciences Albert Einstein*, São Paulo, 2019. 126f.

Methods Descriptive, qualitative and exploratory research with adolescents (10–19 years old) under treatment for HIV, in the unit that sets the benchmark for the treatment of HIV/AIDS in Salvador-Ba. EI: evaluation of database on adherence and socio-demographic characteristics of adolescents. EII: collection, through electronic chart, of information on sexual awakening, diagnosis and treatment. EIII: interview with the adolescents. For the analysis of data, it was used the technique of Bardin Content Analysis and the Health Beliefs Method.

Results The analysis of reviews resulted in four categories: perception of susceptibility to HIV, perception on the severity of HIV, noticed benefits and barriers for the adherence to treatment. The lack of knowledge on HIV/AIDS, and unsafe sexual practices because of trust in the partner and/or stable relationships, showed low susceptibility to HIV/AIDS. Under the perception on the severity, they related the disease to critical condition and death; and that using illicit drugs and the religious extremism related to the cure, can alter the perception on the severity of AIDS. Support from the family, school, friends and health services, faith and religious practices were reported as fundamental for the treatment. Absence of family support and lack of discussions on the topic in schools, beyond prejudice and discrimination from friends, abusive use of drugs and extreme religiosity were factors that were said to hinder the treatment.

Conclusion There is slack of knowledge regarding HIV/AIDS with low perception of susceptibility in the acquisition of the virus. They highlighted the importance of the family, friends, school, faith and religious practices, and the work of the professionals for the adherence of the treatment.

Disclosure No significant relationships.

P223 PREVALENCE OF REPRODUCTIVE TRACT INFECTIONS AND HIV ON PREGNANT WOMEN IN SOME AREAS IN INDONESIA, 2016–2017

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Background Control and prevention of Reproductive Tract Infections (RTI), including Sexually Transmitted Infections (STI) and HIV, is principal during pregnancy. The infections prevalence data of Indonesia general population is still rare, while the number of housewives having HIV arising. We conducted research about the prevalence of RTIs and HIV in pregnant women in some parts of Indonesia to understand the circumstances.

Methods The cross-sectional research conducted 2016–2017 in Pekanbaru City, Tangerang District, Bandung City, and Kupang City. There were 170 respondents in each site who were taken from the Mother-Neonatal-Children-Health clinics on chosen Public Health Centers. Data collection accomplished with local team through interview, biomedical sample collection, and laboratory analysis. The microbial pathogen tested were Gonorrhoea, Chlamidiasis, Syphilis, Trichomoniasis, Bacterial Vaginosis, Candidiasis, Herpes simplex-2, and HIV. Also, we collected behavior, demographic, and pregnancy checkups

data of the respondents through structured questionnaire. Data analysis was done using SPSS.

Results The respondents were mostly housewives on the age range of 20–34 years and finished Senior High School, officially married, but only half of them that living in Kupang officially married. Their husbands generally worked as non-professional and merchant. The sex behaviors of the pregnant women were categorized as not risky, but 47–78% having sex in the last week without condom. Only 10% were referred to STI clinic for being checked up and receive consultation. Prevalence rates of infections on these pregnant women were: Chlamydia 5.9–6.6%; Gonorrhoea 0.6–0.7%; Syphilis 0–1.8%; Trichomoniasis 0.6–9.5%; Bacterial Vaginosis 18.8–65.1%; Candidiasis 13–45.6%; Herpes Simplex-2 IgM 0.7–39.2%; Herpes Simplex-2 IgG 0–7.8%; and HIV 0–1.8%.

Conclusion The prevalence rates of RTIs-STIs in pregnant women in this study were high and as high as previous study in 1990s. This is urgent and need strategies to support more of the output of the program in all part of Indonesia as the rising of HIV prevalence in Indonesia.

Disclosure No significant relationships.

P225 PRACTICAL COGNITIVE SCREENING FOR PATIENTS WITH HIV

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Background In clinical practice it is imperative that patients with HIV, especially those with a concomitant mental illness, be screened for cognitive deficits. Not only is this important to document baseline levels of cognitive function, monitor for onset or progression of HIV-dementia, but to provide tools to improve treatment compliance for patients who demonstrate cognitive deficits. This study endeavored to determine what cognitive screening tools were most practical and effective to assess this population.

Methods HIV-positive participants were recruited from a psychiatric inpatient facility. Participants were administered five cognitive screening tools: Repeatable Battery for the Assessment of Neuropsychological Status (RBANS), Montreal Cognitive Assessment (MoCA), Mini-Mental Status Examination (MMSE), Trail Making Test- Parts A and B (TMT), and Wisconsin Card Sorting Test (WCST). The sample consisted of 21 participants with diagnoses including bipolar disorder (42%), schizophrenia/schizoaffective disorder (25%), depressive and anxiety disorder (17%), psychotic disorder not otherwise specified (8%), delusional disorder (4%), and adjustment disorder (4%). (Diagnostic and Statistical Manual of Mental Disorders- Fourth Edition was utilized.) Fifty-eight percent of the sample had co-occurring substance use disorders.

Results The mean age of participants was 42.08 years with 13.25 years of education. Ninety six percent of the sample were male. Fifty eight percent of the participants were Caucasian and 21% were Hispanic and 21% African American. Fifteen percent of the sample were newly diagnosed HIV-positive. Cognitive deficits were found on most of tools utilized. The RBANS demonstrated the most cognitive deficits consistent with the known literature in this population. The RBANS specifically revealed impairments in domains of

delayed memory and attention. This, in turn, translates into problems retaining verbal and visual information.

Conclusion Development of cognitive assessment tools that can be utilized by non-psychologists to target this high-risk population is necessary as an important prognostic and treatment guide.

Disclosure No significant relationships.

P226 SELF-ESTEEM, BODY IMAGE, AND SUBCULTURE IDENTIFICATION AMONG GAY, BISEXUAL, AND OTHER MEN WHO HAVE SEX WITH MEN

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Background Previous research shows that low self-esteem may negatively affect self-efficacy, increase substance use, and underlie some patterns of risky sexual behaviour. This suggests low self-esteem may hinder the prevention of HIV and other sexually transmitted infections (STI). Therefore, we explored factors related to self-esteem among gay and bisexual men (gbMSM), including associations with risk behaviour.

Methods Between 2012–2015, we used respondent-driven sampling to recruit sexually-active HIV-positive and HIV-negative gbMSM, aged ≥ 16 in Metro Vancouver. Participants completed visits every 6-month until 2018. Generalized estimating equations identified correlates of self-esteem (study $\alpha = .90$, range = 0–21), including key measures of sexual behaviour, substance use, social embeddedness, body image, and sub-cultural identification.

Results Among 541 participants, 3,497 visits (Median: 7, Q_1 - Q_3 : [3–9]). In bivariable analyses, self-esteem scores did not differ by HIV-status ($p = 0.59$), and were not associated with seroadaptive behaviour ($p > 0.19$ across 7 strategies). After adjustment, higher self-esteem was associated with older age ($p < 0.001$), more social support ($p < 0.001$), larger social network size ($p < 0.003$), lower emotional and social loneliness (each $p < 0.001$), Asian ($p = 0.002$) or Latin American ($p = 0.001$) identity (vs. White), higher self-report physical attractiveness ($p < 0.005$) and muscularity ($p < 0.001$), and subcultural identification as a Professional (versus not; $p = 0.04$). While higher BMI was not associated with self-esteem ($p = 0.94$), identifying as a bear, cub, or otter (versus not; $p = 0.009$) predicted lower self-esteem scores. Self-esteem was associated with several sexual (e.g., oral sex, masturbation, sex toy use) and substance use (i.e., binge drinking, cannabis, cocaine, methamphetamine) behaviours – but these became non-significant after multivariable adjustment.

Conclusion Subculture identification, self-rated body-image, and social embeddedness are key to gbMSM's self-esteem. Given these factors overshadowed self-esteem's association with sexual and substance use behaviours, holistic HIV and STI interventions should leverage socially-supportive, community-based, and inclusive messaging to address potentially negative effects of low self-esteem on gbMSM's sexual health.

Disclosure No significant relationships.

P227 PERCEIVED STRESS AND SOCIOECONOMIC FACTORS ASSOCIATED WITH VAGINAL MICROBIOTA IN THE LONGITUDINAL STUDY OF VAGINAL FLORA

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Background *Lactobacillus*-dominated vaginal microbiota can confer protection against STIs and high levels of stress and lower socioeconomic status are associated with increased risk for STIs. We examined whether perceived stress and demographic factors are associated with vaginal microbiota.

Methods A subsample of women (n=1,595) enrolled in the Longitudinal Study of Vaginal Flora (LSVF) were utilized in this study. Vaginal microbiota was characterized by amplicon sequencing of the V3-V4 hypervariable regions of the 16S rRNA gene and clustered into community state types (CSTs). Stress in the past 30 days was measured using the Perceived Stress Scale and was categorized into quartiles. We used mixed-effects multinomial regression models accounting for within-subject associations to compare prevalence of *Lactobacillus iners*-dominated (CST III) and low-*Lactobacillus* (CST IV) versus a category of high relative abundance of other *Lactobacillus* spp. (CST I, II, V) across stress quartiles and demographics including education, income, race, marital status, and age.

Results In unadjusted models, the third stress quartile (reference first quartile) was associated with greater prevalence of CST III (prevalence ratio (PR)=1.15, p=0.013) and IV (PR=1.22, p=0.048). The top quartile of stress was not statistically significant. After adjusting for covariates, results were attenuated. An education below high school level (reference high school or more) was associated with higher prevalence of CST III (PR=1.30, p=0.002) and IV (PR=1.35, p=0.002). Lower prevalence of CST IV was observed among participants who were White (reference Black, PR=0.38, p<0.001), and had >\$3000 monthly income (reference <\$500, PR=0.80, p=0.47).

Conclusion In bivariate analysis, moderate stress levels were associated with less optimal vaginal microbiota, exemplified by low abundance of *Lactobacillus* and *L. iners*-dominated microbiota. Adjustment for education and income attenuated these findings. Future studies are needed to clarify how education and income associated with vaginal microbiota, whether through access to care, sexual networks or stress affecting the body's immune response.

Disclosure No significant relationships.

P228 FROM 2017 POSITIVE VOICES DATA: IS SELF-REPORTED HEALTH ASSOCIATED WITH DEPRESSIVE SYMPTOMS AMONG PEOPLE WITH HIV IN ENGLAND?

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Background The study aims to determine whether self-reported health is associated with depressive symptoms among people with HIV.

Methods The study used cross-sectional, nationally representative survey data from people with HIV from the Positive Voices survey in 2017. Multivariable logistic regression determined associations between self-reported health and depression (defined by GHQ-12 score ≥ 4), adjusted for age, employment, financial security (ability to meet basic needs), lifestyle (smoking and binge drinking), self-reported pain and comorbidities.

Results Of 2,142 MSM, 1,015 women and 583 heterosexual men, the proportion reporting good or very good health was 70%, 77% and 77% respectively. Prevalence of depression increased as self-reported health worsened: among MSM, 10% reporting 'very good' health had depressive symptoms, this rose to 24% among those reporting 'good' health, 57% (fair health) and 87% (bad health). Equivalent figures were 8%, 17%, 45%, 85% for heterosexual men; and 9%, 23%, 59%, 78% for women. After adjusting for other factors, the likelihood of depression increased with bad health compared to very good health among MSM (AOR 28.42, CI 14.44–55.91, p<0.0001); heterosexual men (AOR 20.15, CI 4.79–84.79, p<0.0001) and women (AOR 11.46, CI 3.76–34.94, p<0.0001). Compared to financially secure MSM, heterosexual men and women, their financially insecure counterparts were significantly more depressed: (AOR 5.02, CI 2.96–8.53, p<0.0001); (AOR 5.27, CI 2.12–13.14, p=0.001); (AOR 3.23, CI 1.79–5.83, p<0.0001). Strong association between self-reported pain and depression was observed among MSM (AOR 1.41, CI 1.07–1.84, p=0.014); heterosexual men (AOR 2.77, CI 1.42–5.42, p=0.003) and women (AOR 3.79, CI 2.38–6.05, p<0.0001). Unemployment was strongly associated with depression among MSM (AOR 1.87, CI 1.13–3.11, p=0.022), but not heterosexual men (p=0.651) or women (p=0.288).

Conclusion Self-reported health is an important predictor of depressive symptoms in people with HIV, along with financial security and pain. This data can be used to inform screening tools for depression among people with HIV.

Disclosure No significant relationships.

P233 GENITAL TRACT INFECTION OF WOMEN WITH AND WITHOUT TUBAL PATHOLOGY

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Background The aim of our study was to investigate the presence of *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), *Mycoplasma genitalium* (MG) and non-sexual transmitted infection (STI) microorganisms in Fallopian tubes of patients with tubo-peritoneal factor of infertility diagnosed during laparoscopy or with normal tubes.

Methods 12 of 22 infertile women included in investigation had tubal-peritoneal pathology and 10 women were without tubal pathology as assessed by laparoscopy. During laparoscopy the tubes were flushed with 2–4 ml 0.9%-saline solution, immediately after the laparoscope and auxiliary instruments were introduced. The tubes were flushed by gently grasping the tubal ampulla near the fimbria portion with atraumatic tubal forceps and introducing an epidural catheter inside the ampulla through the abdominal tubal ostium via a suprapubic

puncture. We also took material from tubes with microbiological loop in aim to do bacteriological investigation.

Results The mean age in first group was $25 \pm 0,5$ years, in control group was 31 ± 1 years. Included criteria for both groups was infertility and absence of STI in endocervix. In case group all patients had pelvic inflammatory disease in anamnesis, high level of CT antibodies (MOMP and HSP), severe tubal pathology and adhesive process revealed during laparoscopy. We did not find CT, NG or any non STI microorganisms in tubes in both groups. We found twice Ureaplasma urealyticum (UU) in tubes in control group.

Conclusion The principal feature of salpingitis is extensive tissue remodeling that produces chronic sequelae such as scars and lumen obstruction and during this process the STIs and non STIs are cleared by the immune system. So, in spite of severe tubal pathology we did not find STI in Fallopian tubes. UU do not injure tubes (as we can see in control group), it could be a co-infecting pathogen, persists after antibiotics therapy and selective elimination of main pathogen.

Disclosure No significant relationships.

**P235 VAGINAL AND RECTAL *M. GENITALIUM* (MG),
C. TRACHOMATIS (CT), AND *N. GONORRHOEAE* (GC)
CO-INFECTION AMONG WOMEN IN SEATTLE, WA**

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10.1136/sextrans-2019-sti.372

Background Rectal CT is increasingly recognized as a common infection among women, even in the absence of anal sex. Little is known about the prevalence or epidemiologic pattern of rectal MG and rectal MG/CT/GC co-infection among women.

Methods We recruited women at high risk for urogenital CT from the municipal STD clinic in Seattle, WA, 2017–2018 for a cohort study. Participants self-collected vaginal and rectal specimens for nucleic acid amplification testing (NAAT) for CT and GC. We retrospectively tested enrollment samples for vaginal and rectal MG using NAAT. We examined factors associated with rectal MG using logistic regression to calculate adjusted odds ratios (aOR) and 95% confidence intervals (CI).

Results Of 50 enrolled women, 13 (26%) tested positive for MG. Ten (20%) had vaginal MG and 11 (22%) had rectal MG. Eight (16%) women had concurrent vaginal and rectal MG, 3 (6%) had isolated rectal MG, and 2 (4%) had isolated vaginal MG. Among 10 women with vaginal MG, 3 (30%) also had vaginal CT but none had vaginal GC. Of 11 women with rectal MG, 4 (36%) also had rectal CT but none had rectal GC. Compared to women without rectal MG, women with rectal MG were more likely to be <25 years old (aOR=2.9; 95% CI=0.7–11.9), less likely to be White (aOR=0.22; 95% CI=0.03–1.8), and less likely to report anal

sex in the past 12 months (aOR=0.41; 95% CI=0.08–2.2). No women with rectal MG reported anal symptoms.

Conclusion Rectal MG was common (prevalence=22%) among women at high risk for vaginal CT, but the majority of women with MG did not have CT or GC. Rectal MG was most often identified among women with vaginal MG, and was not significantly associated with reporting anal sex. The high prevalence of rectal MG merits further investigation to understand its natural history and clinical implications.

Disclosure No significant relationships.

**P237 ENZYME COMPLEXES OF ALCOHOL METABOLISM
PROTECT AGAINST LIVER INJURY IN ANIMAL MODELS
FED ACUTE ALCOHOL AND ANTI-HIV DRUGS**

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Background A significant portion of AIDS patients under anti-HIV therapies consume or abuse alcohol, which causes liver injuries. This study was to evaluate effects of eliminating blood alcohol on anti-HIV drugs and alcohol-induced liver injuries through utilizing nanoparticles of enzyme complexes of alcohol metabolism that were developed previously.

Methods The enzyme nanoparticles were intravenously injected into mouse models of acute alcohol binge or chronic alcohol and antiviral feeding in the presence of antivirals (ritonavir-boosted lopinavir). Parameters for liver pathologies were examined.

Results In the acute model, the enzyme nanoparticles significantly reduced the blood alcohol concentration (BAC) within four hours compared to control. No significant effects of the anti-HIV drugs on BAC were observed in the acute alcohol binge model. Plasma alanine aminotransferase (ALT) and expression of liver TNF α were both significantly increased in the alcohol fed mice, which were normalized by the enzyme nanoparticles. In the presence of the antivirals, ALT was partially reduced by the enzyme nanoparticles. In the chronic alcohol feeding, alcohol induced inflammation, fatty liver and increase of ALT, which were deteriorated by the antivirals. The enzyme nanoparticles slightly reduced BAC, ALT and expression of inflammation markers of TNF α , F4/80 and IL-6 and lipogenic factors of ACC, LXR α and SREBP1. In addition, the anti-HIV drugs potentiated alcohol induced expression of cellular organelle stress markers of CHOP, sXBP-1, ATF6 and GCP60, which were not reduced by the application of the enzyme complexes.

Conclusion Eliminating blood alcohol by the enzyme nanoparticles protects the liver against acute alcohol-induced liver injuries, and the protection is much less effective under chronic alcohol feeding or combination of alcohol and antiviral use due to severe cellular stresses in the liver.

Disclosure No significant relationships.

P239 GENITAL HSV-2 SUPPRESSION IS NOT ASSOCIATED WITH ALTERATIONS IN THE VAGINAL MICROBIOME: A ONE-WAY, CROSS-OVER STUDY

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Background Women infected with herpes simplex virus type 2 (HSV-2) have increased risk of incident and refractory bacterial vaginosis (BV). We hypothesized that suppression of HSV-2 would be associated with decreased Nugent score and risk of BV.

Methods HSV-2 seropositive women with a self-reported history of BV self-collected daily vaginal and anogenital swabs for 28 days. Women then initiated valacyclovir 500 mg daily for a 2 week lead-in, followed by continued valacyclovir and self-collection of swabs for an additional 28 days. Anogenital swabs were tested for HSV DNA by PCR. Nugent score was performed on vaginal swabs (score ≥ 7 denoted BV). Quantitative PCR for three *Lactobacillus* species, *Gardnerella vaginalis*, *Megasphaera*, and BV-associated bacterium 2 was performed from DNA extracted from vaginal swabs. The primary outcome, per-participant median Nugent score at baseline compared to valacyclovir, was calculated using linear mixed models. We had 80% power to detect a 50% reduction in rate of BV on valacyclovir.

Results Forty-one women collected a median of 28 days of swabs during each study period. Thirty-three (80%) had a history of symptomatic genital HSV-2 infection, with a median of 2 self-reported recurrences in the past year (range 0–12). The genital HSV shedding rate decreased from 109 (9.7%) of 1126 days at baseline to 6 (0.05%) of 1125 days on valacyclovir (RR=0.06, 95% CI=0.02–0.13). Median Nugent score was 3.8 at baseline and 4.0 on valacyclovir (predicted change=0.26, 95% CI=-0.43–0.94). Women had BV on 343 (31.1%) of 1103 days at baseline and on 302 (27.7%) of 1091 days on valacyclovir (RR=0.90, 95% CI=0.68–1.20). Average \log_{10} concentrations of bacterial species did not change significantly during valacyclovir treatment.

Conclusion Use of short-term valacyclovir suppression among women with HSV-2 infection did not decrease the Nugent score or risk of BV and did not change concentrations of key vaginal bacteria.

Disclosure No significant relationships.

P241 DETECTION OF Y-CHROMOSOMAL DNA CORRELATES WITH LAST UNSAFE SEXUAL EXPOSURE

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Background When *Chlamydia trachomatis* (CT) is detected after adequate treatment, this may reflect treatment failure or re-infection due to sexual re-exposure. For sexual exposure, researchers rely on self-reported data. Biomarkers such as Y-chromosomal DNA (Y-DNA) from vaginal and rectal samples may be used to support the validity of the self-reported sexual exposure data. The aim of this study was to validate detection of Y-DNA in a cohort of treated female CT patients, the Femcure study.

Methods Participants provided self-swabs for various days after treatment. For each swab, self-reported last unsafe (vaginal or rectal) sexual exposure (LUSE) was recorded in days (range t0-t14). Samples consisted of vaginal (n=120: 20 swabs at t=0,1,2,3,4; and 20 swabs at t=7,8) and rectal (n=43, 6 swabs at t0-1; 15 swabs at t2-5 and 22 swabs at t6-14) CT negative swabs in Roche COBAS PCR uniswab media (FemCure 2016–2017). CT negative human semen was used for spiking experiments. Quantitative detection of Y-DNA was performed using Quantifiler[®] Duo DNA Quantification Kit.

Results Samples with realistic spiked concentrations of ~0.5 ng/microliter Y-DNA remained stable and detectable until at least 35 days in the medium at 4°C. For vaginal swabs, detection of Y-DNA correlated inversely with LUSE: the Y-DNA detection percentage was 90%, 60%, 30%, 10%, 20% at t=0,1,2,3,4, and 5% at t7,8. In anal swabs, detection was 33% at t0-1 and 13% at t2-5 and t6-14.

Conclusion Y-DNA correlates strongly with LUSE in vaginal swabs, with high Y-DNA detection in the first 48 hours. Y-DNA detection data can be used to support self-reported sexual exposure data used in most research. The detection of Y-DNA in anal swabs has to be further validated as our study only included a limited number of anal samples at early time-points.

Disclosure No significant relationships.

P242 CO-INFECTIONS WITH CYTOMEGALOVIRUS (CMV) AND SEXUALLY TRANSMITTED INFECTIONS (STIS) IN PREGNANT WOMEN

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Background Congenital cytomegalovirus infection (cCMV) is a leading cause of hearing loss and neurodevelopmental disabilities. An association between STIs and CMV including higher rates of CMV acquisition and reinfections in women with STIs has been shown in studies of selected populations of women attending STI clinics. However, the interaction between CMV and STIs in the genital tract and whether CMV and STI co-infection increases the risk of intrauterine transmission of CMV remains unclear. The objective of this study is to determine STI prevalence and CMV shedding rates in a cohort of unselected pregnant women.

Methods Vaginal swabs from a cohort of CMV seropositive women in labor from a multi-center study were analyzed. After DNA extraction from vaginal swabs, PCR was performed for detection of CMV, *Neisseria gonorrhoeae* (GC), *Chlamydia trachomatis* (CT) and *Trichomonas vaginalis* (TV). CMV genital shedding rates were compared between groups with and without STIs.

Results Approximately 11% (11/101) of pregnant women in this cohort tested positive for STIs (10 with TV and 1 with TV and GC co-infection). None of the women with STIs were shedding CMV in the genital tract during labor compared to 24% (22/90) of women without STIs. No significant difference in racial distribution was noted between the groups with and without STIs (82% Black vs 58% Black respectively; $p = 0.19$). Among women shedding CMV in the genital tract, CMV viral load levels ranged from 1.2×10^2 IU/ml – 2.3×10^4 IU/ml.

Conclusion In a cohort of unselected pregnant women, none of the CMV seropositive pregnant women with STIs were shedding CMV in the genital tract. Our preliminary findings suggest CMV shedding is not associated with STIs detected late in pregnancy. A larger study is needed to confirm these findings and to define the relationship between STIs and cCMV.

Disclosure No significant relationships.

P243 HIGH PREVALENCE OF UREAPLASMA SPP. IN WOMEN VISITING AN STI CLINIC ALTHOUGH NO AZITHROMYCIN RESISTANCE WAS DISCOVERED

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10.1136/sextrans-2019-sti.377

Background *Ureaplasma* spp. are known to reside in the urogenital tract in adults and newborn children. In most cases, *Ureaplasma* spp. colonization is not harmful to the host. However, *Ureaplasma* spp. are also known to be involved in non-gonococcal urethritis (NGU) in adults and may also be

connected to infertility. In pregnant women, there is speculation that *Ureaplasma* spp. may cause complications in pregnancy and lead to preterm labor. In preterm newborns *Ureaplasma* spp. colonization is associated with bronchopulmonary dysplasia. As azithromycin is first choice treatment either in adult as well as in newborn infections resistance to macrolides affects successful therapy. However, little is known about the susceptibility of *Ureaplasma* spp. In this study we assessed the prevalence of genital *Ureaplasma* spp. colonization and the prevalence of resistance associated mutations to macrolides.

Methods Genital samples of 512 women visiting our Dutch STI clinic who were routinely screened for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) were retrospectively tested with *Ureaplasma* spp. PCR (Amplisens). Of these patients 13% (66/512) were positive for CT and 1% (5/512) for NG. Forty five *Ureaplasma* positive samples were selected to determine mutations that could confer macrolide resistance by sequencing domain V of the 23S RNA gene.

Results In total 78% (401/512) samples were positive for *Ureaplasma* spp. Prevalence of *Ureaplasma* spp. was significantly higher ($p < 0.05$) among the CT positive samples 88% (58/66) and the NG positive samples 80% (4/5). None of the 45 samples contained mutations associated with macrolide resistance.

Conclusion We found a higher prevalence of *Ureaplasma* spp. in a female patient cohort visiting an STI clinic compared to other studies. However, no resistance associated mutations to macrolides were detected. Higher prevalence of *Ureaplasma* spp. in STI positive samples underscores its sexually transmitting potential.

Disclosure No significant relationships.

P245 INTEGRATION OF HIV TESTING WITH TUBERCULOSIS AND SEXUALLY TRANSMITTED INFECTIONS AT A TERTIARY CARE HOSPITAL IN DELHI

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Background The National AIDS Control Program (NACP)-IV has been endorsed by our hospital since 2013. Tuberculosis (TB) and Sexually Transmitted Infections (STI) increase the risk of HIV acquisition and vice versa, therefore, NACP-IV, Revised National Tuberculosis Control Program (RNTCP) and National STD control programs were linked in India for better patient outcome.

Methods This is a 3-year retrospective study conducted at Integrated Counseling and Testing Centre (ICTC) of our tertiary care hospital from January 2016 to December 2018. HIV seropositivity among ICTC attendees; HIV-TB and HIV-STI co-infection rates were tested and analyzed as per the National guidelines.

Results A total of 44738 ICTC attendees were tested for HIV, of which 1347 were positive (approximately 3%). Seropositivity was found to be highest in the reproductive age group (25–49 years). A decline in HIV seropositivity rate was seen, though the number of clients increased by approximately 20% each year. HIV-TB co-infection rate was found to be 0.18% in 2016, 0.15% in 2017 and 0.17% in 2018 among patients attending DOTS (Directly Observed Treatment Short-Course) centre. HIV positivity among patients referred from STI clinic showed a declining trend from 2.5% in 2016 to 1.35% in 2017 and 0.6% in 2018.

Conclusion It is pertinent to point out the role of counseling, both pretest and posttest, in the National AIDS Control Program, India. ICTC provides comprehensive services, for identification and documentation of HIV related co-infections including TB and STIs. Very few studies have been conducted in our country analysing the outcome of linkage between National programs (NACP-IV, RNTCP and National STD control programs). Our centre took the initiative to study this linkage to aid in better patient outcome.

Disclosure No significant relationships.

P246 COMMUNITY PERCEPTIONS, EXPERIENCES AND PREFERENCES FOR PARTNER NOTIFICATION SERVICES IN NORTH CAROLINA

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Background Men who have sex with men (MSM) and transgender women (TGW) have increased risk for syphilis and HIV. Partner notification (PN) is an effective strategy to provide early diagnosis and improve treatment outcomes among sexual partners of individuals diagnosed with an STI. We conducted a qualitative study to examine perceptions, experiences, and preferences for PN among Black and Latino MSM and TGW in North Carolina (NC).

Methods We conducted seven focus groups (FG) with 50 purposively sampled participants across four NC counties with high rates of HIV and syphilis. Eligible participants were aged 18–44, identified as Black and/or Latino, had ever had sex with men, and identified as male or a TGW. We used a semi-structured guide to facilitate five groups in English and two in Spanish. We inductively analyzed data after each FG via field notes and team debriefs, organizing field notes in a matrix to identify crosscutting themes, and double-coding transcripts to systematically examine differences and similarities across salient themes.

Results Black males reported more familiarity and experiences with PN than Latino males and Black and Latino TGW. Generally, participants familiar with PN perceived the approach to locating clients as aggressive, while participants unfamiliar with PN viewed its theoretical application positively. All participants worried about personal privacy and stigma, on the part of PN staff or others. Poor communication and feeling harassed by staff during PN characterized negative experiences while empathy, privacy, choice and autonomy, and support with navigating services characterized positive experiences. Participants preferred using PN to notify casual partners but worried PN could antagonize relationships with steady partners.

Conclusion Participants prefer more choice, support and sensitivity in PN. The systematic integration of shared-decision making and service navigation into PN could transform community perceptions and improve the quality and success of PN.

Disclosure No significant relationships.

P247 PARTNER NOTIFICATION FOR SYPHILIS IN CHILE: REALITIES FROM TWO REGIONAL HEALTH SERVICES – A QUALITATIVE CASE STUDY

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Background Partner Notification (PN) has long been considered essential for sexually transmissible infection (STI) control, but both policies and methods of implementation vary between countries. Although the provision of sexual health services has improved in Chile, syphilis is one of the most commonly reported STIs. This is the first study to explore the role of PN in syphilis control in public health services in Chile.

Methods A qualitative multiple case study was designed, using two regional Health Services as cases. Different data collection methods were used: a qualitative document analysis, a syphilis management clinic review in 20 health services, and semi-structured interviews with 48 healthcare providers (HCPs) and 10 key informants. The data was analysed using an inductive approach, with both within-case and cross-case thematic analysis. Selected quotes were translated from Spanish-English.

Results Findings revealed that syphilis management has a well-organised approach in public health services, but little knowledge or understanding of the infection among patients leads to a lack of recognition of the importance of informing sexual partners. The management of partner(s) was acknowledged as critical for syphilis control in the guidelines and by HCPs, but no document provides comprehensive information about delivering PN. Patient referral was used most commonly; however, interviewees commented that index cases do not discuss their partners easily and PN delivery is further impacted by gender and the socio-cultural context. PN was perceived by HCPs as an exhausting, difficult and challenging process due to poor public understanding of syphilis, absence of practical recommendations and health system limitations.

Conclusion Understanding the state of current policies and practices are important for improving PN in Chile and Latin America. Lack of clear guidelines and resources, as well as the impact that gender and socio-cultural aspects have on STI risk perceptions, should be considered to strengthen STI control at the population level.

Disclosure No significant relationships.

P248 STI RISK REDUCTION STRATEGIES AMONG INDIVIDUALS WITH MULTIPLE SEX PARTNERS AND PERCEIVED PARTNER NON-MONOGAMY IN THE US

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Background Network position contributes to STI risk because of broad sexual network connectivity. Relationship types (i.e., exclusive dating, hook ups) also influence STI risk. Few studies examine how sexual network position and relationship

types jointly influence individuals' STI risk reduction strategies.

Methods We analyzed data from 2011–2017 National Survey of Family Growth for 5,948 and 5,433 unmarried, non-cohabiting sexually active women and men aged 15–44. To describe sexual network position, we created four dichotomous variables that included both past-year number of opposite-sex sex partners (one, multiple) and perceived partner non-monogamy (PPNM, yes/no). Relationship type was defined as a steady or casual sex partner at last sex. Prevalence ratios were used to assess the relationship between network position and two past-year outcomes: condom use at last sex and STI testing. Results were stratified by relationship type.

Results 54% and 47% of women and men aged 15–44 had one partner with no PPNM. 6% and 4% had one partner with PPNM, 22% and 29% had multiple partners with no PPNM and 17% and 20% had multiple partners with PPNM. Men with multiple partners and PPNM had the lowest prevalence of condom use of all four groups (37.7%, CI: 33.5, 44.1 compared with 52–56%). Moreover, women and men in this group with a steady sex partner had higher prevalence of past-year STI testing if they reported PPNM than if they did not (women: aPR=1.31; CI: 1.11, 1.55, men: aPR=1.47; CI: 1.19, 1.81). This same relationship was not seen for women and men whose last sex was with a casual partner.

Conclusion Individuals' STI risk reduction strategies depend on sexual network position and relationship type. Those with PPNM and a steady sex partner may seek STI testing more frequently. Proxy sexual network measures from national surveys may help target STI prevention and testing interventions.

Disclosure No significant relationships.

P249 WHAT WORKS IN PARTNER NOTIFICATION FOR SEXUALLY TRANSMITTED INFECTIONS, INCLUDING HIV? SYSTEMATIC REVIEW AND META-ANALYSIS

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Background Partner notification (PN) is a core component of the management of sexually transmitted infections (STI). A range of methods can help to find, test and treat sexual partners of an infected person (index patient). The objective of this review was to assess the effects of different PN strategies in people with STI, including HIV infection.

Methods We conducted this review for the Cochrane STI Review Group. We searched for randomised controlled trials (RCTs) in Cochrane, MEDLINE and EMBASE databases, reference lists and trial registries up to 18 October 2018. Two independent reviewers conducted screening, selection and data extraction. Primary biological outcomes were: repeated infection in index cases with curable STI and new infections in partners of people with HIV. We conducted meta-analysis where appropriate.

Results We included 37 trials from 14 countries in Asia, Australia, Europe, South America, sub-Saharan Africa and USA in patients with bacterial STIs or trichomonas (n=26 trials), STI syndromes (n=5), HIV (n=5), mixed STI (n=1). The 37 trials

assessed 56 comparisons between PN strategies, with the most common being enhanced patient referral (n=22) and expedited partner therapy (EPT, n=18) for curable STI and contract referral for HIV (n=3). For index cases with chlamydia, gonorrhoea or trichomonas as a combined outcome, EPT reduced repeat infection compared with simple patient referral (n=6,390, relative risk 0.71, 95% confidence interval, CI 0.59–0.86, I-squared 0%) but not compared with enhanced patient referral (n=1,220, relative risk 0.96, 95% CI 0.6–1.53, I-squared 33%). For HIV, contract referral, versus simple patient referral, increased the number of partners found infected (n=1,884, mean difference 0.15, 95% CI 0.06–0.24, I-squared 0%).

Conclusion EPT is better than simple patient referral, but not better than enhanced patient referral for curable STI. Many PN strategies have limited evidence. Future trials should strengthen evidence of effectiveness by evaluating existing PN strategies using biological outcomes.

Disclosure No significant relationships.

P250 INTERIM ANALYSIS OF INDIVIDUAL RISK FACTORS, SEXUAL NETWORKS, AND STI RISK IN A MILITARY POPULATION

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Background Sexually transmitted infections (STIs) are a consistent medical concern among military service members, who may experience select rates well above their civilian counterparts. Differences in individual risk behaviors as well as network risk factors are different in military populations which may explain the increased rates of select STIs. We performed a pilot study to validate a STI risk assessment survey tool for future use in the military population.

Methods Naval Medical Center Portsmouth was used to pilot a survey for a larger, egocentric social, and sexual network study in military populations. Study participants (n=50) completed an anonymized computer-assisted survey focusing on STI risk factors, including a sexual partner inventory. We evaluated individual demographics, behavioral risk factors, and sexual partnership formation to include mixing patterns and concurrency. Recent history of STI was self-reported in the survey and validated with the participant's medical record. Fischer's exact test was used if applicable. For partners, data was weighted and Wald Chi-square test was used to assess association between variables.

Results Completion of the survey and sexual inventory by respondents was common. The majority were active duty, enlisted, and male. The survey suggested evidence of concurrency and disassortive mixing by age, race, and active duty status. Respondent (p=0.0089) and sexual partner (p=0.0401) alcohol consumption before sex was common and associated with history of STI. Condom use was inconsistent and less frequent with main/steady partners when compared to casual and anonymous partners.

Conclusion The high completion rate demonstrated in this pilot study support that a military population will complete a detailed STI risk index including sexual partner inventory. Interim data analysis suggests that common individual risk

factors such as network/partnership risk factors can be analyzed using an egocentric survey design. These results will have future implications for targeted prevention programming in the U.S. Military.

Disclosure No significant relationships.

P251 DEVELOPING PARTNER NOTIFICATION OUTCOMES FOR BACTERIAL STI BY SEX-PARTNER TYPE: INTERNATIONAL PERSPECTIVES

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Background Sex-partner type influences sexually transmitted infection (STI) risk. Evaluating partner notification (PN) outcomes by sex-partner type could facilitate effective targeting of resources for PN for STIs. To inform development of PN outcomes for bacterial STIs, we reviewed PN guidelines and randomised control trials (RCTs) for sex-partner type characterisation and its impact on PN outcomes.

Methods We searched online/via experts for PN guidelines worldwide and systematically reviewed RCTs of PN for bacterial STIs in PubMed to December 2018. We extracted data on PN recommendations and outcomes by sex-partner type.

Results We found PN guidelines from United Kingdom (UK), United States of America (USA), Canada, Australasia, Australia, and New Zealand (NZ). They recommend collecting sex-partner data using terms such as: 'regular'/main'/primary'/casual'/past'/anonymous', without providing definitions. Australasian, NZ, Australian, and USA guidelines recommend prioritising PN based on factors that can enhance STI risk (e.g. having multiple partners), and emphasise PN of 'regular' partners to prevent index case re-infection. Only Australian guidelines outline auditable PN outcomes accounting for sex-partner type: index-reported number of treated 'current regular partners' or 'all past partners (includes current casual partners)'. Ten of 28 RCTs reported study participants' baseline data on sex-partner type (e.g. 'steady'/regular'/main'/long-term'/casual'/one-time'), without defining them. Three RCTs reported PN outcomes by sex-partner type. Two RCTs reported higher chlamydia/gonorrhoea/trichomonas treatment rates for 'main' than 'casual' partners using expedited-partner-therapy (EPT) vs. patient-referral. Another RCT reported no difference in chlamydia re-infection rates in EPT vs. self-referral among women with a single 'steady' partner than women in overall trial.

Conclusion Current PN guidelines do not define sex-partner type nor address public health benefits of notifying different sex-partners. Sex-partner type definitions should be developed and integrated in clinical practice. RCTs should examine the effect of sex-partner types on PN outcomes. PN guidelines should account for sex-partner type based on evidence from RCTs.

Disclosure No significant relationships.

P252 PREDICTABILITY OF PREVALENCE OF SEXUALLY TRANSMITTED INFECTION ON COMPLEX SEXUAL NETWORK

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Background Estimation of epidemic potential of a sexually transmitted infection (STI) is difficult due to difficulty in measuring and quantifying the sexual network and implications for infection transmission. We demonstrate an approach for predicting the epidemic potential of an STI using data on another STI for men who have sex with men.

Methods An individual-based mathematical model was constructed to describe sex partnering and STI concurrent transmission, namely HIV, herpes simplex virus type 2 (HSV-2), gonorrhoea, chlamydia, and syphilis. The model was parameterized with representative biological and behavioral data. 500 heterogeneous sexual networks were simulated, on each of which STI transmission was also simulated. Correlations were assessed on model simulations (STI prevalences). Regressions were conducted to evaluate the predictability of HIV prevalence from each of the other STI prevalences.

Results Across these simulations, Spearman's rank correlation coefficient was 0.46 (95% CI: 0.37- 0.55) between HIV and HSV-2, 0.90 (95% CI: 0.88-0.91) between HIV and gonorrhoea, 0.82 (95% CI: 0.78-0.86) between HIV and chlamydia, 0.82 (95% CI: 0.78-0.84) between HIV and syphilis, 0.31 (95% CI: 0.21-0.40) between HSV-2 and gonorrhoea, 0.82 (95% CI: 0.78-0.86) between HSV-2 and chlamydia, 0.15 (95% CI: 0.05-0.25) between HSV-2 and syphilis, 0.70 (95% CI: 0.65-0.75) between gonorrhoea and chlamydia, 0.93 (95% CI: 0.92-0.95) between gonorrhoea and syphilis, and 0.56 (95% CI: 0.49-0.61) between chlamydia and syphilis. The adjusted R-squared for predicting HIV prevalence using each individual STI prevalence was 0.40 for HSV-2, 0.77 for gonorrhoea, 0.71 for chlamydia, and 0.57 for syphilis. The adjusted R-squared for predicting HIV prevalence in a model that includes all other STI prevalences was 0.92.

Conclusion STI prevalence is a proxy biomarker of HIV prevalence across heterogeneous sexual networks, explaining a considerable fraction of HIV prevalence variation. However, the strength of the association between each pair of STIs varies across STIs.

Disclosure No significant relationships.

P253 HPV VACCINE KNOWLEDGE AND ACCEPTABILITY AMONG MSM IN LEBANON: A QUALITATIVE STUDY

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Background Some countries specifically recommend HPV vaccination for MSM up to 26 years of age. In Lebanon, free HPV vaccine is not administered. The purpose of this exploratory study was to characterize the knowledge and beliefs of Lebanese MSM regarding HPV vaccination.

Methods Participants through contacts of MSM consulting an STD clinic in Beirut-Lebanon were recruited. In-depth

interviews used questions and probes on vaccine knowledge, acceptability, social and community concerns.

Results Fifteen in-depth interviews (15 MSM) were conducted. In general, there was confusion among the majority of participants whether HPV vaccine cures, treats, or prevents. Some participants had previously heard about the HPV vaccine but the majority had not known about it. Reasons mentioned for accepting the vaccine were the prevention of genital warts and related cancers; and avoiding infecting others with HPV. Vaccine cost was mentioned as a major factor related to vaccine uptake. Several participants thought receiving the vaccine would encourage condom use to avoid other STDs including HIV. Other participants predicted increased sexual risk-taking due to a bolstered sense of safety. None of the participants mentioned any stigma or social issue with this vaccine.

Conclusion The chief finding is that the acceptability of a preventive HPV vaccine was widespread but not universal among these populations depending on a range of factors. Although HPV vaccination was incorrectly perceived as therapeutic, reasons for wanting HPV vaccination centered on self-protection and the protection of sexual partners. Chief among the barriers to HPV vaccination was the cost of the vaccine rather than the vaccine-induced reactions as has been mentioned in previous studies. Thus, HPV vaccination for MSM will be out of reach except for the few who can pay for it unless either all adolescent boys (regardless of sexual and gender orientation) are included.

Disclosure No significant relationships.

P254

BARRIERS TO SEXUAL ASSAULT DISCLOSURE WITHIN SEXUAL HEALTH SERVICES: A MIXED METHOD/POPULATION STUDY

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Background Internationally, the UN reports that an estimated 1 in 3 women experience physical/sexual violence during their lifetime. These rates vary across cultures, age, gender and sexual identity. However, what does not vary is that the majority (UK, 83%) will not report this. It is likely that many will attend mainstream sexual health services for crisis STI screening or emergency contraception. It is clear that a range of psychological and health impacts may be suffered by this group including triple the risk of depression and half survivors not attending cervical screening programmes. Getting the correct help earlier is likely to reduce psychological/physical harm but there is no little or no research around victims interaction with both specialist but importantly mainstream sexual health services.

Methods A population in which sexual assault is high (students) were anonymously surveyed to establish rates of sexual assault/harassment. Participants were asked about reporting behaviour in relation to attendance at SH services. Follow up qualitative interviews examined barriers to services. Qualitative data from a parallel study of actual and potential users of a

specialist sexual assault service (Sexual Assault Referral Centre) in which attempts were made to recruit from multiply vulnerable populations at high risk of sexual violence (through support projects around homelessness, drug use, sex workers etc.) were examined for information around barriers to services and disclosure rates.

Results The data around rates of self-reporting victim/survivors attending mainstream sexual health services but not disclosing that assault will be presented and examined for patterns. Analysis of qualitative interview data will be presented in order to establish why rates are low and what might improve reporting.

Conclusion What does a mainstream SH service need to do in order to show victims of sexual assault that disclosure will be supported and further help is available.

Disclosure No significant relationships.

P257

PATTERNS AND CORRELATES OF GENDER-BASED VIOLENCE (GBV) IN RURAL AND URBAN SOUTH AFRICAN COMMUNITIES

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Background Violence is the intentional use of physical force or power, threatened or actual, against oneself, another person, a group or community that either results in or has a high likelihood of resulting in injury, psychological harm or death. The objective of the study was to determine the incidents & risk factors for gender based violence in South Africa.

Methods This study was a cross sectional study. Data was collected by trained volunteers and supervised by appointed supervisors and investigators, by a face-to-face interview using a pre-tested structured questionnaire on GBV. Frequency count was generated for all variables and statistical test of significance was performed with Chi-Square test.

Results A total of 145 consenting respondents participated with a mean age \pm SD of 31.93 ± 11.26 years. 73 (50.3%) have experienced physical violence with 47 (32.4%) beaten, slapped and stabbed & 29 (20.0%) of the incidents occurring within the last 6 months. 34 (23.4%) have experienced sexual violence mostly sexual touch (breast/buttock), attempted rape & rape. 21 (14.5%) have had an unwanted pregnancy with 6 (4.1%) aborted. 86 (59.3%) have experienced emotional violence either verbal insult or threat. Partner alcohol consumption is associated with experiencing physical violence ($\chi^2 = 4.32$, $df = 1$, $P = 0.001$) with higher odds (OR: 2.01, 95% CI: 1.04 – 3.89).

Conclusion Gender-based violence is common in South Africa with alcoholism being a serious risk factor for this violence in the society thus alcohol control law implementation is key to halting this trend.

Disclosure No significant relationships.

P259 SEEKING CLICKTHROUGHS: USING CELL PHONE APPLICATIONS IN PREVENTING STDS

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10.1136/sextrans-2019-sti.389

Background Rates of reported early syphilis in Alaska increased over 300% between 2015 and 2018, with cases concentrated in men who have sex with men (MSM) that reside in the Anchorage/Mat-Su region. To better understand the epidemic, we surveyed at-risk Alaskan MSM about their syphilis knowledge, attitudes, and practices using a paper- and web-based survey. MSM were recruited through several avenues, including advertisements on two, popular geosocial-networking apps for gay, bisexual, and other MSM. We report on the relative efficiency in recruiting men through two different geosocial-networking apps.

Methods The geosocial-networking apps (App A and App B) were selected based on key-informant interviews. Identical ad text and imagery promoting the survey ran on each app for two weeks. The total number of times the ads were displayed (impressions), number of times users clicked on an ad (clicks), mean clickthrough rate (CTR; clicks/impressions), and costs for advertising on the two apps were estimated and compared.

Results App A had a total of 28,642 impressions, and 904 clicks (daily range: 5–191). The mean CTR for App A was 5.45, at a cost of \$0.32/click. App B had a total of 681 impressions, and 57 clicks. The mean CTR for App B was 8.37, at a cost of \$12.28/click. Of 119 survey responses, 59 (50%) were online surveys, of which 32 (54%) reported hearing about the survey through the geosocial-networking apps ad.

Conclusion Recruiting MSM for surveys and prevention interventions through mobile apps is productive and may be cost-efficient. However, not all apps produce the same results. In our survey, App B was over 38 times more costly per click than App A. Programs should routinely explore the effectiveness and associated costs with utilization of app-based advertising.

Disclosure No significant relationships.

P260 RISK PERCEPTION, SAFER SEX PRACTICES, AND PREP ENTHUSIASM: EXPLORING PREP WITH BLACK AND MINORITY ETHNIC WOMEN IN THE UK

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10.1136/sextrans-2019-sti.390

Background Black and minority ethnic (BME) women in the UK remain disproportionately affected by HIV, comprising 75%

of new diagnoses among UK women. Pre-exposure prophylaxis (PrEP) could offer an effective, autonomous, and discreet HIV prevention method for these women. However, PrEP uptake, where available, has been significantly limited. We explored possible reasons for this limited uptake.

Methods Using purposive sampling through community organizations, 32 in-depth semi-structured interviews were conducted with BME women living in London and Glasgow from June–August 2018. Participants (ages 18–60) included women of varied HIV statuses to explore their knowledge of HIV and sexual health, perceptions of sexual risk, and attitudes to PrEP. Interviews were transcribed and an inductive thematic analysis was used to explore how PrEP knowledge and opinions intersected with wider understandings of safer sex

Results Women described extensive peer networks for sexual health advice that shaped their interactions with formal medical care. General HIV literacy was high, though PrEP-specific knowledge was low amongst non-HIV positive women. Participants expressed enthusiasm about PrEP for *others* but did not situate PrEP within their own safer sex narratives, often because of high levels of HIV stigma that caused women to ignore community risk factors and attribute infection to personal bad decisions. Alternately, some who were more familiar with PrEP believed it to be solely the domain of gay men. Many expressed concern that PrEP would undermine intimacy in their relationships by detracting from the shared responsibility of other HIV prevention practices, like joint testing.

Conclusion Low PrEP awareness and limited notions of candidacy contribute to limited PrEP uptake. For PrEP to be a useful tool for UK BME women, wider discussions of community risk are needed. HIV stigma and gendered responsibility for HIV prevention should be addressed. Existing peer networks should be harnessed to encourage nuanced messaging around these issues.

Disclosure No significant relationships.

P262 PREP UTILIZATION AMONG YOUNG TRANSGENDER WOMEN, TRANSGENDER MEN, AND MSM IN AN URBAN COMMUNITY-BASED SETTING

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Background Little is known about factors influencing HIV pre-exposure prophylaxis (PrEP) utilization among young urban transgender women (TW), transgender men (TM) and men who have sex with men (MSM), who are disproportionately affected by HIV. This prospective pilot study explores PrEP adherence and persistence among these traditionally underserved communities in primary care clinics located in community centers serving LGBTQ youth.

Methods To examine factors related to PrEP outcomes, we established a cohort of PrEP-eligible young TW, TM and MSM at two clinics located in LGBTQ community centers and followed participants monthly. We measured tenofovir diphosphate levels at 12 weeks to assess adherence, defined as having a value >700 fmol/punch. Persistence was defined as picking up 2 refills during 12 weeks of follow up. Multivariate analysis will be used to describe associations between

demographic, behavioral, social, and clinical characteristics and outcomes.

Results Of the 50 participants, 25 were TW, 6 TM and 19 MSM. ~75% were African American, ~10% white and ~5% Hispanic/Latino; average age 24.18. Results to date shows 27% adherence and 55% persistence. Taking hormones at baseline was inversely related to PrEP persistence, Relative Risk=0.67 (0.39–1.15) $p=0.14$. The trend is similar for adherence, RR=0.65 (0.20–2.1), $p=0.48$.

Conclusion Combining gender affirming hormones and PrEP in community spaces for LGBTQ youth is a novel approach to engage a traditionally hard-to-reach population. While initial data shows low PrEP outcomes, the relatively high number of patients remaining in care (84%) demonstrates an opportunity to improve adherence and clinical outcomes. We observed that integrating hormone therapy with PrEP administration did not positively impact outcomes, suggesting that other factors (e.g. homelessness, trauma) are important. These findings indicate the need to develop interventions designed to address these factors while continuing to integrate PrEP with gender affirming services.

Disclosure No significant relationships.

P264 COMMUNITY PERSPECTIVES ON BACTERIAL STI TESTING FOR GAY, BISEXUAL AND OTHER MEN WHO HAVE SEX WITH MEN IN TORONTO, CANADA

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10.1136/sextrans-2019-sti.392

Background Clinical guidelines recommend that sexually active men who have sex with men (MSM) get tested for bacterial STIs at least once a year, and as often as every 3 months if at ongoing risk. However, few MSM follow this guideline in practice. Our aim was to explore MSM perspectives regarding STI testing services for MSM in Toronto. Results were used to identify and prioritize new STI testing interventions in Toronto.

Methods We conducted 4 focus groups with gay, bisexual and other MSM (gbMSM) in 2017: two with HIV-positive cis-identified gbMSM ($n=16$), one with HIV-negative cis-identified gbMSM ($n=8$), and one with trans-identified gbMSM ($n=3$). Participants were asked about their experience with STI testing in Toronto, barriers and facilitators to testing, and the ideal STI testing process. Focus groups audio recorded, transcribed verbatim, and analyzed using thematic analysis.

Results Major themes centred around deficits in existing clinic contexts and ways to improve them, options for testing services outside of clinics, integration with healthcare, and compassionate care. Participants desired accessible locations/hours; minimal wait times; express/streamlined testing; improved clinic atmosphere/ambience; and minimal crowding/interaction in waiting rooms. Suggested alternatives included online/home

testing; routinizing testing with other services; pharmacies; and clinics at sex-based venues, schools, workplaces, and ASOs. Some participants desired more healthcare continuity in the context of STI testing, and spoke of needs for linkages to primary/HIV care with providers who are welcoming to MSM and transmen. Participants consistently underlined the need to minimize STI-related stigma with compassionate, professional, and non-judgemental care.

Conclusion Participants offered concrete and practical solutions for improving existing services. Their views may also guide efforts to implement new strategies such as online testing. Optimal STI testing would offer variety and choice in the range of testing options available, and would be part of person-centred, LGBT-affirming care.

Disclosure No significant relationships.

P265 CD4 COUNT AS PARAMETER TO ESTIMATE THE TIME OF INFECTION IN HIV POSITIVE MEN HAVING SEX WITH MEN AND ITS SOCIAL IMPLICATIONS

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Background CD4 count is a parameter of clinical significance in the management of HIV infection, especially in staging and treatment. There is no parameter that predicts the time of contracting the infection. This study aims to investigate the average time between testing positive for HIV screening and time of initial infection based on rate of decay in CD4 count among PLHIV MSM and to analyze its social implications.

Methods A total of 2491 MSMs who tested HIV positive were enrolled. The mean CD4 values were determined by age groups. The mean interval between between infection and seropositivity was estimated based on the average annual CD4 decay rate. Data analysis was performed using SPSS.

Results Upon diagnosis, the mean CD4 values were 372 cells/ μ l for those aged 20 and below, which was found to be significantly higher than 323 cells/ μ l for 21–30 group ($p=0.007$), 284 cells/ μ l for 31–40 group ($p=0.0000$), 279 cells/ μ l for 41–50 group ($p=0.015$). Thus, the significant difference among age groups and WHO CD4 staging ($p<0.000$). The average time between infection and testing is 5.81 years among ages 20 and below and 6.49 among 20–30 age group, estimating an average infection age of 13.2 and 19.5, respectively, implicating that 73.5% of the sample likely had been infected 20 years and below.

Conclusion Being diagnosed with a CD4 count of 200–499 cells/ μ l is common among all age groups. It is consistent with the count estimated from the average time of infection among all age groups. Three quarters of the patients were likely to have been infected below 20 years old. It is consistent with the 8.1 person-years incidence density among 21 years and below in the 2012–2016 data from the same facility. This emphasizes the need to empower the youth's and healthcare providers' positivity towards sexual health through legislation, education, and awareness.

Disclosure No significant relationships.

P266 TOWARDS CLOUD COMPUTING AS A PLATFORM FOR SUPPORTING HIV INFORMATION DISSEMINATION IN UGANDA: A CASE OF JSCS AND TASO KAMPALA

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10.1136/sextrans-2019-sti.394

Background The use of ICT to improve the dissemination of HIV awareness information should be a feature of everyday life, in a disease prone Uganda today, being a developing country with high prevalence of HIV/AIDs. It is, therefore, paramount that ICT policies that support the dissemination of HIV/AIDs information are put in place to adopt new concepts and technologies that create new avenues. Cloud computing is viewed as a potential technology infrastructure that can be used to improve efficiency and effectiveness of operations geared towards health information dissemination. However, it is yet to be embraced. Our aim was to: Find out the major platforms of HIV/AIDs information dissemination today in Uganda. Investigate the management of cloud computing technology in HIV/AIDs information dissemination in lieu of the existing technologies. Identify challenges, affordability and accessibility of cloud computing in Uganda.

Methods Literature review and interaction with health information providers both in public and private hospitals were done. Data was collected using questionnaires, interviews and observation.

Results The study found out that the adoptability of the technology is bedevilled by lack of local service providers, lack of technical personnel and fear of hosting sensitive data, outside the borders of Uganda. The technology was, however, found to be very relevant both in government and private sector health care services in supporting the increase and effective HIV/AIDs information dissemination. The study created awareness on the existence of a government cloud and recommended a new brokerage model that can be used for the creation and dissemination of information.

Conclusion The potential and impact of cloud computing is undoubtedly quantifiable, especially, for Ugandan hospitals and practitioners that run on low budgets. The model identified in the study can be used in individual attendee environments.

Disclosure No significant relationships.

P270 HEALTH RIGHTS: LGBTIQ COMMUNITY

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10.1136/sextrans-2019-sti.395

Background The Zimbabwean HIV epidemic is largely driven by unprotected heterosexual sex. Now there is a growing epidemic among key populations who are at higher risk of HIV. National data is sparse. Only a minimal amount of data is collected and reported in national documents. The KP is disproportionately burdened by HIV infection, situation which is worsened by laws that penalise same-sex intercourse and contribute to a cycle of stigma, homonegativity and discrimination. African countries' laws criminalising homosexuality may be fuelling the epidemic; they dissuade KPs from seeking treatment and health care providers from offering it.

Zimbabwe is one of the countries where homosexuality is ontra, onos, ores. The hostile environment the KP community is exposed to especially at health facilities in the country has impacted negatively on their rights to basic SRHR. Some have been keeping sexually transmitted infections for months without seeking help. Such discrimination and stigma at the highest level makes life difficult and remain secretive and isolated community always fearing for lives. Zimbabwe's Constitution promotes universal access to health enabling every person regardless of their sexual orientation to be treated with respect and have access to healthcare and support. The everyday reality though is very different. We have held sensitisation workshops with stakeholders to root out ignorance and misinformation associated with the LGBTI community. Hostility and beliefs systems deep rooted against the practise of same sex relationship in the country will need to be reversed. While Zimbabwe's Constitution stipulates healthcare for all, it also outlaws same sex marriages. The gay community continues to be marginalised making the fight against HIV/AIDs all the more difficult. The intersectionality of HIV/AIDs between the broader heterosexuals and LGBTI community is a reality. If we are to reduce or end new infections end deaths from AIDS end stigma and discrimination in Zimbabwe no one should be left behind.

Methods To increase testing particularly among hard to reach groups is self-testing. In 2015 Population Services International and UNITAID began HIV Self Testing Africa (STAR), a four-year project to scale up self-testing in Zimbabwe Malawi and Zambia. In the first year nearly 380 000 free HIV self-test kits were distributed in 27 districts in Malawi, Zambia and Zimbabwe. Results suggest self-testing is enabling more young people (aged 16–24 years) and men to be aware of their HIV status. In the first year young people comprised 28% of self-tests and resulted in testing coverage among this age group increasing by 39% in the project's catchment areas. Men accounted for 44% of self-test users and testing coverage increased by 28% in testing areas. Among those using the kits in Zimbabwe 23% were first-time testers. Homosexual acts are illegal in Zimbabwe for men who have sex with men (MSM) but legal for women who have sex with women.

Results With the help of mobilizers the identified 300 MSM & 280 (62%) participated in a survey. Over 100 (38%) reported they never reported testing for HIV leaving 120 for analysis. 200 men used the HIVST. HIV prevalence was 6% (14/200). Overall (55%) were between 21 and 30 years-old, received less than a college-level education (54%) an annual income of \$3400 (48%). Majority of men identified as gay (84%) never married (93%), only a third disclosed sexual contact with other men to healthcare providers (28%), (75) had tested for HIV in the past 3 months. The common venue for seeking sex partners was the internet (90%). 104 men (32%) had sex under the influence of alcohol/drugs within the last 3 months, 42 men (12%) engaged in group sex in the past year, 42 received payment for sex with money or gifts.

Conclusion As a consequence of this punitive law national statistics are rarely available. Criminalising men who have sex with men drives this vulnerable group away from HIV services. As a result, many do not know their HIV status let alone access treatment. However Zimbabwean organisations

that support the rights of men who have sex with men and their access to HIV services do exist such as (GALZ) H.O.P/PSI. Many are routinely punished and shutdown or have their members arrested. UNAIDS reported in 2017 that just one in seven men who have sex with men in Zimbabwe (14.1%) are aware of their status. International donors such as the Global Fund to Fight AIDS Malaria and Tuberculosis and PEPFAR have attempted to ensure some of their funding is directed towards men who have sex with men. Government restrictions mean this has not materialised.

Disclosure No significant relationships.

P271 A COMMUNITY PERSPECTIVE ON THE IMMEDIATE PRESCRIBING OF ANTIRETROVIRAL THERAPY AT TIME OF A HIV DIAGNOSIS (ARTATD)

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10.1136/sextrans-2019-sti.396

Background The World Health Organisation (WHO) in 2017 published 'Guidelines for Managing Advanced HIV Disease and Rapid Initiation of Antiretroviral Therapy'. Supporting evidence that the prescribing antiretroviral therapy (ART) at the time of an HIV diagnosis (ARTatD) maybe beneficial. Further support arises from the Strategic Timing of Antiretroviral Therapy (START) study and from clinical programs e.g. RAPID Program at San Francisco General Hospital. The START Study shows improved outcomes for all body systems affected by HIV including cardiovascular, lower risk of chronic kidney disease (CKD) and ARTatD may reduce the populating of viral reservoirs within the central nervous system (CNS) at the time of infection.

Methods With an interest in community opinions on ARTatD Positive Life NSW (PLNSW) distributed an online survey using SurveyMonkey recording answers from across Australia (N=833) to 18 questions. Current demographics and HIV status, Attitudes supporting ARTatD if it was recommended, Concerns and problems envisaged on a recommendation of ARTatD, and What would influence their decision on commencing ARTatD

Results Representation from those born in Australia (69%) and from overseas (31%) with an age range 18 to >75 years of age of whom identified as 96% male, 2% female, 1 non-binary and 1% as other and of these 76% supported ARTatD if it was available. 9% did not support and 15% were unsure of ARTatD.

Conclusion Those identifying ARTatD as being the most beneficial identified among their reasons as, if the doctor recommended it, giving a sense of control, protecting sexual partners, protecting the unborn baby for pregnant women. Those not supporting ARTatD identified needing time to adjust, making sure of the diagnosis and prescribed medication was correct. The outcome of this survey will inform how those at the time of a HIV diagnosis will need to be supported if ARTatD becomes a standard recommendation

Disclosure No significant relationships.

P272 RESEARCH TO RESOURCE: BOOKLET FOR PEOPLE LIVING WITH HIV ASSOCIATED NEUROCOGNITIVE DISORDER (HAND)

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10.1136/sextrans-2019-sti.397

Background Recent estimates of risk for symptomatic HAND range from 18–50% of those people living with HIV (PLHIV) on combined antiretroviral therapy (cART). Positive Life NSW's (PLNSW) research into the level of knowledge of HAND amongst PLHIV arose from questions raised at a meeting of HIV healthcare and community representatives in early 2015. Questions to be answered: Is there an awareness of HAND? Are PLHIV thinking about and are they concerned about HAND? Have they tried talking to someone about HAND? What was the response to this and the outcome? Did PLHIV want suggestions of how to talk about their concerns to others? The research identified the next steps to develop resources and support programs for PLHIV managing their experiences and concerns living with HAND.

Methods Ethics was granted for a questionnaire to be distributed online via SurveyMonkey through PLNSW social media and electronic media platforms. From total responses (N=163), postcodes of respondents from other states outside NSW (n=31), incomplete responses (n= 6) and those from overseas (n=28) were removed, leaving a total of ninety-eight responses from NSW for analysis (n=98).

Results A resource was drafted by healthcare professionals, reviewed by Multicultural HIV and Hepatitis Service (MHAHS) for those with low level literacy, the HIV/AIDS Legal Centre (HALC) covered legalities, and focused tested by PLHIV with HAND before publication. The booklet is now being distributed for use by PLHIV to talk in a meaningful way with healthcare providers and significant others about HAND. The booklet outlines signs and symptoms, seeking further assessment and support, legal assistance and practical advice on living with HAND.

Conclusion PLHIV and service providers alike reading the booklet have applauded the initiative are utilising the resource to speaking with friends and partners and seeking assistance from clinicians.

Disclosure No significant relationships.

P273 UNDERSTANDING THE MENTAL HEALTH ISSUES AND SERVICE NEEDS OF THE TRANSGENDER COMMUNITY IN DELHI, INDIA

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10.1136/sextrans-2019-sti.398

Background Trauma and distress are common characteristics of mental disorder among the Transgender (TG) community.

However, little is known about the context and forms of mental distress, and the coping mechanisms TGs employ. This study seeks to understand the various mental health issues among TGs in Delhi, and prevalent government service usage patterns. Further, it intends to advocate for the inclusion of mental health services within the existing Government health policies.

Methods Qualitative in-depth interviews were conducted with twenty TGs from Delhi. Purposive sampling was done to maximise variation in relevant socio-demographic characteristics. Respondents were recruited from a targeted intervention programme run by Delhi State AIDS Control Society. An open ended interview guide consisting of a range of mental health themes were used. Interviews were conducted in the local language, Hindi, and transcripts were translated to English. A thematic content analysis was conducted by coding data manually.

Results The study revealed poor mental health among TGs. They face increased societal stigma, discrimination, poverty, familial rejection coupled with extreme physical and social violence, leading to anxiety and depression, with instances of suicidal attempts. Further, to cope with the multitude of problems, alcohol and self-harm are used as temporary escape. Importantly, it is found that the TG community does not avail most government services due to aforementioned causes, which negatively affects their self-esteem and overall mental health.

Conclusion Results of this study reflect heightened mental distress and minimal usage of existing health services among TGs in Delhi. The need of the hour is to improve their mental health through provision of adequate services that are accessible and stigma free. The study proposes that this can be achieved by integrating mental health services within the larger HIV prevention programmes of the Government of India.

Disclosure No significant relationships.

P274 LEVERAGING MULTI-LEVEL MONITORING TO ACHIEVE STAKEHOLDER BUY-IN: DESCRIPTIVE LESSONS FROM KEY POPULATION MAPPING IN NIGERIA

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Background Effective processes produce quality outcomes. For key populations (KPs) intervention, quality data that enjoys the buy-in and ownership of community members and other stakeholders is critical for optimal program outcome. In Nigeria, some previous efforts at mapping KPs have not enjoyed the full buy-in of key stakeholders with the credibility of study data and associated findings being challenged by stakeholders, especially the KP community. This situation adversely affected HIV epidemic management in the country. A multi-layer monitoring system was initiated across national and sub-national field operations in order to ensure protocol compliance, quality data, community ownership and general stakeholder buy-in.

Methods A national technical team (NTT) was constituted comprising of representatives from all critical actors, especially from the key population community with a mandate to ensure

efficient study delivery. At the sub-national level, a similar body was put in place across all the 10 study states. The lead technical partner, the University of Manitoba, and the study administrator, the Society for Family Health, also had monitors and study coordinators who were deployed to coordinate and monitor the field operations across all 10 study states. The National Agency for the Control of AIDS (NACA) acting as the principal investigator provided leadership and guidance. Programmatic mapping approach involved a 2-step hotspot listing and validation phases known as Level 1 and Level 2. At both phases, stakeholders were involved in routine field monitoring activities.

Results Sub-national level report disseminations were conducted across all the participating study states with all stakeholders, including representatives from the 3 nationally recognized KP groups – FSW, MSM & PWIDs, accepting that the data reflected findings at the spots.

Conclusion It is imperative to involve critical stakeholders from planning to monitoring of study processes as it engenders community ownership- a positive leverage for the efficient delivery of community impact interventions for KPs.

Disclosure No significant relationships.

P275 TOWARDS THE MANAGEMENT OF HIV/AIDS PATIENTS IN PENTECOSTAL CHURCHES IN UGANDA: A CASE OF EDEN AND BETHEL CHURCHES IN KAMPALA

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10.1136/sextrans-2019-sti.400

Background Main stream churches in Uganda have been known to be at the fore front of extending medical services, particularly in the areas of HIV/AIDS. However, Pentecostal churches seem not to be following suit, given their belief in miraculously healing by God. The aim of this study was to; - Investigate the occurrence and management of HIV/AIDS miraculous healing in the Pentecostals Churches. - Identify the challenges faced in quantifying AIDS/HIV miraculous healings in Pentecostal Churches. - Make suggestions for the best practices on AIDS/HIV management alongside the belief in miraculous healing. - Find out if there is complete healing of HIV/AIDS among believers

Methods Questionnaires, interviews and observation were used as instruments for data collection. Church leaders were purposively sampled and convenience sampling among believers. It was discovered that believers knew about HIV & medical interventions towards its management but needed better communication channels/models to bridge the awareness gap & change of attitude towards HIV miraculous healing to strengthen HIV patient management in Pentecostal churches.

Results The study showed that the application of medical based HIV prevention in Pentecostal churches was bedevilled by poor models of communication applied, lack of specific programs, inadequate finances, limited HIV awareness church based trainings, above of all the strong miraculous healing beliefs.

Conclusion It was recommended, that the application of approximate communication models be developed; Church leaders develop HIV prevention programs in line with government policy; Churches engage Government and funder for funding; and a creation of liaison platform between Pentecostal and main stream churches for HIV program awareness.

Attendee will realise that Pentecostal churches present a great potential for the management of HIV, and thus remain relevant, to advocate for change among believers attitudes towards miraculous healing and HIV prevention through applying reliable and effective communication models.

Disclosure No significant relationships.

P276 A NATIONAL ACTION PLAN TO ADVANCE THE SEXUAL AND REPRODUCTIVE HEALTH AND RIGHTS OF WOMEN LIVING WITH HIV IN CANADA

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10.1136/sextrans-2019-sti.401

Background Action on the World Health Organization (WHO) *Global Consolidated Guideline on Sexual and Reproductive Health and Rights (SRHR) of Women Living with HIV (WLWH)* recommendations requires evidence-based, equity-oriented, and regionally-specific strategies which are responsive to the priorities and rights of WLWH.

Methods In 2017/18, a team of leading Canadian women's HIV community, research, and service organizations partnered with WHO to convene a webinar series to: define WLWH's SRHR priorities in Canada; disseminate Canadian research and best practices; and highlight the importance of meaningfully engaging WLWH. Webinar topics included: Trauma- and violence-aware practice; Supporting safer HIV disclosure; Reproductive health, rights, and justice; and Resilience, self-efficacy, and peer support (>1,100 webinar views). Subsequent in-person and online consultation with >130 key stakeholders identified priorities for a National Action Plan to advance the SRHR of WLWH in Canada.

Results Identified priorities to support SRHR across priority topics focused on transforming enabling environments include: • Incorporate Truth and Reconciliation calls-to-action for Indigenous and non-Indigenous Peoples; • Support WLWH's leadership through equitable, adequately compensated opportunities; • Embed peer support and leadership throughout services for WLWH; • Prioritize women-centred care in service/program delivery, attending to women's diverse priorities, experiences, and identities; • Use inclusive, respectful language to avoid reproducing stigma, discrimination, and marginalization; • Strengthen and expand support for WLWH's extended networks (e.g. parental support); • Implement trauma- and violence-aware practices to ensure safer healthcare spaces; • Improve Knowledge Translation & Exchange initiatives. Additional topic-specific key messages were identified to inform a National Action Plan.

Conclusion Guided by community engagement, recommendations from the National Action Plan encourage Canada to

demonstrate global leadership in advancing SRHR of WLWH by emphasizing the need to create enabling environments for health and healthcare. Implementing the plan is being pursued through planned consultations with provincial and national government representatives and policy-makers.

Disclosure No significant relationships.

P277 REDUCING HIV SELF-TESTING BARRIERS IN BLACK AFRICAN COMMUNITIES USING COLLECT: A PHE HIV INNOVATION FUND PROJECT

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10.1136/sextrans-2019-sti.402

Background Black Africans (BA) are disproportionately affected by HIV in England, comprising 38% of heterosexuals diagnosed in 2017, 57% of whom were diagnosed late. Late diagnosis was even higher in BA men (69%).

HIV self-testing is a preferred way to test among BA (Sigma, 2015). Despite increasing online availability of self-tests, Terrence Higgins Trust (THT) noted a lower uptake amongst BA than others. One reason provided includes a reluctance to receive kits in shared accommodation.

With public funding, we added Click&Collect delivery to explore if this would help reduce HIV self-testing barriers.

Methods

- 20,000 self-tests offered online to key communities, including BA, from October–December 2018.
- Click&Collect option provided, with 4,000+ collection points. While open to all, enhanced promotion went to BA.
- Users were sent two follow-up SMSs requesting results. All those with a reactive result received THT support calls.
- A user survey assessed reasons for using the service.

Results

- 18,597 tests dispatched; 3,291 to BA.
- 50% BA reported results, compared to 61% overall.
- Click&Collect uptake: 10% overall; 18% BA men.
- 11 BA reported reactive results, one of whom used Click&Collect. The reactivity rate for BA was 0.7%. From the user survey:
- Over 48% of Click&Collect users stated primary reasons for choosing it were not wanting anyone they lived with accidentally opening package, or finding out they were taking an HIV test.
- 50% of BA Click&Collect users chose self-test for confidentiality – compared to 34% of all other Click&Collect users, for whom it was not a top reason.

Conclusion Click&Collect may address privacy/confidentiality issues for BA where this is a primary issue. The proportion of BA men using Click&Collect was higher than in other groups. As self-testing services increase, Click&Collect offers a way to increasing HIV testing uptake in a group highly affected by late diagnosis.

Disclosure No significant relationships.

P278 STRATEGIES DEVELOPED BY MINISTRY OF HEALTH OF BRAZIL TO INCREASE HIV DIAGNOSIS SINCE 2012

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10.1136/sextrans-2019-sti.403

Background In 2012, 69% of people living with HIV (PLHIV) in Brazil knew their HIV status. In contrast 731,000 thousand people were diagnosed until 2017, corresponding 84% of the current 866,000 PLHIV in the country. This study aims to describe the actions developed to increase HIV diagnosis in Brazil since 2012.

Methods HIV rapid test (RT) in primary care settings has been being the key strategy to enhance HIV diagnosis in Brazil. Therefore, it was crucial to increase the number of health-care professionals capable to perform RT. Considering the need of an alternative training method to on-site, the Ministry of Health (MoH) has been offering the free distance learning course called TELELAB. In addition, the National Program of External Quality Assessment for RT (EQA-RT) was introduced to monitor the quality of the RT performed by those health-care professionals. The use of oral fluid RT was also implemented to develop outreach strategies to promote HIV testing.

Results There was a 270% increase in the number of RT acquired and distributed by the MoH between 2012 and 2018, totalizing 14 million tests in 2018. In 2018, 15,146 professionals were certified online by TELELAB on the HIV diagnosis course, leading to a total of 42,026 professionals since 2012. Eighteen rounds of EQA-RT were conducted, with around 90% approval at the last one. Finally, since 2014, outreach strategies performed 174,000 oral fluid RT by peer-to-peer testing by non-governmental organizations focusing on key-population.

Conclusion The synergy of the strategies described was crucial to ensure the reliability and credibility of the RT results and to reach the population not reached previously by the standard testing, resulting in 15% increase of HIV diagnosis in the period of 2012–2017. Since 2018, the MoH started the free of charge distribution of HIV self-testing as a new tool to continuously improve diagnosis strategies.

Disclosure No significant relationships.

P279 DEVELOPMENT AND VALIDATION OF SEXUALLY TRANSMITTED INFECTIONS DECISION MODELLING SOFTWARE IN COOPERATION WITH POLICY MAKERS

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10.1136/sextrans-2019-sti.404

Background HIV and other sexually transmitted infections (STIs) do not operate in isolation, particularly as people with risk-taking sexual behaviour may be co-infected. In this complex landscape, policy makers are limited by resource constraints while trying to find optimal coverage solutions. Disease modelling could help in this context. We aim to

develop a user-friendly modelling software examining several STIs and HIV simultaneously, as we are unaware of any multi-STI decision support tools currently available.

Methods We developed STI modelling software using the programming language *Java*, consisting of several models and a graphical user interface (UI). The models were drafted based on literature reviews and subsequently refined by experts, e.g. STI clinicians and policy makers. All models were internally and externally validated. The UI was developed with UI development experts and policy makers.

Results Separate disease models, which describe the progression of chlamydia, gonorrhoea, HIV, syphilis, and their sequelae are included in the software. Sexual network models are used to describe the formation and dissolution of partnerships and thereby the occurrence of sexual contacts. Four different network models are included in the software. The clinical pathway models describe interventions, for example screening or STI treatment and reflect the current UK setting. All the models are interacting, individual-based discrete event simulations and have been validated using sensitivity analyses and publicly available data sources. The UI has been validated by policy makers.

Conclusion With this modelling software policy makers can compare both existing and hypothetical intervention options in regards to their costs and consequences. All the parameters, formulas, model structures, and clinical pathways are editable. The software is flexible and usable in different settings and contexts. It can be and updated if needed, e.g. if medical knowledge changes. By adapting parameters which describe treatment pathways the software could be used in non-UK settings.

Disclosure No significant relationships.

P280 USE OF MOBILE HEALTHCARE UNITS IN RAPID TEST EVENTS IN COMBATING SEXUALLY TRANSMITTED INFECTIONS

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Background Social engagement used as a tool for providing access to information and testing for Sexually Transmitted Infections (STIs) during events can be a promising strategy for reaching different population groups in public settings. The use of Rapid Tests (RT) for syphilis offers an unique opportunity to facilitate care in response to the syphilis epidemic. The objective of this study is to evaluate the epidemiological profile of people with positive RT for syphilis observed during RT events in Porto Alegre City, Brazil.

Methods Cross-sectional study using a time series approach in all RTs carried out in Mobile unit RT events in 2018, through data mining, with WEKA software.

Results The events were held in public spaces, such as squares and parks, included roundtable discussions, presentations, condom distribution, RTs for STIs, individual medical care with possibility of prescription and application of medication.

Among 4156 RTs conducted, 626(15%) were positive for syphilis. The characteristics of the population tested were: 2003(48%) women, 374(9%) homo/bisexual, 710(17%) under 25 years and 1001(24%) elderly. In the subgroup with positive syphilis RTs, 250(39.9%) were women, 29(4.9%) homo/bisexual, 44(7%) under 25 years, 43(6.8%) positive RT for HIV and 43(6.8%) for Hepatitis C. Although the RTs for syphilis did not confirm diagnosis, the framework in place to deal with positive tests provides same-day medical consultation to evaluate the need for immediate treatment at the event site and referral for follow-up or continued treatment at the Primary Healthcare level.

Conclusion Social interaction with the public during RT using a mobile healthcare units in places intended for leisure sought to increase awareness and access to people with undiagnosed STIs. Ensuring that specific subgroups of the general population have access to testing and medical consultation were shown to be important points when applying point of care tests. These aspects of community testing should be evaluated in future research.

Disclosure No significant relationships.

P281 REACHING OUT TO MSM WHO FLED FOR WAR AND LGBT OPPRESSION FOR HIV AND STI TESTING, HBV VACCINATION AND COUNSELLING

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Background The Netherlands has had a large influx of MSM refugees in recent years. Soon after arriving many of them start dating other MSM for sexual hook-ups, while insufficiently aware of risks that sex between men entails for HIV/STI. They are also unfamiliar with existing facilities for HIV/STI testing, HBV-vaccination and HIV-care in the Netherlands. **Methods** In 2017 and 2018, MSM refugees were invited for meet-ups in Amsterdam and three other cities, where information and counseling about STI and HIV and how to prevent these was given in multiple languages. HIV and STI tests and vaccination for HBV were also offered on the spot. Only refugees were allowed in, thus creating a safer space atmosphere. Those tested and/or vaccinated received follow-up appointments on regular office hours for test results, further HIV/STI care or completion of HBV vaccinations. These meet-ups were possible through very close cooperation between self-organizations of migrant MSM, regional Public Health Services, gay bars and a national NGO.

Results In 2017 and 2018 a total of 858 MSM refugees attended 8 meet-ups on which 223 HIV/STI tests were done and 226 HBV-vaccinations were given. 43 STI's and 3 HIV infections were found. A survey among visitors showed huge appreciation of the meet-ups. A large proportion of the visitors visited more than one meet up, thus showing appreciation for and trust in the organisers. One on one counselling of visitors by volunteers and health professionals during the meet ups showed lack of knowledge about HIV and STI and lack

of behavioural skills among visitors and the need for development of behavioural interventions specifically for this group.

Conclusion MSM refugees can be reached through gay community meet-ups for HIV/STI testing and HBV vaccination. Extra data have to be collected for the development of much needed behavioural interventions.

Disclosure No significant relationships.

P283 THE ALBERTA 2016–2020 STBBI OPERATIONAL STRATEGY AND ACTION PLAN: COLLECTIVE IMPACT TO ADDRESS THE PROVINCIAL STI OUTBREAK

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Background In April of 2016, a provincial sexually transmitted infections (STI) outbreak was declared in Alberta. In response to sharply rising rates, Alberta formed the Alberta Sexually Transmitted and Blood Borne Infection (STBBI) Network (ASN) and developed the 2016–2020 STBBI Operational Strategy and Action Plan (OSAP). The aim of the STBBI OSAP is to transform STBBI care in Alberta by leveraging engagement and commitment from within the ASN to achieve collective impact and develop wrap around shared care models through formalized interagency collaboration.

Methods ASN has grown to include over 500 stakeholders representing approximately 200 community-based, provincial and federal organizations including communities most affected by STBBI (Indigenous, LGBTQ2+, immigrants, and street involved clients). The OSAP comprises 74 recommendations that focus on five pillars of client-centred STBBI care: (1) prevention, (2) testing/screening, (3) treatment, (4) linkage to care, and (5) stigma. Seven working groups designed 15 project concepts with endorsement from the Steering Committee to optimize achievement of prioritized recommendations.

Results Implementation of STBBI OSAP priority recommendations is still underway in 2019. Some prioritized action items include: PrEP guidelines and training program for designated prescribers; a validation study of self-collected gonorrhoea/chlamydia NAAT specimens to improve access to low barrier testing opportunities; expedited partner therapy; expanded Hepatitis C treatment access in Indigenous communities; education for primary care providers to increase access and linkage to STBBI care; and formalizing interagency collaboration through the development of STBBI wrap around shared care model demonstration projects.

Conclusion The STBBI OSAP is an innovative, comprehensive, and collaborative intersectoral approach to address the high burden of STBBI in Alberta and to strengthen the provincial outbreak response. The strength of this provincial initiative is the engagement and collaboration amongst ASN stakeholders to achieve long lasting impact and sustainability of both systemic and operational interventions.

Disclosure No significant relationships.

P285 FACTORS ASSOCIATED WITH MOTHER-TO-CHILD HIV TRANSMISSION IN WESTERN NIGERIA: IMPORTANCE OF 90–90–90 GOALS IN THE ELIMINATION

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Background HIV pandemic has continued to be a huge challenge in Nigeria, with the problem of stigmatization reducing the chances of early determination of the HIV status of pregnant women. Hypotheses tested were the influence of maternal antiretroviral therapy (ART) use and infant's feeding option on baby's final early infant diagnosis (EID) outcome. The study was aimed at evaluating the variables associated with mother-to-child transmission of HIV & the factors associated with the transmission of the infection from the mothers.

Methods This study was a prospective cohort study of HIV-exposed infants conducted in Western Nigeria, between January 2015 and September 2017. Dried Blood Spots (DBS) were analysed using polymerase chain reaction technique. All data collected using Epidata and were statistically analysed, using statistical package for the social sciences (SPSS).

Results A total of 197 pregnancies resulting in 200 live births, 91 (45.5%) female and 109 (54.5%) male exposed to HIV were recruited. The overall MTCT rate was found to be 1.5% after cessation of all exposures, with two of these babies given mixed-feeding and their mothers not taking anti-retroviral therapy during pregnancy. The factors associated with MTCT in the univariate analysis include HIV diagnosis late during pregnancy, virological suppression & late ART commencement. Maternal antiretroviral therapy (ART) use & infant feeding option were found to have significant effect on baby early infant diagnosis (EID) outcome ($\chi^2 = 15.40$, $df = 2$, $P = 0.001$; $\chi^2 = 12.67$, $df = 2$, $P = 0.001$).

Conclusion The diagnosis of HIV and antiretroviral therapy coverage prior to pregnancy are the main factors in the prevention and elimination of mother-to-child transmission of HIV, thus, the achievement of the 90–90–90 goals in HIV-infected women would make it possible to achieve the goal of eliminating perinatal HIV transmission in Nigeria.

Disclosure No significant relationships.

P288 SEXUALLY TRANSMITTED INFECTIONS AMONG PREGNANT WOMEN IN RURAL MYSORE, INDIA

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Background Sexually Transmitted Infections (STIs) including HIV are a major public health problem in India. Syndromic management is the standard of care for STIs, therefore, there are no studies showing the current screening rates for STIs among pregnant women in India. This study examined the

burden of STIs among rural pregnant women in Mysore, India.

Methods Between 2009 and 2014, a prospective cohort study was conducted among pregnant women. All women underwent an informed consent process before answering an interviewer-administered questionnaire in the local language of *Kannada*. The women consented to providing blood and vaginal samples for testing. All participants received routine antenatal care services and were followed-up immediately after delivery, and at 6- and 12-months after delivery. Descriptive, chi square and logistic regression analyses were computed using SPSS 23

Results The mean age of the 1,772 pregnant women were 21.1 ± 3.2 years, 98.8% were Hindu, with 36.4% belonging to low-income households. The seroprevalence of HIV and Hepatitis B Virus was 0.4% (95%CI: 0.1–0.7) and 0.8% (95% CI:0.5–1.3) respectively. There were no cases of Syphilis. The burden of BV was 7.4% (Nugent Score: 7–10) and 11.6% for intermediate flora (Nugent score: 4–6). Approximately 8.5% had any one of the infections (HIV, HBV or BV). STIs were significantly associated with sex under the influence of alcohol (Odds Ratio[OR]: 1.59, 95%CI: 1.02–2.48) and younger age of sexual initiation (OR:0.90, 95%CI: 0.83–0.99). Nearly 36.7% of the infants had low birth weight (<2.5 kg) and 5.6% infants died before 28 days. No significant association was observed with STIs and low birth weight and infant deaths.

Conclusion The burden of being diagnosed with any STIs was relatively high at 8.5% and is associated with risky sexual practices which could inadvertently cause adverse birth outcomes. Therefore, there is an increased need for screening and active intervention targeted to rural pregnant women in India.

Disclosure No significant relationships.

P289 SYPHILIS TESTING AT ANC IN KENYA: DUAL TESTING AS A GAME CHANGER TOWARDS EMTCT

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Background The ANC guidelines advocate every woman in the ANC to get tested of both HIV and Syphilis in Kenya. Despite these recommendations, the level of coverage of Syphilis testing has been low, as a result women are supported to protect their babies from HIV, only for them to lose their babies due to pregnancy losses and babies dying from congenital syphilis. In addition, the HIV negative pregnant women who have undiagnosed and untreated STIs have an increased risk of acquiring HIV. In July 2017, Kenya launched an elimination of MTCT of HIV and Syphilis Strategic Framework 2016–2022. This paved way to the investment and introduction of HIV & Syphilis Dual test kit use in ANC from March 2018. We thus, sought to know the extent of adherence to syphilis testing among pregnant women at ANC.

Methods The operational research was a retrospective analysis of reported data from October to December 2016, 2017 and 2018. The data used was sourced from DHIS2. Upon assessment of completeness tabulation was done, and summary statistics obtained.

Results A total of 289,875 women who visited 1stANC in October to December 2016, 277,196 (95.6%) were tested for HIV and 12,161 (4.3%) tested HIV positive, the proportion that was screened for syphilis was 211,546 (72.9%) women and out of those, 2,396 (1.1%) women tested positive for syphilis. In October to December 2017, a total of 336,512 women visited ANC, 306,573 (91.1%) women tested for HIV and 15,056 (4.9%) turned positive while 262,567 (78%) were tested for syphilis and 3,072 (1.2%) turned positive. In 2018 same quarter, 336,687 women visited ANC, 298,598 (88.9%) were tested for HIV, 16,580 (6%) turned positive while 307,842 (91%) tested for syphilis and 3,464 (1.1%) tested positive of syphilis. Thus, for the first time ever in Kenya syphilis testing has caught up with HIV testing at 1st ANC. This is an improvement to 91% from 73% which is critical for achievements of the country's eMTCT targets.

Conclusion Syphilis not only results in intrauterine fetal demise, but also facilitates HIV acquisition and impedes progress towards eMTCT. Kenya's commitment to reduce MTCT of HIV and Syphilis to below 5% by 2019 requires our country to improve Syphilis screening/testing. To increase syphilis testing, the use of dual testing kits at ANC should be used widely and every woman at ANC should be encouraged and educated on the importance of syphilis test.

Disclosure No significant relationships.

P290 TEMPORAL DISCOUNTING AND ENGAGEMENT IN CARE AMONG HIV-INFECTED PREGNANT AND BREASTFEEDING WOMEN

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Background For pregnant or breastfeeding HIV-positive women, poor adherence to antiretroviral (ARV) medication and disengagement from care can increase risk of mother-to-child transmission of HIV. HIV-positive women exhibiting high temporal discounting (TD; defined as the tendency to discount future rewards relative to rewards received closer to the present) may be less likely to adhere to recommendations for the prevention of mother to child transmission (PMTCT).

Methods We performed a secondary analysis of data from a randomized controlled trial conducted in the Democratic Republic of Congo, which assessed the effects of a conditional cash transfer intervention among 433 newly-diagnosed HIV-infected pregnant women. We measured TD at baseline using a delay discounting task. We dichotomized TD (high/low) and examined associations between TD and uptake of available PMTCT services, retention in care and viral suppression at 6 weeks postpartum. We used log-binomial regression models to calculate unadjusted and adjusted risk ratios (RRs) for the effects of high vs. low TD on these outcomes.

Results At baseline, participants had a median age of 29 years, median of 10 years of education, and median gestational age of 26 weeks. The majority (86.6%) of women exhibited high TD, where 13.4% exhibited low TD. High TD was associated with incomplete uptake of PMTCT services (adjusted RR: 1.64, 95% confidence interval (CI): 1.08–2.50) and lower viral suppression at 6 weeks postpartum (adjusted RR: 0.77, 95% CI: 0.66–0.90). Temporal discounting was not associated with retention to care in unadjusted (RR: 1.57 95% CI: 0.78–3.15) or adjusted analyses (RR: 1.56, 95% CI: 0.76–3.18).

Conclusion Understanding the mechanisms underlying women's behavioral choices is crucial to optimize interventions for behavior change. Our results indicate that women exhibiting high temporal discounting represent a critical population for interventions to improve adherence and engagement in PMTCT care.

Disclosure No significant relationships.

P291 IMPACT OF PMTCT SERVICE UPTAKE ON OUTCOME OF CARE AMONG WOMEN ATTENDING ANTI NATAL CARE IN NIGERIA

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Background Nigeria has the second largest global burden of HIV/AIDS and also contributes the largest proportion of new vertically acquired HIV infections among children. Despite the effort to control the HIV/AIDS epidemic, elimination of mother to child transmission remains a huge challenge. The study aimed to assess the effect of outcome of care on utilization of prevention of mother to child transmission (PMTCT) services.

Methods A multi stage cross sectional study was conducted in 11 states in Nigeria. A systematic random sampling was used to select 365 clients (women living with HIV) receiving PMTCT services in primary and secondary health facilities. Information on PMTCT and outcome of care were extracted using structured questionnaire while descriptive and bivariate data were analyzed using SPSS version 21.

Results Majority (84.6%) of the clients received HIV counselling and testing at ANC clinics while 40.2% were counselled in a group and 26.7% counselled individually. A high proportion (93.8%) of clients were aware of the early infant diagnostic care services being offered while 92.2% were aware of the health facilities. Similarly, majority (90.0%) of the clients were aware that family planning services are provided in the health facilities while 93.8% had access to infant feeding counselling at ANC. There was no significant difference between outcome of care and utilization of PMTCT services. However, majority of clients who utilized PMTCT services had improved outcome of care.

Conclusion Increased uptake of PMTCT services at ANC contributed to improved outcome of care of pregnant living with HIV and their children. Effort should be made to ensure more women attend ANC to achieve elimination of mother to child transmission in Nigeria.

Disclosure No significant relationships.

P295 PREVALENCE OF STIS AMONG NEPALESE WOMEN POPULATION

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10.1136/sextrans-2019-sti.413

Background Sexually transmitted infections (STIs) cause considerable morbidity worldwide, especially among women of reproductive age. Data on STI prevalence in Nepal are limited, and prevention and control programs have focused primarily on HIV infection. According to national reports, the estimated prevalence of HIV infection was 0.2 - 0.3% in 2013. In high-risk populations, however, there has been observed a concentrated HIV epidemic with an infection prevalence of 1.7 - 18.3%. So far, data on other STIs from Nepal are mostly derived from hospital or health-camp records or from high-risk populations.

Methods A population-based study of non-pregnant women with age 15 years and above, who were married or had a history of marriage in the past, residing in rural communities in Nepal. Data on sociodemographic characteristics, reproductive history, and genitourinary symptoms were collected, and a gynecological examination was also conducted. Cervical samples were analyzed by real-time PCR for *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, and *Trichomonas vaginalis* and HPV, and a serum sample was analyzed for syphilis, hepatitis B virus (HBV) and HIV infection by serology.

Results Of 3570 eligible women, 73% participated. Trichomoniasis, *Chlamydia trachomatis* infection, HPV and HBV infection, and syphilis were detected in 7.2%, 1.2%, 11.4%, 1.7%, and 1.5% of the women. None had gonorrhea or HIV infection. Of those with genitourinary symptoms, 9.4% had a curable STI. Vaginal discharge classified as abnormal by gynecological examination, but not self-reported discharge, was significantly associated with laboratory diagnosis of a curable STI. Risk factors for trichomoniasis were reproductive age and high cast/ethnicity. Due to low prevalence, risk factors for other STIs could not be accurately determined.

Conclusion We observed a high prevalence of HPV infection followed by trichomoniasis, while other STIs were rare among women in rural Nepal. There was no association between genitourinary symptoms and laboratory-confirmed STIs.

Disclosure No significant relationships.

P299 EPIDEMIOLOGY OF SEXUALLY TRANSMITTED INFECTIONS AT GABRIEL TOURE TEACHING HOSPITAL, BAMAKO, MALI

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Background Sexually transmitted infections (STIs), including human immunodeficiency virus (HIV) remain a major public health problem in Africa. Indeed, they carried high morbidity and mortality in this region. The study aimed (1) to estimate the prevalence of STIs/genital infections in gynecological

admissions at Gabriel Toure Teaching Hospital; (2) assess the association between HIV and STIs/genital infections.

Methods We carried out a cross-sectional study using a gynecological admissions database at Gabriel Toure Teaching Hospital, from January 1st, 2006 to December 31st, 2010. We estimated the prevalence of STIs and genital infections. A multivariate logistic regression model was used to estimate the Adjusted Odds Ratios (aOR) of HIV infection and risk factors with 95% Confidence Interval (95%CI). STIs and genital infections were the main exposure variables.

Results Among 9112 women admitted in a gynecological unit, 2240 women have laboratory test. Of these, STIs (*Chlamydia trachomatis* and *Trichomonas vaginalis*) prevalence were 7.8%, genital infection such as candida albicans (CA) represented 40.0%, bacterial vaginosis (*G. vaginalis*, *U. urealiticum* and *M. hominis*), 36.2%, while *E. coli*, *Enterobacter* and *Enterococcus* represented together 3.8%. STIs prevalence was higher in women aged 20 to 40 years old compared to adolescent (<20 years) and older women (>40), 6.0% vs 1.9%, respectively. A same figure was observed with non-STIs. We noted a higher prevalence of STIs in cervicitis cases (11.8%). According to HIV status, CA was the main infection observed with a frequency of 60.0% in HIV+, 51.8% in HIV- and 36.3% in undetermined HIV status. The main risk factor associated with HIV infection was polygamous couple compared to monogamy (aOR = 4.87; 95%CI: 1.02 - 23.22).

Conclusion Women aged 20 to 40 years old carry the highest burden of genital infection at Gabriel Toure Teaching Hospital. CA was the most associated with HIV infection.

Disclosure No significant relationships.

P300 NEIGHBORHOOD VIOLENT CRIME AND HIV TRANSMISSION RISK: A TEMPORAL AND SPATIAL EXPLORATION OF THEIR ASSOCIATION

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10.1136/sextrans-2019-sti.415

Background Experiencing violence, both exposure and victimization, has been associated with negative health outcomes including increased mental health problems and sexual risk behaviors. This ecological analysis aimed to explore the ecological relationship between aggregate violent crime and HIV transmission risk at the census tract level, including effects of spatial dependence.

Methods Violent crime data reported with address of the incident by the Baltimore Police Department as well as HIV viral load information for those with reported addresses and a viral load of >400 copies/mL collected by the Maryland Department of Health and Mental Hygiene were geocoded and aggregated to the census tract level. Community viral load (CVL) was calculated as the prevalence of uncontrolled viral

load in each tract. A negative binomial regression model was used to test the association between violent crime events and CVL, including spatial lag from shared-boundary census tracts as well as mean age, proportion male, labor force participation, educational attainment, and residential instability as key covariates.

Results The annual violent crime rate in Baltimore City in the 5-year period from 2012–2016 was 29.5 per 1,000 population; rates varied widely between census tracts, ranging from 2 to 189.4 per 1,000. The mean CVL was 4.27 per 1,000 population, with a range from 0 to 18.8 by census tract. In the adjusted model, a 100-unit increase in violent crimes was associated with a 19% increase in CVL (RR: 1.19, 95% CI: 1.13, 1.27).

Conclusion Our study shows a statistically significant association between violent crime rates and HIV transmission risk in local areas. This study highlights the need for community-level interventions aimed to address effects of violence exposure in order to effectively combat the ongoing HIV epidemic among vulnerable populations in urban settings.

Disclosure No significant relationships.

P302 **ACHIEVING THE THIRD 90: KEEPING PREGNANT AND BREASTFEEDING WOMEN LIVING WITH HIV VIRALLY SUPPRESSED IN WESTERN NIGERIA**

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Background In 2016, Nigeria transitioned to ‘Test & Treat’, a policy where all people living with HIV (PLHIV) are treated with lifelong antiretroviral therapy (ART) regardless of clinical or immunological status. Hypothesis tested was antiretroviral therapy adherence effect on viral load outcome. The aim of this study is to assess the viral load suppression rates among HIV positive pregnant & breastfeeding women in Western Nigeria.

Methods This study was an observational prospective study of pregnant & breastfeeding HIV positive subjects already initiated on antiretroviral therapy for at least six months, enrolled in health facilities across supported facilities in Western Nigeria, during a 12-month observation period starting October 2016 till September 2017. Quantitative viral load analysis was done using Polymerase Chain Reaction, Roche Cobas Taqman 96 Analyzer.

Results A total of 243 subjects were recruited. The mean age of 32.58 ± 4.18 years. 69 are breastfeeding while 174 were pregnant women. 208 (85.6%) & 188 (77.4%) had viral suppression of <1000 & <50 RNA copies per ml respectively. The 35 subjects went through peer counseling by trained PLHIV and enhanced adherence counseling (EAC) for three months and viral load test repeated three further months after, which made 221 (90.9%) & 202 (83.1%) of the subjects have <1000 RNA & <50 RNA copies per ml respectively during the observation. The PLHIVs joined the institutionalized social-media driven support group &

decentralized care model ensuring they achieve the third 90 at undetectable level. ART adherence has significant effect on viral load outcome ($\chi^2 = 5.86$, $df = 1$, $P = 0.001$).

Conclusion ART adherence counseling is key to the achieving viral suppression and determine infection prognosis, thus, developing robust continuous quality improvement (CQI) plans to address issues across the cascade ultimately helping in the monitoring of HIV/AIDS disease progression and decrease treatment failure tendencies.

Disclosure No significant relationships.

P304 **ACHIEVING THE THIRD 90: KEEPING ADOLESCENTS LIVING WITH HIV VIRALLY SUPPRESSED IN RURAL NIGERIA IN THE ERA OF TEST AND TREAT**

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10.1136/sextrans-2019-sti.417

Background In 2016, Nigeria transitioned to ‘Test & Treat’, a policy where all people living with HIV (PLHIV) are treated with lifelong antiretroviral therapy (ART). There are unique challenges achieving viral suppression in ALHIV mainly due to increased stigma & lack of social support. Hypothesis tested was ART adherence effect on viral load outcome. We examined viral suppression among adolescents living with HIV in Western Nigeria.

Methods This study was an observational prospective cohort study of adolescents living with HIV (ALHIV) already initiated on antiretroviral therapy for at least six months, enrolled in health facilities across supported facilities in Western Nigeria, during a 12-month observation period starting October 2016 till September 2017. Quantitative viral load analysis was done using Polymerase Chain Reaction, Roche Cobas Taqman 96 Analyzer.

Results A total of 126 (64 males & 62 females) subjects were recruited. The mean age of 13.58 ± 4.26 years. 83 (65.9%) & 71 (56.3%) had viral suppression of <1000 & <50 RNA copies per ml respectively. The 43 subjects went through peer counseling by trained ALHIV and enhanced adherence counseling (EAC) for three months and viral load test repeated three further months after, which made 113 (89.7%) & 101 (80.1%) of the subjects have <1000 RNA & <50 RNA copies per ml respectively during the observation. The ALHIVs joined the institutionalized social-media driven support group & adolescent decentralized care model ensuring they achieve the third 90 at an undetectable level. ART adherence has significant effect on viral load outcome ($\chi^2 = 6.42$, $df = 1$, $P = 0.001$).

Conclusion ART adherence counseling is key to the achieving viral suppression and determine infection prognosis, thus, developing robust continuous quality improvement (CQI) plans to address issues across the cascade ultimately helping in the monitoring of HIV/AIDS disease progression and decrease treatment failure tendencies.

Disclosure No significant relationships.

P305 POOR ADHERENCE PREDICTORS AND FACTORS ASSOCIATED WITH TREATMENT FAILURE AMONG HIV SEROPOSITIVE PATIENTS IN WESTERN NIGERIA

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Background The efficiency and success of antiretroviral therapy (ART) depends on a near-perfect level of patient's adherence to a life-long regimen of antiretroviral (ARV) which is beneficial in reducing the risk of emergence of HIV resistant strains. This adherence is however influenced by several factors related mainly to patient and medication. This study is therefore carried out to determine the adherence rate of adult patients infected with HIV and identify the factors associated with antiretroviral therapy (ART) interruption or poor adherence.

Methods This cross sectional study was carried out in Ondo & Ekiti States, South Western Nigeria. The target population was adult patients living with HIV and already initiated on ART. Data was collected by trained volunteers and supervised by appointed supervisors, by a face-to-face interview. All data were statistically analysed, using statistical package for the social sciences (SPSS) and statistical test of significance was performed with Chi-Square test.

Results A total of 412 consenting respondents participated in the study with a mean age \pm SD is 37.93 ± 9.30 years. 116 (40.8%) of them are males while 244 (59.2%) are females. ART adherence level was 79.6%. The main factor associated with ART adherence was educational status ($\chi^2 = 16.18$, $df = 3$, $P = 0.001$). Drug reminder strategy have lower association with missing ART drug (OR: 0.51, 95% CI: 0.28 – 0.92) while patients experiencing ART drug side effect have higher association with missing ART drug (OR: 1.82, 95% CI: 1.01 – 3.28).

Conclusion ART adherence is sub-optimal, with barriers largely patient-dependent thus it is imperative to intensify medication adherence counselling in an holistic behavioural educational improvement strategy aimed at improving the ability to fit therapy into own lifestyle, avoid drug exhaustion, achieve optimal adherence and tremendous patient outcome.

Disclosure No significant relationships.

P306 VACCINE DEVELOPMENT & AMP; PARTICIPATION IN SUB SAHARAN AFRICA: HOW WILLING ARE YOUNG PEOPLE IN WESTERN NIGERIA?

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Background An estimated 36.7 million people live with HIV/AIDS in 2015, with more than 3 million people living with the virus in Nigeria, ranking the country among the top three most affected. Because adults are mostly affected by this epidemic, their inclusion in HIV vaccine trials is of utmost importance in obtaining an effective and acceptable vaccine. This study is thus aimed at evaluating the factors determining

adults (young persons) willingness-to-participate (WTP) as well as their entire knowledge and perception about HIV vaccine trials.

Methods Data was obtained from 3500 young persons (18–49 years) recruited by a multi-stage sample technique. The cross-sectional study was carried out using a face-to-face interview. An informed consent was obtained through a pre-tested structured questionnaire, with questions addressing socio-demographics, HIV vaccine studies knowledge and perception, sexual behaviour and possible stigma from HIV vaccine trial participation. Data was analysed using SPSS software, with significance fixed at $P < 0.05$.

Results The mean age \pm SD was 27.53 ± 3.46 years. 1094 (31.3%) expressed their willingness to definitely participate in the vaccine studies while 999 (28.5%) reported that they may participate especially if a very tangible incentive will be given. Unwillingness to participate was associated with safety concerns (12.0), side effects (5.0%), fear of HIV infection from vaccine (4.1%), time required for study (1.9%) and partner's sexual intercourse refusal (1.2%). 983 (28.3%) reported people in good health, HIV negative individuals and at low risk of HIV infection, are eligible for HIV vaccine trial. There was a significant association between willingness to participate in HIV vaccine trials and age as well as gender.

Conclusion Participation in HIV vaccine trial in Nigerian context is likely influenced by comprehensive education about the vaccine trial concept, addressing issues relating to concerns and possible risks pertaining to participation, as the WTP in the vaccine trial is quite low.

Disclosure No significant relationships.

P307 LINKAGE TO HIV CARE FROM SEXUAL HEALTH CENTER ROTTERDAM: TIMELY ENTRANCE TO CARE, BUT WORRYING LOSS TO FOLLOW-UP IN MIGRANTS

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Background Direct treatment after HIV-diagnosis reduces further transmission and has individual health benefits. A check of HIV referral is therefore crucial. Approximately one third of HIV-infections in the greater Rotterdam area are diagnosed at the Center of Sexual Health (CSH). After notification of HIV-infection and counseling, clients are directly referred to a HIV treatment center (HTC). The HTC informs the CSH if the patient did not attend within 4 weeks.

Methods Determinants of linkage to care were assessed in patients with HIV diagnosis (2015–2018). For patients in the Rotterdam HTCs, median time was calculated between testing and diagnosis (T1) and diagnosis and 1st consultation at HTC (T2).

Results HIV-infection was found in 208 patients, (7 women, 14 heterosexual men, 187 MSM (18 of whom bisexual); 120 (58%) had a non-Western migratory background. Nineteen (9%) turned out to be known HIV-positive: 17 of those were in care, 2 were referred again. Of 189 newly diagnosed, 172 (91%) were directly referred by the CSH to a HTC of whom 95%(163/172) entered care. Median T1 decreased from 9 to 6.5 days and median T2 decreased from 8 to 5.5 days respectively in 2015 and 2018. Linkage to care was 86%(163/189), 14%(26/189) were lost to follow-up: 7 went abroad, 10 were untraceable, 8 were referred but did not enter care and 1 could not be verified. Linkage to care was lower for those with a non-Western migratory background compared to Western (79% (83/105) vs 95% (80/84); $p=0.002$).

Conclusion By a close collaboration between CSH and HTC we were able to improve linkage to care to 86% of new patients, we also observed a decrease in time to care. However, there is a worrisome loss to follow-up, especially in patients with a migratory background. Reasons for loss to follow-up will be investigated, peer involvement may facilitate linkage to care.

Disclosure No significant relationships.

P308 TIMING OF INITIATION OF HIV TREATMENT AND LEVEL OF ADHERENCE AMONG PREGNANT WOMEN UNDER OPTION B+ PROGRAMME IN NIGERIA

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Background Nigeria has the highest rate of mother-to-child transmission (MTCT) of HIV in the world. Adherence to antiretroviral therapy (ART) is therefore crucial in pregnancy because missed doses may lead to virological failure and increased risk of MTCT. Research has shown that ART commenced before pregnancy and continued throughout the prenatal period is associated with low rates of MTCT. We evaluated ART dose adherence among pregnant women who commenced ART before and after conception under the Option B+ programme in Nigeria.

Methods A standardized survey was used to obtain information about health behaviours and practices associated with ART use among pregnant women in four high-volume HIV treatment centres in Nigeria. A woman was considered adherent if she had not missed her ART dose over a four-day period. Prevalence of self-reported 100% adherence to ART doses was calculated for the previous four days using the bootstrap technique.

Results The survey had a response rate of 92.6%. Of the 275 women, 34.2% had commenced ART before conception, while 24.7%, 36.4% and 4.7% started ART during the first, second and third trimester of the current pregnancy respectively. Of women starting ART before conception, 51.1% (95% CI: 41.5 to 60.6) were adherent. Of the women who commenced ART after conception, 30.9% (95% CI 20.6 to 42.6), 19.0% (95%

CI 12.0 to 28.0) and 15.4% (95% CI 0 to 38.5) were adherent in the first, second and third trimester respectively.

Conclusion Adherence was highest among women who started ART before conception and lowest among women who commenced ART during the third trimester. Overall, adherence levels were low. It is essential that ART adherence is improved during pregnancy to fast track the elimination of MTCT in Nigeria. It may be helpful to commence screening for HIV status before pregnancy to facilitate early commencement of ART, if required.

Disclosure No significant relationships.

P309 GOING DEEPER – MSM PEER CLIQUES AND NOT PEER GROUPS PROMOTES BEHAVIOUR CHANGE IN HIV PREVENTION INTERVENTION IN NIGERIA

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10.1136/sextrans-2019-sti.422

Background Guidelines for combination prevention using the Peer Education Plus model (PEP) for HIV in Nigeria include MSM as a key population to target. Assumptions are that MSM are better reached with HIV services in groups of peers consisting of between 8–12 individuals without taking into account cliques that could make up these groups and the unfavourable legal environment which influences MSM Clique's within groups. Our study investigated how Nigeria can leverage MSM's behaviour for increased uptake of STI and other HIV prevention services in the face of unfavorable legislations.

Methods The global fund R9 HIV program supported Edo state, Nigeria from July 2015 - December 2017 to provide HIV prevention services to 503 MSM. Beneficiaries were recruited and exposed to the PEP model. Peer education was carried out in groups without considerations for cliques in the first two semesters and implemented within cliques in the third and fourth semesters. By the fifth semester, MSM were allowed to either take up services within a cliques or in mixed groups. Access to HIV Testing Services (HTS) including linkages to treatment sites for STIs and HIV were all provided

Results In the first two semesters, uptake of HTS increased from 50.7% and 49.1% respectively to 86.3% and 79.7% in the third and fourth semesters and came down to 61.5% in the fifth semester. The number of HIV(+) individuals, who completed referrals to STI treatment centres increased from 25% in the first semester to 66% in the second semester and then reached and remained at 100% in semesters 3–5.

Conclusion MSM are more open to access services in their core cliques as compared to groups. This is probably due to their fear about blackmail. Our study highlights that MSM peer cliques is preferred for behaviour change interventions and therefore suggests how future interventions should be designed

Disclosure No significant relationships.

P311 EXAMINING INTERACTIONS WITH ONLINE OUTREACH WORKERS FOR GAY, BISEXUAL AND OTHER MEN WHO HAVE SEX WITH MEN

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10.1136/sextrans-2019-sti.423

Background As the Internet is increasingly becoming a platform for sexual health education, gay, bisexual and other men who have sex with men (GBM) are having greater interactions with online outreach workers. However, little is known about the content or their assessment of these interactions.

Methods Recruitment of GBM aged 14+ into the #iCruise study occurred across Ontario from 07/2017–01/2018 via socio-sexual websites/apps. Participants reported details about the interactions they had with online outreach workers including what health topics were discussed and gave an assessment of the interaction via Likert scale questions.

Results A total of 910 GBM who completed baseline cross-sectional data collection were eligible for this analysis. Half of participants (49%) reported being under age 30, 62% White, 65% gay-identified, 12% HIV-positive, 44% with some university education, and 12% living in rural areas. Among the sample, nearly 10% (9.7%, n=88/910) reported having ever interacted with an online outreach worker: of these, 37 (42%) reported one interaction, 38 (43%) reported 2–5 interactions, and 8 (9%) reported 6+ interactions; 5 (6%) unsure. Healthy sex (34%) and HIV/STI testing (e.g., where to get tested; 34%) were the most popular topics discussed, followed by HIV/STI prevention (27%), pre-exposure prophylaxis (PrEP) (19%), HIV/sexually transmitted infection (STI) transmission risk (17%), HIV/STI treatment and care (13%), condoms (11%) and lube (11%). When rating the outreach interaction, GBM reported: it was easy to understand (92%), gay/bisexual friendly (88%), relevant to gay/bisexual guys (87%), ‘didn’t make me feel bad about myself’ (79%), applicable (72%), and the interaction had fully answered their question (74%). Over half of the participants reported the information was transgender friendly (56%) and relevant to trans guys (52%).

Conclusion A significant minority of GBM had interactions with online outreach that covered a range of health topics. These interactions were generally very positive and rated understandable, applicable, and inclusive.

Disclosure No significant relationships.

P312 EVALUATION OF AN ANTIRETROVIRAL THERAPY (ART) INTERRUPTION ALERT AND REFERRAL SYSTEM IN BRITISH COLUMBIA (BC), CANADA

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Background In mid-2016, the BC HIV Drug Treatment Program (DTP) expanded its province-wide prescriber alert system for ART interruptions to include direct referrals to public health offices for persons off treatment for >4 months. We examined outcomes before and after launch of this Re-Engagement and Engagement in Treatment for Antiretroviral Interrupted and Naïve populations (RETAIN) Initiative.

Methods We analyzed adult, DTP participants with ART interruptions triggering a physician-directed alert (ART refill >2 months late) in pre-RETAIN (Jul-2013 to Apr-2016) and post-RETAIN (May-2016 to Oct-2017) periods, based on the first alert issued within the study period. Follow-up continued until Oct-2018, excluding persons who moved or died within 90 days of an alert being sent. We compared the proportion of persons who were linked to care, re-started ART, or achieved viral suppression in the pre- and post-RETAIN periods, and the time to ART re-initiation using a generalized estimating equation model.

Results There were 3219 alerts sent for 1805 patients, 1374 related to first interruptions in the pre-RETAIN period and 431 post-RETAIN. Of these, 135/431 (31%) post-RETAIN cases were referred to public health within 4 months following the first alert. Patients were predominantly male (74%) with a median age of 47 years. We found no statistically significant differences in the proportions of persons who were linked to care (83% vs 83%), re-started ART within 4 months (73% vs 74%), or achieved viral suppression (61% vs 62%) between the two periods. Among persons who re-initiated ART >4 months following the initial alert, the median (Q1-Q3) time to ART restart declined significantly from 9 (6–15) months pre-RETAIN to 8 (6–11) months post-RETAIN (p=0.004), possibly influenced by public health intervention.

Conclusion We observed shorter time to re-initiation after the introduction of referrals for public health support. Similar systems could be considered in other jurisdictions.

Disclosure No significant relationships.

P313 THE ROLE OF TEMPORAL DISCOUNTING IN A CONDITIONAL CASH TRANSFER INTERVENTION TO IMPROVE ENGAGEMENT IN HIV-CARE

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Background Understanding the mechanisms underlying health behaviors is crucial to optimize interventions to improve HIV-related outcomes. Temporal discounting (TD), the tendency to discount the value of future rewards relative to rewards received closer to the present, may lead to risky health behaviors. Conditional cash transfer (CCT) interventions were developed in part to mitigate these effects. Despite this, few studies assess the direct role of TD on the effect of CCT interventions on HIV treatment and prevention.

Methods Using data from a randomized controlled trial among 433 HIV-infected pregnant women in the Democratic Republic of Congo, we assessed three outcomes: 1) retention to HIV care, 2) uptake of services for the prevention of mother-to-child transmission (PMTCT), and 3) viral suppression at 6 weeks postpartum. We used a delay discounting task to measure TD at baseline. We hypothesized that if CCT works by mitigating the harmful effects of TD, we would observe a positive interactive effect on the additive scale between high TD and CCT. We specified linear binomial regression models

to calculate the individual and joint effects of CCT and TD, and we calculated the interaction contrast (IC) to illustrate possible interaction between these effects.

Results The effect of CCT on uptake of PMTCT services was greater among women exhibiting high TD. The IC suggested a positive interactive effect between TD and the CCT intervention on uptake of PMTCT services (IC: 0.17; 95% CI: -0.15, 0.48). We observed no evidence of additive interaction between TD and the CCT intervention on retention or viral suppression.

Conclusion This CCT intervention may help mitigate the harmful effects of TD on uptake of PMTCT services, though this mechanism did not appear to play a role for retention or viral suppression. Alternative approaches could be developed to address the effects of TD on HIV-related outcomes.

Disclosure No significant relationships.

P314 IDENTIFYING KEY STAKEHOLDERS AND THEIR ROLES IN THE INTEGRATION OF POCTs FOR STIS INTO CLINICAL SERVICES

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Background Despite potential to positively impact patient management, sequelae, and patient perceptions of services, few point-of-care tests (POCTs) to diagnose sexually transmitted infections (STIs) have been implemented into sexual health services (SHSs). Qualitative, in-depth research can be used to identify who the decision-makers are for adopting and implementing STI-POCTs in UK SHSs, and better understand these decision-makers' roles in these processes.

Methods We conducted a secondary analysis of data collected in two studies (*Precise* and *Facilitators to Adoption*). Based on their self-identified role in the POCT adoption process, sexual healthcare professionals (HCPs) were invited to in-depth interviews and workshops where participant observation notes were taken. Using these data, we defined key stakeholders and, using a thematic approach in NVIVO 11, we explored the process of POCT integration into their services.

Results 8 SHS workshops took place in 2017 and 37 interviews in 11 UK SHS took place between 2015 and 2018. Participants included clinicians, nurses, clinic managers, laboratory staff and clinical commissioners. Lead clinicians and managers self-identified themselves as key stakeholders for the decision to purchase, while nurses self-identified themselves as change champions for POCT implementation following adoption. Although many participants considered senior clinical staff most likely to introduce and drive change, participants stressed the importance of engagement of all clinical staff, particularly when tackling resistance to change.

Conclusion Our data suggest that supportive interpersonal relationships, such as between clinical leads and commissioners

when considering adoption, and between all levels of clinical staff during implementation, must be considered to ensure the successful integration of POCTs in SHSs.

Disclosure No significant relationships.

P316 STRUCTURE-BASED DRUG DESIGN FOR *NEISSERIA GONORRHOEA*, *CHLAMYDIA TRACHOMATIS*, AND *MYCOPLASMA GENITALIUM*

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Background The UW-STI consortium seeks to develop novel antimicrobials for the treatment of syndromically similar infections caused by *Neisseria gonorrhoeae* (GC), *Chlamydia trachomatis* (CT), and *Mycoplasma genitalium* (MG).

Methods We utilize a structure-based validation pipeline embedded with a gated series of criteria for progressing drug-gable enzyme targets, and for identifying and advancing compounds active against these protein targets. The pipeline includes orthologous and essential enzyme target identification, structure determination, compound library screening, antimicrobial susceptibility testing, hit optimization, and chemical-genetic target validation.

Results To date, we have identified over 80 enzyme candidates that are essential, single copy genes in both GC and MG; 7 GC structures, 1 CT structure and 1 MG structure have been solved by crystallography, and soluble expression has been achieved for 19 GC, 20 CT, and 3 MG recombinant enzymes. Several structures common to two bacteria have been solved including tryptophan-tRNA synthetase, lysyl-tRNA synthetase, and ribose-5-phosphate isomerase A/B. Phenylalanyl-tRNA synthetase (PheRS) is among our highest priority targets and is presented as a proof of concept for multi-organism drug development. PheRS is a validated drug target with divergence from its human counterpart, as modeled by the group. In lieu of crystal structures, the GC PheRS alpha and beta complex was modeled using the Rosetta software suite. Multiple cloning and expression strategies have been employed including surface mutations, solubility tags, engineered truncations, and co-expression of both subunits, in hopes of producing crystals. A PheRS001 inhibitor was synthesized from published literature and proved active against GC PheRS with an IC₅₀ of 93 nM, and in antimicrobial testing against all three bacteria: 120 µg/ml (CT MIC) and 18 µg/ml (MG and GC MIC).

Conclusion PheRS is a promising example of our pipeline capabilities in our three-pronged approach to produce 5–10 therapeutic leads and aid in the global fight against antibiotic resistance in sexually-transmitted bacterial infections.

Disclosure No significant relationships.

P317 IMPLEMENTATION OF CONTINUOUS QUALITY INITIATIVE FOR IMPROVING KEY INDICATORS IN HIV TREATMENT CASCADE IN WESTERN NIGERIA

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10.1136/sextrans-2019-sti.428

Background Continuous Quality Improvement (CQI) is a quality management process that encourages all health care team members to continuously ask critical questions especially using CQI initiative that employs a Plan-Do-Study-Act (PDSA) cycle to test a proposed change or initiative. Granular Site Management (GSM) was established to enhance identification of innovations or best practices and scale across facilities and ensuring resources application efficiency. The aim of the study was thus to improve key indicators in HIV program treatment cascade in Western Nigeria.

Methods The CQI implementation was in four selected (secondary & tertiary) facilities where a cumulative 6000 patients living with HIV (PLHIV) in care. The major drivers of poor performance on key program indicators were identified with underlying causes, in-depth analysis & review of performance done then using CQI approach to implement change strategies for improvement, monitor and periodically evaluate change ideas for improved outcomes.

Results A total of four facilities were included in this study. Escort service was implemented for all newly identified HIV positive patients which made linkage to care improve from 50% to 95% within a space of six months. Task shifting & sharing, improved health education for clients, introduction of biometrics capturing for all clients and creation of additional hub for sample logging to viral load reference laboratory all helped to improve viral load uptake & suppression from < 30% & < 80% to 79% & > 80% respectively. Other CQI initiatives also greatly improved the positivity rate, total number of positives placed on treatment and retention in care.

Conclusion This CQI initiative using GSM approach has been used to achieve peer learning and cross fertilization of change ideas among facilities thus encouraging them to innovate and have a problem solving approach to achieve programmatic best practices thus ensuring program & resources application efficiency.

Disclosure No significant relationships.

P318 THE IMPLICATIONS OF EFFECTIVE SCHOOL-BASED PREVENTION FOR RISK OF STD ACQUISITION

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10.1136/sextrans-2019-sti.429

Background Effective school-based HIV and STD prevention improves health education, access to health services, parent engagement, and increases school connectedness (SC). SC – the degree to which students believe that adults and peers in the school care about them and their success – has long term implications for sexual behavior, experience of sexual violence, and STD acquisition into adulthood. The current analyses examine the associations of activities to increase school

connectedness and health-related experiences and behaviors among high school students in 347 schools from 17 school districts funded by CDC's Division of Adolescent and School Health (DASH) from 2013 to 2018 to implement HIV and STD prevention.

Methods We used data from DASH's Program Evaluation Reporting System (PERS) and School Health Profiles survey (Profiles) to assess implementation of four school connectedness activities and data from the Youth Risk Behavior Survey (YRBS) to assess youth behaviors and experiences. We examine whether level of implementation of SC in Year 3 of the program was related to STD risk at the end of Year 4.

Results SC, as measured by PERS, was significantly related to decreased forced sex (OR=0.99, CI=0.99–1.0, p<0.001), sexual initiation (OR=0.99, CI=0.98–0.99, p<0.001), current sexual activity (OR=0.99, CI=0.98–0.99, p<0.001), and increased dual protection (OR=1.02, CI=1.00–1.04, p<0.05). SC as assessed by Profiles was related to lower levels of sexual dating violence (OR=0.98, CI=0.97–0.99, p<0.001), initiation (OR=0.98, CI=0.98–0.99, p<0.001), current sexual activity (OR=0.99, CI=0.98–0.99, p<0.001), and increased condom use (OR=1.01, CI=1.00–1.02, p<0.01).

Conclusion The DASH approach to primary prevention of HIV and STD is effective in improving sexual risk behaviors at a population level in schools. The current analyses demonstrate that increased implementation of school-connectedness specific activities are associated with reduced behaviors and experiences tied to STD acquisition, with significant implications for those experiences into adulthood.

Disclosure No significant relationships.

P319 RANDOMIZED CONTROLLED TRIAL OF 1% AND 5% 5-FLUOROURACIL COMPARED TO 90% TRICHLOROACETIC ACID FOR ANOGENITAL WART TREATMENT

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10.1136/sextrans-2019-sti.430

Background Anogenital wart is one of the most common sexual transmitted infection with varying number of cure rate. Currently self applied therapy is not widely available in Indonesia, except 5-Fluorouracil (5-FU) which could be obtained from 5-FU solution and had been tested for the drug stability. Standard topical therapy in Indonesia is 90% trichloroacetic acid solution (TCA), need 4–6 times until lesion improved. Since TCA requires weekly visit, so it could decrease the treatment compliance. Therefore the self applied therapy may become more favourable. We aim to know the effectivity and safety of 1% 5-FU and 5% 5-FU cream compared to 90% TCA solution in the treatment of anogenital wart.

Methods A randomised control study with intention to treat analysis conducted on January-Mei 2018 in 72 subjects. Allocated to three group 1% 5-FU, 90% TCA, and 5% 5-FU. Response of therapy and side effect (subjective and objective) were evaluated each week, up to seven weeks.

Results Evaluation at week 7 demonstrated that there was no significant difference on the effectivity between 1% 5-FU and 90% TCA (p=0,763), as well as on the effectivity between

5% 5-FU and 90% TCA ($p=0,274$). Subjective side effect in 1% 5-FU was significantly milder than 90% TCA ($p=0,004$), but the significant milder objective side effect only found at week 2, 6, and 7 ($p<0,05$). Meanwhile subjective side effect in 5% 5-FU was also significantly milder than 90% TCA ($p=0,001$), but the significant milder objective side effect only found at week 2 ($p=0,000$).

Conclusion 1% 5-FU and 5% 5-FU cream have no difference effectivity compared to 90% TCA. Regarding the side effect, 1% 5-FU has significantly milder than 90% TCA. We concluded that 5-FU may become alternative topical therapy with self-application as the benefit and 1% 5-FU cream is more recommended due to milder side effect.

Disclosure No significant relationships.

P320 INCENTIVE TESTING AND TREATMENT FOR STBBI IN HARD TO REACH POPULATIONS IN EDMONTON, ALBERTA, CANADA

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10.1136/sextrans-2019-sti.431

Background Since 2014, Edmonton, Alberta, Canada has seen an alarming rise in infectious syphilis and gonorrhoea infections. Individuals from vulnerable communities with substance use, involvement with corrections, transactional sex, and inadequately housed are overrepresented among cases. The aim of this project was to increase access to sexually transmitted and blood borne infections (STBBI) testing and treatment among hard to reach populations in Edmonton.

Methods Outreach teams from the Edmonton STI clinic consisting of a registered nurse and community health representative or licensed practical nurse offered STBBI testing at subsidized housing locations, community based organizations, and through street outreach. Clients were offered testing and treatment for chlamydia (CT), gonorrhoea (NG), syphilis, HIV, Hepatitis C. Clients received a \$10 gift card for testing and a \$10 gift card when returning for results and/or treatment.

Results From October 2018 to February 2019, 393 testing visits were completed among 342 individuals. Nearly two-thirds (61%; $n=207$) of individuals were men with a median age of 32 years. Women were younger with a median age of 20.4 years. Nearly 60% (57.9%; $n=198$) of individuals reported substance use with 19.0% ($n=65$) reporting injection drug use. Six percent ($n=20$) of individuals were involved in transactional sex. The positivity rate for CT was 9.5% ($n=26$) and 4.0% ($n=11$) for NG (273 tested). The positivity rate for HCV was 5.4% ($n=15$; 278 tested). The syphilis seropositivity rate was 10.8% ($n=34$; 315 tested). No new HIV cases were found. Eight-percent ($n=31$) of visits involved treatment for an ST

Conclusion Offering STBBI incentivized testing was effective in improving access to testing and treatment for hard to reach clients resulting in high positivity rates for STBBI. By offering testing and treatment to individuals linked to high transmission activities, we aim to reduce the burden of STBBI among vulnerable groups

Disclosure No significant relationships.

P321 THE SEXUAL AND REPRODUCTIVE HEALTH NEEDS OF THE HARD TO REACH POPULATIONS IN UGANDA

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10.1136/sextrans-2019-sti.432

Background Despite efforts by Ministry of Health (MOH) and implementing partners (IPs) to implement programs that are complementary to static services, some communities remain hard to reach and sustain low access to existing SRH services. Majority live in places where there are inadequate health services or are hard to reach within the general public and are underserved by the existing SRH services (de paz et al, 2014). Majority of these groups were displaced from their indigenous habitats in the 20th century but remain hard to reach due to factors like; geographical location, cultural beliefs, nomadic life style and biological factors. Majority suffer from attacks from neighbors, are isolated and continue to be underserved by existing service structures. As a result, there's been minimal change in SRH indicators over the past ten years despite growing focus by IPs.

Methods Qualitative design utilizing case study approach to qualitative inquiry

Results The SRHR needs of the hard to reach groups are similar though with varying levels of severity among the different groups but of greater impact in these marginalized communities compared to the general public. The key SRHR needs include; STIs, SGBV, family planning, Female Genital Mutilation, Health facility deliveries, low ANC attendance and the role of TBAs. The most significant barriers include; high levels of extreme poverty, poor cultural beliefs and practices, low literacy levels, alcohol abuse, language barriers, early marriages, poor health systems and distance between the clients and available health services

Conclusion Majority of the SRH needs are known in the existing literature and not unique to hard to reach groups. These needs have greater impacts among the hard to reach groups compared to the general public. The key barriers to SRHR services are; language barrier with neighbouring societies, poor cultural beliefs and practices, poverty and long distance to existing health services

Disclosure No significant relationships.

P322 A BRIEF CLINIC-BASED PEER-TO-PEER EDUCATION INTERVENTION TO IMPROVE PREVENTION PRACTICES AMONG SEXUAL MINORITY MALES

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10.1136/sextrans-2019-sti.433

Background Gay, bisexual, and other men who have sex with men (GBM) are disproportionately affected by STIs and HIV. Originally efficacious with young Black GBM, Focus on the Future (FoF) is a clinic-based, single session intervention aimed at improving prevention practices. We examined the efficacy of the program when adapted for Vancouver's ethnoracially diverse GBM communities.

Methods Participants were recruited from a GBM sexual health clinic and completed a one-time 60-minute education session with a peer health educator. This included condom and lubricant information and condom application skills practice. Between 09/2018–02/2019, each participant completed a baseline survey prior to intervention and again three months later, which were compared using paired t-tests.

Results A total of 24 HIV-negative participants received the intervention: average age was 27.8 years (SD=3.53) and 52% identified as non-white. The intervention was highly acceptable: 87% liked it and 91% would recommend it to others. At 3-month follow-up, participants agreed the intervention increased: knowledge about using lubricants with condoms (83%), condom use skills (78%), and condom use confidence (70%). At baseline, few participants used daily pre-exposure prophylaxis (PrEP, 17%); post-intervention, 6 PrEP-naïve participants reported initiating PrEP (32%). Overall, condom use frequency during anal sex with male partners did not change (51% baseline versus 58% post-intervention, $p=0.41$). However, among non-PrEP users, condom use frequency significantly increased during receptive anal sex (61% baseline versus 78% post-intervention, $p=0.04$) and marginally increased during insertive anal sex (24% baseline versus 48% post-intervention, $p=0.11$).

Conclusion The adapted FOF intervention was highly acceptable to ethnographically diverse GBM in Vancouver. A third of participants initiated PrEP within 90 days. Among participants not using PrEP, the intervention effectively increased condom use during receptive anal sex, when HIV acquisition is most likely. This low-cost intervention demonstrates promise for increasing prevention practices among GBM attending STI clinics in Vancouver.

Disclosure No significant relationships.

P323 UNEXPECTED RISING TREND OF SEXUALLY TRANSMITTED INFECTION IN BANGKOK, THAILAND

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Background Sexually transmitted infection (STI) remain a major public health challenge in Thailand, particularly Bangkok. STI control is important for HIV prevention. With a commitment to United Nation's Fast-Track cities to end AIDS in Bangkok by 2030, situation of STI should be monitored to assess effectiveness of HIV prevention efforts. This study aimed to examine trends of STI in Bangkok from 2013 to 2017 using case reporting data and periodic surveys.

Methods Data were obtained from the National Notifiable Disease Surveillance Report (506) and Routine Integrated HIV Information System (RIHIS) from nine STI clinics in Bangkok between 2013 and 2017.

Results Bangkok is facing a rise in STI cases, especially among young people, with 40% of all STI cases occurring in 15–24 years. From 2013 to 2017, the rates of reported STI in Bangkok increased eight folds from 11.8 cases per 100,000 population to 90 cases per 100,000, while the national rate rose four folds (18.5 in 2013 to 67.2 in 2017). In 2017, syphilis

was the most commonly reported disease in Bangkok with two times the national rate and particularly common among men who have sex with men (MSM).

Conclusion Prevalence of STI in Bangkok was rising and much higher than the national scale. MSM account for a disproportionately large burden of STIs particularly syphilis, which are consistent with high prevalence of HIV infection among MSM. Weakening of STI control may undermine HIV prevention efforts. Strengthening STI control in Bangkok are urgently needed.

Disclosure No significant relationships.

P324 HOW DO THE PSYCHOSOCIAL CHARACTERISTICS OF WOMEN ATTENDING SEXUAL HEALTH SERVICES DIFFER FROM THOSE ATTENDING PRIMARY CARE?

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Background Women attending specialist sexual health and contraception clinics (SHAC) are younger and more likely to report substance use and sexual risk behaviours than those attending Primary Care (PC). A broader analysis of psychosocial differences between these populations may improve our understanding of the wider determinants of sexual risk and morbidity and support the development of psychosocial interventions for use in specialist settings. We therefore explored which psychosocial factors were associated with recruitment site.

Methods Psychosocial question responses were compared from a cross-sectional survey of convenience-sampled women aged 16–44 years attending PC (Primary Care) vs SHAC services in the city of Brighton and Hove, UK. Multivariable logistic regression was used to identify which psychosocial factors predicted attendance in SHAC versus PC.

Results 1238 (70%) eligible women completed a questionnaire in a PC setting and 532 (30%) women in a SHAC service. After controlling for age, several psychosocial factors predicted SHAC compared to PC attendance. These included: living in rented accommodation (adjusted odds ratio (aOR)=1.70, 95% confidence interval (CI):1.20–2.40), being a cigarette smoker (aOR=1.32, 95%CI:1.00–1.75), disagreement that 'having a partner at all times is important to me' (aOR=2.24, 95% CI:1.69–2.97) emotional dissatisfaction with most recent relationship (aOR=1.51, 95%CI:1.15–1.99) and little or no functional social support (e.g. help with chores and meals) (aOR=1.83, 95%CI:1.21–2.78).

Conclusion Findings suggest that women attending SHAC may be more likely to experience lack of support and dissatisfaction with sexual and other relationships, and may be more likely to be in rented or other insecure housing compared with those attending primary care settings. Thus, the potential impact of broader life circumstances on sexual risk may be

worthy of discussion during clinical and health advisor consultations.

Disclosure No significant relationships.

P326 SYNDemic PATTERNS OF RISK FOR SEXUALLY TRANSMITTED INFECTIONS

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10.1136/sextrans-2019-sti.436

Background Syndemics theory proposes that diseases may cluster and intensify based on multiple interacting factors. Few studies have compared methods to identify syndemics related to sexually transmitted infection (STI) risk. The purpose of this study is to compare the use of a composite scoring method and latent class analysis to identify syndemics of STI risk.

Methods Youth were aged 18–25 who participated in the National Health and Nutrition Examination Survey, 2011–2014 (N=1,803). Syndemic composite scoring was tabulated by an accumulation of indicators by gender, and latent class analysis (LCA) was conducted to extract classes of risk based on indicators reported by gender. The outcome, STIs, was defined as a determinant result for *Chlamydia trachomatis*, Herpes Simplex Virus type-2, or HIV. The odds of STI were calculated using the patterns of risk by sex adjusted for demographic and poverty indicators.

Results Composite score results suggest that males with an accumulation of 3 to 5 syndemic indicators (AOR: 2.10 CI 95% 1.0–4.2) and 6 or more indicators (AOR: 2.84 CI 95% 1.2–6.7) had an increased odds of STI. Similarly, females with 6 or more indicators (AOR: 3.20 CI 95% 1.7–6.0) had increased odds of STI. The LCA suggested that men with the highest probability of smoking and sexual risk behaviors were at increased odds of STI (AOR: 2.42 CI 95% 1.1–5.4), while women exhibit a syndemic of depression, smoking, drug use and sexual risk behaviors (AOR: 2.19 CI 95% 1.2–3.8).

Conclusion The co-occurrence of mental health, substance use and smoking were important indicators of STI risk in women. LCA was able to determine indicators that co-occurred in men and women and sexual risk behaviors that differed by gender, while the syndemic scoring show an accumulation of indicators increased STI risk.

Disclosure No significant relationships.

P327 PATTERN OF SEXUALLY TRANSMITTED INFECTIONS IN THE INTERIOR PART OF SINDH PROVINCE OF PAKISTAN

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10.1136/sextrans-2019-sti.437

Background Sexual Transmitted infections (STIs) are widespread in Pakistan and have not been fully documented. A hospital based prospective study was carried out to determine

the incidence and clinical pattern of various types of STIs in general population of Larkana division and its surrounding cities.

Methods

Patients and methods This study was conducted at male STD Clinic in the Department of Dermatology Shaheed Mohtarma Benazir Bhutto Medical University (SMBBMU) hospital Larkana. A total of 4288 cases were seen in this semi urban area. A structured questionnaire presenting the details of syndromic diagnosis was filled during the examination of each patient. For our ease and understanding, these patients were also separated on the basis of clinical and etiological grounds.

Results Among 4288 patients, 3947 had the history of extra marital sexual contact and simultaneously had developed clinical signs of STIs. Majority of patients had the history of heterosexual contact with different partners. According to syndromic diagnosis: 1930 patients had genital ulcer (including herpes genitals) with or without skin manifestations, 690 had urethral discharge, 431 had genital warts, 349 had lesions other than STIs related, 304 had more than one syndrome, 193 had scrotal swelling, 46 had inguinal bubo, 3 were human immunodeficiency virus (HIV) positive and 1 had ophthalmia neonatorum.

Conclusion It is concluded that STIs are the growing concern and a public health problem in the central part of Sindh province of this muslim state and syphilis exhibited the highest level of concentration followed by gonorrhoea and so on. Community needs to be educated for adopting the safe sex measures to prevent the STIs.

Disclosure No significant relationships.

P328 SEXUAL HEALTH CARE: PROFESSIONAL DEVELOPMENT FOR RURAL PRACTITIONERS

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10.1136/sextrans-2019-sti.438

Background Rural doctors have limited accessible professional development, barriers include time, travel, expense and relief staffing issues. Sexual Health Care education opportunities were lacking, so we have provided online, free, accredited education for rural practitioners that was relevant to their practice. The online education modules, which are unique, use a rural lens when addressing sexual health care needs in practice in rural communities.

Methods The Centre for Excellence in Rural Sexual Health instigated the production of online learning modules. The first 8 were launched in 2016 and a further two have been launched since. Each module is evaluated by the participant upon completion. The modules cover practical topics in sexual health care ranging from sexual history taking, partner notification in a small community to avoiding assumptions in sexual health care.

Results 326 modules have been completed. The most popular modules were 'Introduction to rural sexual health care', 'Cornerstones of sexual health care' and 'STI treatment and management modules'. These modules are compulsory for a General Practitioner to complete if he or she is completing them as part of a large professional development activity (known as an Active Learning Module). The rest of the modules are free choice; with the most popular module being

'Privacy and Confidentiality'. The learning objectives were met for the majority of participants. Different aspects of the modules – format, references, learning activities were rated from 1 (worst) to 5 (best) with all ratings ranging from 3 to 5. Areas for improvement were video time length as some rural areas had difficulty with internet speed but the majority were perceived to be relevant to rural practice and the mode of learning acceptable for practitioners.

Conclusion The modules promote inquiry-based learning for adult learners and provide opportunity for rural doctors to critique and reflect on their own practice.

Disclosure No significant relationships.

P329 STRESS, POST-TRAUMATIC STRESS DISORDER, AND SEXUAL AND REPRODUCTIVE HEALTH IN A NATIONALLY-REPRESENTATIVE SAMPLE OF US WOMEN

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10.1136/sextrans-2019-sti.439

Background Examination of stress and post-traumatic stress disorder (PTSD) in relation to sexual and reproductive health (SRH) is limited. Stress, potentially by impairing immune response and increasing risk-taking behavior, may influence risk of poor SRH. 'Weathering' effects from chronic stress exposure that accumulate over time may further heighten risk.

Methods Using Wave IV data on 7870 women (ages 24–34) in the National Longitudinal Study of Adolescent to Adult Health, we defined high stress as scores ≥ 6 (75th percentile) on the 4-item Perceived Stress Scale and PTSD as self-reported diagnosis by a healthcare provider; we categorized years since diagnosis as never, ≤ 2 , 3–5, ≥ 6 . Women reported lifetime and past year sexually transmitted infection (STI) and pelvic inflammatory disease (PID) diagnoses, adverse pregnancy outcomes (miscarriage, ectopic/tubal pregnancy, stillbirth), and impaired fecundity (difficulty becoming/staying pregnant). We used modified Poisson regression to estimate sociodemographic-adjusted prevalence ratios (APR) and 95% confidence intervals (CI).

Results Approximately 43% reported high stress and 4% PTSD (1% ≤ 2 years since diagnosis, 1% 3–5 years, 2% ≥ 6 years). High stress was associated with past year bacterial STIs (APR=1.53, 95%CI: 1.13, 2.09), unassociated with viral STIs, and weakly associated with adverse pregnancy outcomes (APR=1.24, 95%CI: 1.02, 1.50) and impaired fecundity (APR=1.13, 95%CI: 0.98, 1.30). PTSD was also associated with lifetime viral STIs (APR=1.40, 95% CI: 1.06, 1.83) and PID (APR=3.12, 95%CI: 1.59, 6.12). Compared to women never diagnosed with PTSD, APRs for past year bacterial STIs were 2.66 (95%CI: 1.28, 5.55) and 3.12 (95%CI: 1.49, 6.55) for women diagnosed ≤ 2 years and ≥ 6 years ago respectively, but not associated for women diagnosed 3–5 years ago.

Conclusion High 'global' perceived stress is associated with increased prevalence of poor SRH among women. Stronger associations were demonstrated in women with PTSD, particularly those with shorter and longer time since diagnosis, potentially suggesting both adverse acute and chronic stress responses.

Disclosure No significant relationships.

P330 THE SEXUAL AND REPRODUCTIVE HEALTH NEEDS OF HARD TO REACH GROUPS IN UGANDA

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10.1136/sextrans-2019-sti.440

Background In order to achieve universal health coverage for all, the government of Uganda committed to advancing family planning for all during the FP2020 London Summit in July 2017. Despite efforts by Ministry of health (MOH) and Implementing partners (IPs) to implement programs that are complementary to static services, some communities remain hard to reach. Emerging New groups of nomads, balaro (Agago, Gulu, Apach). These don't return but settle in new scarcely populated areas, father children, acquire STI The Ike suffer from attacks from Kenya and Uganda, are isolated, not reached by SRHR services, have SRH needs. The Batwa, lived in forests but now displaced. Lost livelihood, Not integrating well with communities. Sexually exploited by communities due to myths. These groups remain hard to reach by due to factors like; stigma, geographical isolation, cultural beliefs, life style patterns and biological factors. There's been minimal change in SRH indicators, despite growing focus by IP (Kanungu, Kisoro, Rubanda)

Methods A qualitative design utilizing case study approach to qualitative inquiry was used Data collection was by; Document review Key informant interviews (KIIs) Focus group discussions (FGDs) Sampling for FGDs and KIIs was purposive with maximum variation Data collected was transcribed, analysed thematically and report generated

Results The key SRHR needs include; sexually transmitted infections, sexual and gender-based violence, family planning, female genital mutilation, limited delivery at health facilities, low ANC attendance and a high held role of TBAs in these communities. The most significant barriers to SRHR services include; extreme poverty, poor cultural beliefs, low literacy levels, alcohol abuse, language barriers, distance between the clients and available health services.

Conclusion The SRHR needs are documented in the existing literature and not unique to hard to reach groups though of greter impacts among these groups. The most unique barrier to SRH services include; language barrier, poverty and distance to existing health services

Disclosure No significant relationships.

P331 QUANTITATIVE EVALUATION OF AN INNOVATION CONTEST TO ENHANCE A SEXUAL HEALTH CAMPAIGN IN CHINA

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10.1136/sextrans-2019-sti.441

Background Crowdsourcing method is an excellent tool for developing tailored interventions to improve sexual health. We

evaluated the implementation of an innovation contest for sexual health promotion in China.

Methods We organized an innovation contest over three months in 2014 for Chinese individuals < 30 years old to submit images for a sexual health promotion campaign. We solicited entries via social media and in-person events. The winning entry was adapted into a poster and distributed to STD clinics across Guangdong Province. In this study, we evaluated factors associated with images that received higher scores, described the themes of the top five finalists, and evaluated the acceptability of the winning entry using an online survey tool.

Results We received 96 image submissions from 76 participants in 10 Chinese provinces. Most participants were youth (< 25 years, 85%) and non-professionals (without expertise in medicine, public health or media, 88%). Youth were more likely to submit high-scoring entries. Images from professionals did not have higher scores compared to images from non-professionals. Participants were twice as likely to have learned about the contest through in-person events compared to social media. We adapted and distributed the winning entry to 121 public STI clinics over 2 weeks. A total of 8338 people responded to an acceptability survey of the finalist entry. The majority of the survey respondents found the winning image acceptable and engaging, with 43% of respondents strongly endorsing and 43.4% of respondents endorsing approval of the image. Additionally, 79.8% endorsed or strongly endorsed being more willing to undergo STD testing after seeing the poster.

Conclusion Innovation contests may be useful for soliciting images as a part of comprehensive sexual health campaigns in low- and middle-income countries. Future sexual health campaigns should incorporate face-to-face interactions where participants can ask questions and solicit feedback about their submission ideas.

Disclosure No significant relationships.

P334 ACCEPTANCE OF CONTRACEPTIVE VAGINAL RING AMONG WOMEN WITH BACTERIAL VAGINOSIS AND THEIR MALE PARTNERS IN KENYA

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10.1136/sextrans-2019-sti.442

Background Multiple studies have shown that changes in the vaginal microbiome associated with increased risk of bacterial vaginosis (BV) are a risk for HIV acquisition and transmission. Therefore, hormonal interventions that prevent unintended pregnancies and promote vaginal health could reduce this risk. However, there is little data on acceptability of intravaginal rings in sub-Saharan Africa countries. We assessed the acceptance of a contraceptive vaginal ring (CVR) among women with BV and their male partners in Thika, Kenya.

Methods Between April 2016 to November 2017, we enrolled and treated women with BV aged 18–40 years. One month later, they were randomized to cyclical or continuous CVR and followed up monthly for 7 months. Additionally, we

interviewed a sample of their male partners on their perspectives of the CVR. We conducted Fisher's exact tests for each category of baseline demographics by whether or not women accepted to be randomized to CVR use and used descriptive statistics to summarize the views of their male partners.

Results A total 149 women were enrolled and 122 (81.9%) initiated CVR at the randomization visit. Reasons for not initiating CVR were, 17 (11.4%) did not return for randomization and were considered lost to follow-up, 6 (4%) expressly refused to use CVR, and 4 (2.7%) terminated due to other reasons. There were no differences between randomized and non-randomized women except by pre-specified categories of number of children ($p=0.02$). Of the 32 male partners that were interviewed, 96.9% were fine with their partners using the CVR, 78.1% reported that the ring was a very effective contraceptive method while 3.1% reported that it caused physical discomfort during sex.

Conclusion There was high acceptability of CVR among women with BV and their male partners in Kenya. Therefore, vaginal rings are a promising strategy that should be evaluated for delivery of multipurpose prevention in Kenyan women.

Disclosure No significant relationships.

P335 E-DEVICES USAGE IN ORDER TO PROMOTE MHEALTH FOR YOUNG KEY POPULATION: HACKHEALTH OUTCOMES

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Background In Brazil, young people aged 15–24yo represent 27.4% of all new HIV infections. Brazilian Ministry of Health of Brazil has launched the HackHealth Project to develop innovative e-devices capable of increasing knowledge about sexual health and combination prevention among young people. Hackhealth is an innovative, dynamic and open knowledge-based project. Our aim is to describe the results.

Methods Young key population (YKP) were recruited through a nationwide questionnaire and randomly assigned into 5 groups, being 5 YKP, 2 programmers and 1 graphic designer. The project lasted 36 hours and each group elected a leader.

Results 5 innovative e-devices were developed - a game about sex education, quiz with gifs, sexual health app, crowdsourcing platform, and a chatbot on combination prevention for the official website of the Ministry of Health of Brazil. The project focused on engaging young people in Information and Communication Technologies (ICT), while expanding their knowledge on combined prevention and sexual health.

Conclusion 5 innovative e-devices were developed - a game about sex education, quiz with gifs, sexual health app, crowdsourcing platform, and a chatbot on combination prevention for the official website of the Ministry of Health of Brazil. The project focused on engaging young people in Information and Communication Technologies (ICT), while expanding their knowledge on combined prevention and sexual health.

Disclosure No significant relationships.

P336 THE SEXUAL HEALTH KNOWLEDGE, ATTITUDES AND BEHAVIOUR OF WOMEN LIVING WITH HIV IN BANTEN PROVINCE, INDONESIA

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10.1136/sextrans-2019-sti.444

Background Among certain communities and nations, the sexual health rights of women living with HIV (WLHIV) are often neglected and considered less important. Social, cultural, and religious beliefs may restrict safer sexual practices. This study examines the sexual health knowledge, attitude, and practices of WLHIV in Banten Province, Indonesia, and the factors influencing these practices.

Methods A cross-sectional written survey of 209 WLHIV aged 18 to 50 years from seven Banten Province regions, was conducted between May and November 2017 using five peer recruiters. Descriptive and binary regression analysis were performed.

Results The majority were Muslim (87.6%), married (58.9%), and high-school graduated (88.6%). 31.4% experienced intimate partner violence (IPV). 77% had some knowledge of sexually transmitted infection (STI), sourcing information from health care providers (56.9%) and the internet (23.0%). Most believed that a woman could refuse sexual intercourse with their partner because of postpartum/menstruation (78.9%), tiredness/unwillingness (67.7%), partner's STI (64.1%), and his infidelity (62.7%). However, only 49.3% believed that they might refuse sex if the partner opposed condom use. Of the 171 sexually active participants, 78.4% had only one sexual partner. Condoms were the primary contraceptive used; however, 68.4% reported inconsistent condom use which was significantly associated with women's inability to buy condoms (aOR6.54, 95%CI:2.29–18.74), negotiate condom use (aOR6.11%CI:1.69–22.15), and being unmarried (aOR3.04, 95%CI:1.14–8.13). 33.3% self-reported a history/symptoms of STI which was significantly associated with new HIV-diagnosis (aOR=4.53, 95%CI=2.07–9.91), multiple sex-partners (aOR=4.25, 95%CI=1.73–10.43), lack of internet exposure (aOR=4.24, 95%CI=1.55–11.55), IPV (aOR=3.04, 95%CI=1.22–7.55), or unprotected sex (aOR=2.97, 95%CI=1.33–6.60).

Conclusion The sexual health of WLHIV in Indonesia is affected by their relationship status, access to condoms, and ability to negotiate their use. Strategies focused on building a women's capability and support to defend their sexual rights are needed to improve the women's health, facilitate choice and reduce risk of onward HIV transmission.

Disclosure No significant relationships.

P337 A STUDY ON HOW SEXUAL EMPOWERMENT UNDER MIXED-GENDER DYADS INFLUENCES SEXUAL HEALTH AMONG WOMEN IN INDIA

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10.1136/sextrans-2019-sti.445

Background Sexually transmitted infections (STIs) are a key reproductive and public health concern worldwide. STIs are pernicious players in the global burden of disease. According to The World Health Organization estimates, each year there

are an estimated 357 million new infections of STIs globally. In India, the prevalence of STIs among women in the union of reproductive age remained constant at 11 percentage points from NFHS-3 to NFHS-4. This number highlights the gravity of the unwavering situation of poor reproductive health among women in India.

Methods This study used data from the National Family Health Survey (NFHS-4) conducted in 2015–16. It included questions on demographic and socioeconomic characteristics of individuals, their sexual behavior, gender relations and whether they had suffered from an STI in the 12 months prior to the survey i.e. self-reported STI. Multiple logistic regression models were fitted to determine the relationship between predictors and the reported STI status.

Results Sexual empowerment was significantly associated with STI status, but odds of reporting STIs were higher among sexually empowered women. Women's participation in decision-making concerning their own health reduced the odds of contracting STIs. The strongest predictors of reporting STIs, namely sexual violence and the number of lifetime partners, are at direct risk of STIs. STIs was also positively associated with partners' controlling behaviors. With respect to STIs, sexual empowerment does not appear to protect women in the union who have violent controlling partners. Sexual empowerment is also not protective where a woman having multiple partner.

Conclusion Interventions promoting sexual health must effectively address roles that perpetuate unhealthy sexual behaviors and relations within the union. It is therefore imperative to promote fidelity and better communication between partners in the union and necessary to encourage regular screening and treatment of STIs. Sexual decisions must be subject to joint opinions in order to achieve and secure complete reproductive health and rights.

Disclosure No significant relationships.

P338 PREVALENCE AND MUCOSAL IMPACT OF STIS IN YOUNG WOMEN FROM MOMBASA, KENYA WITH VARYING EXPOSURE TO SEX WORK

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Background Bacterial STIs increase mucosal inflammation and HIV acquisition risk. However, most data are limited to symptomatic STIs, and more data are required regarding the prevalence and correlates of asymptomatic bacterial STIs among high-risk young women, and how these vary by exposure to sex work.

Methods We estimated the prevalence of 6 STIs in urine collected during a cross-sectional study of women aged 14–24 years in Mombasa, Kenya (n=870). Participants were recruited from sex work hotspots, and self-identified as engaged or not

engaged in formal sex work. STIs including *Ureaplasma urealyticum* (UU), *Chlamydia trachomatis* (CT), *Mycoplasma hominis* (MH), *Trichomonas vaginalis* (TV), *Mycoplasma genitalium* (MG) and *Neisseria gonorrhoea* (NG) were detected using the Seegene Anyplex qPCR panel. The cervicovaginal microbiome and cytokines were also characterized in a subset of 168 participants.

Results The prevalence of any STI was 25.1% (95% CI, 22.3–28.0%). The most common STIs were UU (13.2%) and MH (11.3%), followed by CT (6.6%), TV (3.2%), NG (0.3%), and MG (0.5%). *U. urealyticum* was more prevalent among sex workers compared to non-sex workers (19.7 vs 10.4%, $p=0.001$). Number of partners positively correlated with UU ($P=0.004$), while duration of sexual activity was positively correlated with MH ($P<0.001$) and UU ($P=0.023$). Recent history of STI treatment did not correlate with any STI. MH was most associated with symptoms, including vaginal discharge, itching, and painful urination ($P<0.001$). All STIs except CT were positively correlated with pro-inflammatory cytokines. UU and MH were correlated with vaginal microbiota alpha diversity ($P<0.001$).

Conclusion *U. urealyticum* and *M. hominis* were the most prevalent STIs among young women from Mombasa, Kenya, and these organisms were associated with sexual exposure and an inflammatory mucosal milieu that has been linked to increased HIV acquisition.

Disclosure No significant relationships.

P339 FACTORS OF RISKY SEXUAL BEHAVIOR AMONG LONG-HAUL TRUCKERS IN A SOUTHERN NIGERIAN TOWN

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Background Long-haul drivers play a role in the spread of sexually transmitted infections (STI) globally. Truck drivers engage in frequent travel away from home. They are exposed to risky sex with commercial sex workers who are a reservoir of HIV and other STIs. The study aimed to identify factors associated with commercial sexual exposure among long-haul truckers in a southern Nigerian town.

Methods A sample of 300 long-haul truckers from a highway park in Ahor, southern Nigeria was recruited in a cross-sectional study. An interviewer-administered questionnaire was used to collect socio-demographic and sexual risk behavior data. Data were analyzed with SPSS version 20 software. Chi-square test, Odds ratio, and confidence intervals were used to find the association between condom use, STI history, HIV status, duration of a trip, number of sexual partners, and truckers' exposure to commercial sex workers.

Results While 42.0% of the truckers used condoms, 58.0% were non-users. Reasons for non-condom use were commitment to partner (72.0%), lack of pleasure (21.0%), and beliefs (7.0%). Fifty percent of respondents reported two or less sexual contacts while a third of them reported 12 sexual contacts in 6 months. Overall, 59.0% of respondents had a history of

multiple sexual partners. Factors associated with truckers' exposure to a commercial sex worker were use of psychoactive substance (OR 2.5 (1.5–4.4), $p=0.00$); condom use (OR 16.3 (8.0–32.5), $p=0.00$); previous sexually transmitted infection (OR 2.5 (1.2–5.1), $p=0.01$). The odds of single-sex partner exposure to a commercial sex worker were 10% less than the odds in multiple sex partner truckers, $p=0.00$.

Conclusion This study shows that psychoactive substances and condoms may be fueling exposure to commercial sex among truck drivers. Intervention programs should emphasize a single partner relationship, target substance users and highlight the potential impact of previous sexually transmitted infections on the risk of acquiring an HIV infection.

Disclosure No significant relationships.

P340 TRENDS IN HIGH-RISK SEXUAL RISK BEHAVIORS IN THE UNITED STATES, 2002–2015

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Background Reportable STIs have largely been increasing in the United States; yet, few national-level studies have examined potential reasons for the increase. We used data from the 2002 and 2011–15 National Survey of Family Growth to examine trends in high-risk sexual behavior among key subpopulations with disproportionate STI rates.

Methods The subpopulations we examined included sexually active: men who have sex with men (MSM) and adolescent, young adult, Hispanic, and non-Hispanic black women who had sex with men (WSM) and men who had sex with women (MSW). High-risk sexual behavior (HRSB) was a composite variable (yes, no) that included endorsement of any of the following: giving or receiving money or drugs for sex or having a partner who was bisexual, non-monogamous, HIV-positive, or who injected drugs. We used weighted data to examine the prevalence of HRSB over time for each subpopulation and conduct logistic regressions adjusting for race/ethnicity, age, marital status, poverty and education.

Results HRSB either did not change or declined over time. Overall, among WSM, reported HRSB significantly declined over time (15.1% in 2002 and 12.4% in 2011–15). Among men, we also found significant declines in reported HRSB for MSW (15.4% in 2002 and 12.2% in 2011–15) and MSM (25.9% in 2002 and 13.1% in 2011–15). In subgroup analyses, there were more declines among WSM than MSW or MSM. However, in adjusted analyses, we found significant declines in reported HRSB, comparing 2002 to 2011–15, among non-Hispanic black (aOR=0.78, 0.65–0.95) and adolescent (aOR=0.64, 0.50–0.95) WSM; Hispanic (aOR=0.49, 0.35–0.67) and adolescent (aOR=0.57, 0.41–0.79) MSW; and all MSM (aOR=0.42, 0.24–0.75).

Conclusion While STIs are increasing, HRSB was steady or declined among key subpopulations with disproportionate STI rates. Results from adjusted analyses suggest these findings are not the result of changing population demographics. Further research is needed to explain the STI increases.

Disclosure No significant relationships.

P341 TRENDS IN CONDOM USE AMONG A NATIONALLY REPRESENTATIVE SAMPLE OF WOMEN AND MEN WITH OPPOSITE-SEX PARTNERS IN THE U.S

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Background As STIs continue to increase in the United States, one possible explanation is that declines in condom use have contributed to these increases. To date, condom use trends from nationally representative data on individuals with opposite-sex partners have not been examined.

Methods We used data from the National Survey of Family Growth (2002, 2006–10, 2011–15) to examine trends in condom use at last sex among unmarried, non-cohabiting women and men aged 15–44 with past-year opposite-sex partners, by race/ethnicity (Hispanic, non-Hispanic white, non-Hispanic black), age (15–24, 25–29, 30–44), any past-year non-monogamy (two or more partners or perceived partner non-monogamy), and past-year STI testing. Year of survey was included as a categorical variable. Chi-square tests and adjusted prevalence ratios were used to test differences in the prevalence of condom use in 2002, 2006–2010 and 2011–2015.

Results Overall, condom use prevalence remained stable among women (2002, 35.5%; 2006–10, 39.1%, 2011–15, 37.4%) and among men (2002, 49.4%; 2006–10, 53.3%, 2011–15, 53.3%), with no differences in temporal trends by race/ethnicity or age in adjusted models. Any reported non-monogamy was also not associated with changes in condom use over time for any group. There was a significant decline in condom use among women aged 30–44 who reported STI testing, from 2006–10 to 2011–15 (36.3%, 95%CI: 29.4–43.1; 25.0%, 95%CI: 20.8–29.2, respectively), and among non-Hispanic black men who reported STI testing, from 2002 to 2006–10 (77.9%, 95%CI: 68.9–86.8; 61.8%, 95%CI: 54.6–69.0, respectively).

Conclusion Overall and for most subgroups, condom use has remained stable over time, suggesting it is not contributing to increases in STI. Models adjusting for demographics suggest these results are not due to demographic shifts. However, certain sub-groups may be using STI testing as a protective strategy when not using condoms. Examination of other explanatory factors is needed.

Disclosure No significant relationships.

P343 PRIMARY OUTCOMES FROM IMPLEMENTING A BEHAVIORAL COUNSELING INTERVENTION PROGRAM IN FOUR FEDERALLY QUALIFIED HEALTH CENTERS

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Background The U.S. Preventive Services Task Force (USPSTF) recommends behavioral counseling for youth at high-risk for STDs, but little work has explored translation of these guidelines into practice. Here, we evaluated a large-scale implementation of behavioral counseling in federally qualified health centers (FQHCs).

Methods Implementation occurred between June 2017 and May 2018 in four FQHCs in Northeastern US. Many patients were below the poverty level (27–65%) or uninsured (13–47%). Training content comprised motivational interviewing skills and techniques for talking to youth about sex and sexual histories, delivered to pilot providers via 15 hours of online and in-person training. We measured the proportion of patients who received (a) a sexual history, (b) behavioral counseling, (c) HPV vaccine and (d) chlamydia screening. We tracked changes in work-flow and implementation and allowed for tailoring of sexual history taking per the needs of FQHCs.

Results 39,631 eligible patients (13–24 years old, 71.0% Hispanic, 68.3% white, 24.9% black) were seen during the implementation period, of whom 9,675 (24.4%) saw a pilot provider. Similar proportions in each group completed a sexual history (70.6% vs. 71.4%, $p=0.1787$). However, higher proportions of patients exposed to the pilot providers received behavioral counseling (67.5% vs. 43.5%, $p<0.0001$), HPV vaccine (71.7% vs. 51.2%, $p<0.0001$) and chlamydia screening (38.4% vs. 32.1%, $p<0.0001$). Of youth who were seen by a pilot provider and given a sexual history, 84.2% received behavioral counseling. Of counseled patients, 83.6% received HPV vaccine and 85.2% were screened for chlamydia. Work flows were individualized to each health center and became increasingly efficient over time.

Conclusion Primary outcomes from this translation study support the conclusion that an intensive, but short, training regimen on behavioral counseling, coupled with a flexible strategy for assessing sexual histories, results in higher rates of behavioral counseling and provision of prevention services as compared to those who did not receive training.

Disclosure No significant relationships.

P344 TRANSMUTATION IN HIGH-RISK SEXUAL BEHAVIOR OF MEN IN INDIA: AN ASSESSMENT OF MAGNITUDE AND PREDICTORS

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Background Modern Indian society has witnessed rapid socio-cultural transformation where loosening of cultural values is observed at all levels. In the era of transition, traditional norms and values are at change where young male individuals are found to be associated with high-risk multi-partner sexual behaviour. This study intends to determine the changes in magnitude and predictors of such high-risk sexual behaviour among men in India.

Methods The sample of 74,369 and 112,122 men aged 15–54 from two rounds of the National Family Health Survey (NFHS) conducted during 2005–2006 (NFHS-3) and 2015–2016 (NFHS-4) has been used. The economic inequalities in the prevalence of high-risk sexual behaviour have been analysed using poor-rich ratio, and concentration index (CI) in addition to adjusted effects of major correlates through multiple logistic-regressions.

Results The burden of high-risk sexual behaviours over the last decade remains disproportionately higher among younger, unmarried, urban men and mainly from better economically households. Despite tremendous efforts of the governments in condom promotion as part of HIV/AIDS prevention

programme, the improvements in condom use over the last decade, has not yet reached to the desired level. The disparities in high-risk sexual behaviour among men, coming from rich and poor households have been narrowed over the last decade. However, there are few states like Andhra Pradesh, Assam and Orissa where socio-economic inequalities in high-risk sexual behaviour have been increased. The findings also underline an apparent paradox in the relationship between knowledge of HIV/AIDS and indulgence into high-risk sexual behaviour and adopting safe sexual practices.

Conclusion It is recommended that all HIV prevention programmes in India should promote the concept of men as the responsible sexual partner. This concept may be promoted among young and unmarried men by reinforcing the shift from violence to respect and projecting the condom as sexual stimuli rather than a means of disease prevention.

Disclosure No significant relationships.

P345 CORRELATES OF CONSISTENT CONDOM USE AMONG URBAN ADOLESCENTS ATTENDING HIGH-SCHOOL IN PANAMA

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Background Consistent condom use, defined as using a condom in every sexual encounter, is an effective measure for preventing sexually transmitted infections (STIs). However, few studies have examined condom use among Latin American youth. This study estimated the correlates of reported condom use among school-going adolescents in four urban sites of Panama during 2015–2018, where one site was studied each year. Additionally, we assessed condom use practices among adolescents with herpes simplex virus 2 (HSV2).

Methods Adolescents aged 14–19 years completed a self-administered tablet-based questionnaire that measured reported sexual history and practices. Blood samples from sexually experienced adolescents were evaluated for HSV2. Associations between sociodemographic characteristics, sexual behaviors, HSV status and condom use were estimated with the chi-square statistic. Univariate odds ratios (ORs) and age-adjusted (AOR) analyses were performed.

Results Among 2466 adolescents, there was no significant difference in reported sexual activity prevalence among males (58.4%) and females (56.7%) ($p=0.402$). Reported consistent condom use was low (25%) among sexually active participants. Older adolescents (17–19 years) were less likely to report consistent condom use (17 years OR=0.63, 95% CI 0.41–0.97 and 18–19 years OR=0.66, 95% CI 0.43–0.99). Males had higher reports of consistent condom use (AOR=1.65, 95% CI 1.08–2.53) compared to female adolescents. Adolescents reporting two or more lifetime sexual partners (OR=0.43, 95% CI 0.31–0.61), current sexual activity (OR=0.70, 95% CI 0.51–0.96), and sex with a casual partner (OR=0.60, 95% CI 0.44–0.82), were less likely to report consistent condom use. HSV2 prevalence was 20.8% among sexually active participants. HSV2 seropositivity was not correlated with reported condom use ($p=0.124$).

Conclusion Reported consistent condom use among sexually active, school-going adolescents in Panama was low, particularly among females and older adolescents. Condom use interventions should include information regarding effective condom negotiation strategies between sexual partners. These strategies are important throughout adolescence.

Disclosure No significant relationships.

P346 PSYCHOSOCIAL FACTORS ASSOCIATED WITH CHLAMYDIA RETESTING AMONG YOUNG PEOPLE IN THE UK

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Background Repeat chlamydia infections are common, and the risk of receiving complications increases with the number of lifetime infections. However, retesting rates in the UK remain low and interventions to increase retesting have had variable effects. In order to change behaviour (e.g., to increase retesting), behavioural-science theoretical models may help identify influential factors. One such model, the COM-B Model proposes behaviour results from an interaction between capability, opportunity and motivation. The aim of this study was to identify theoretically-based demographic and psychosocial factors associated with retesting behaviour and intentions to retest amongst those previously diagnosed with chlamydia.

Methods An online questionnaire was developed, based on a comprehensive literature review and expert and lay consultation. Participants were 263 young people (16–24 years) in the UK who had been diagnosed with chlamydia (via healthcare settings or online platforms). In addition to demographic questions, each measure was representative of COM-B components: susceptibility and severity, fear, stigma, shame, knowledge, social support, social norms, perceived advantages/disadvantages of retesting.

Results 35% had not retested, the most common reason for which was unawareness of the need to retest (31%). In those who had not retested, moral norms, injunctive norms, and STI knowledge significantly predicted intentions to retest ($F_{[1,53]}=6.20, p=0.016, R^2=0.45, AdjR^2=0.42$). Retesters were slightly older and more likely to have had other STIs. The most common location of retest was a sexual health clinic (57%), followed by general practice (14%) and online services (11%). Multivariable regression demonstrated that social norms (injunctive, descriptive, and moral) significantly predicted having retested ($F_{[1,171]}=7.44, p=0.007, R^2=0.12, AdjR^2=0.10$).

Conclusion This research has identified potential targets for public health campaigns aimed at eliminating STIs. Specifically, future interventions should focus on social (e.g., social approval one expects from others for engaging in a responsible sexual health action) and psychological (awareness and education) to increase retesting rates.

Disclosure No significant relationships.

P347 DOES HPV VACCINE INITIATION INFLUENCE SEXUAL BEHAVIOUR? FINDINGS FROM THE SECOND AUSTRALIAN STUDY OF HEALTH AND RELATIONSHIPS

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Background In 2007, a national school-based vaccination program for human papillomavirus (HPV) among 12–13-year-olds was introduced in Australia, as well as a catch-up program for women aged ≤ 26 . We examined associations between vaccine initiation and sexual activity to address concerns among some members of society that vaccination implies approval for sexual activity and could lead to early or risky sexual behaviour.

Methods Computer-assisted telephone interviews were conducted with a random sample of the Australian population aged 16–69 years during 2012–2013. Participants were surveyed about their sexual behaviour and HPV vaccine initiation. We restricted to women aged 16–20 years at the time of interview who would have been eligible for school-based vaccination. Responses were weighted based on study design, location, and the age-sex distribution of Australia. We used Pearson's chi-square tests and logistic regression to look at vaccine initiation and sexual behaviour, and report results as odds ratios (OR) and 95% Confidence Intervals (CI).

Results Among 920 women aged 16–20, 76.7% had initiated the vaccine. Proportions were higher among women born in Australia (81.2% versus 49.2% oversea-born, $p < 0.001$), and who reported any sexual experience (84.7% versus 69.9% with no sexual experience; $p < 0.01$). After adjusting for age, there was no association between vaccine initiation and any sexual activity before 16 years (early sexual behaviour) (OR=1.40; 95% CI: 0.63–3.13; $p = 0.41$), or ever being diagnosed with an STI (OR=1.73; 95% CI: 0.38–7.86; $p = 0.48$). Those initiating the vaccine were more likely to have had more than one partner in the last year (OR=2.31; 95% CI: 1.09–4.88; $p = 0.03$) but this effect was attenuated after adjusting for age, rurality, religiosity, education, overseas-born, and income level (OR=1.69; 95% CI: 0.74–3.86; $p = 0.21$).

Conclusion Differences in sexual activity between vaccinated and unvaccinated women were explained by confounding by characteristics such as age, overseas-born and income level. We found no evidence of an independent association between initiating the HPV vaccine and high-risk or early sexual behaviour.

Disclosure No significant relationships.

P348 INTRACLUSTER CORRELATIONS OF STI AND SEXUAL BEHAVIOUR OUTCOMES: ESTIMATES FROM A COMMUNITY-BASED CLUSTER RCT

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Background Interventions to prevent or manage sexually transmitted infections (STI) are often evaluated at the clinic or community level. Cluster randomised controlled trials (cluster-RCT) need to take into account similarities between characteristics within clusters, increasing the required sample size. However, information about intracluster correlation coefficients (ICC) is rarely known at the design stage. We estimated ICCs for four STI and sexual behaviour variables at the levels of clinic and postcode.

Methods Data were collected during the Australian Chlamydia Control Effectiveness Pilot (ACCEPt), a cluster-RCT of a chlamydia testing intervention in women and men aged 16–29 years attending general practice. ICCs were calculated for: chlamydia prevalence, proportion with a chlamydia test in the last 12 months, condom use last sex and concurrent sex partners. Population-averaged unadjusted and covariate-adjusted logistic regression models with exchangeable correlation matrix were fitted to the clustered data, estimated by generalised estimating equations. ICCs were calculated separately at the levels of clinic and postcode.

Results The trial was conducted in 130 clinics in 54 Australian postcodes. For the prevalence outcome, the median cluster size was 25 for clinic and 74 for postcode. ICCs were larger at clinic than postcode level for all outcomes. ICC at the clinic and postcode level were, respectively: chlamydia prevalence 0.0044 and 0.0026; chlamydia testing 0.0105 and 0.0074; condom use last sex 0.0032 and 0.0010; and concurrent partners 0.0007 and 0.0006. In general, adjustment for individual- and postcode-level characteristics reduced ICCs. The design effect for chlamydia prevalence accounting for clustering was 1.35 and 1.21 using the clinic or postcode cluster level respectively.

Conclusion For STI and sexual behavioural outcomes in ACCEPt, the size of the ICC depended on the level of cluster randomisation. By publishing these ICC estimates, STI researchers can undertake more robust sample size calculations for future cluster-RCTs.

Disclosure No significant relationships.

P349 SEXUAL BEHAVIOR AND STI RISK AMONG MSM AND TRANSGENDER WOMEN PARTICIPATING IN A STUDY OF TIMING OF ANTIRETROVIRAL THERAPY

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Background We assessed sexual behavior and sexually transmitted disease risk among men who have sex with men and transgender women participating in *Sabes*, a study of an expanded treatment as prevention strategy focused on early diagnosis and treatment of HIV infection.

Methods *Sabes* participants were tested monthly for HIV to identify acute or early infections, and HIV-positive participants were randomized to receive ART immediately (Immediate) or after 24 weeks (Deferred) during a 48-week follow-up period. Sexual behavior was assessed via computer-based questionnaire at randomization (baseline) and every 12 weeks thereafter. Participants were tested for urethral and rectal chlamydia and gonorrhoea (via nucleic acid amplification tests) and for syphilis

at baseline, 12, 24, and 48 weeks. We used generalized estimating equations to describe sexual behavior over 48 weeks for each study arm, and Cox proportional hazards to compare STI risk between arms.

Results After randomization, 209 HIV-positive participants completed at least 12 weeks of study. The number of anal sex partners (in the prior 3 months) declined in both arms (Immediate: 12-week IRR=0.66; 95%CI=0.45–0.97, 48-week IRR=0.75; 95%CI=0.51–1.12; Deferred: 12-week IRR=0.68; 95%CI=0.53–0.88, 48-week IRR=0.56; 95%CI=0.40–0.79). The proportion reporting >50% condom use with main partners (in the prior 30 days) doubled among Deferred participants (12-week RR=2.04; 95%CI=1.40–2.95, 48-week RR=1.97; 95%CI=1.35–2.87) and increased by 75% among Immediate participants (12-week RR=1.75; 95%CI=1.31–2.35, 48-week RR=1.74; 95%CI=1.26–2.41). Condom use with casual partners increased in both arms (Immediate: 12-week RR=1.37; 95%CI=1.16–1.61, 48-week RR=1.23; 95%CI=1.02–1.49; Deferred: 12-week RR=1.47; 95%CI=1.20–1.79, 48-week RR=1.25; 95%CI=0.99–1.58). Relative to Immediate participants, Deferred participants had higher risk of chlamydia (Hazard Ratio=1.85; 95%CI=1.09–3.15), with a trend toward higher risk of gonorrhoea (HR=1.62; 95%CI=0.88–2.97), and syphilis (HR=2.05; 95%CI=0.82–5.16).

Conclusion Despite reporting protective behavior at levels similar to or slightly higher than those of participants who started ART immediately, participants who deferred ART initiation had increased risk of bacterial STIs. This warrants further investigation.

Disclosure No significant relationships.

P350

WHAT IS THE OPTIMUM METHOD FOR COLLECTING ROBUST DATA TO UNDERSTAND A NATION'S SEXUAL HEALTH NEEDS?

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Background Accurate information on a nation's sexual health is essential to plan and evaluate services, inform prevention, and contribute to societal understanding. In Britain, sexual health data arise from surveillance systems, convenience surveys of key populations, and the decennial National Surveys of Sexual Attitudes and Lifestyles (Natsal). Natsal has employed 'gold-standard' population survey methods: probability sampling, trained fieldworkers conducting detailed computer-assisted-personal-interviewing, and biosampling. However, this approach is resource-intensive and limitations include declining response rates and concerns about non-response bias. In designing Natsal-4, we reviewed whether alternative methods could meet the needs of data-users and the wider community.

Methods We evaluated methods used by major UK general population surveys and sexual health surveys internationally. Key considerations were: general population representativeness; sample size; breadth and depth of information collected; data quality; biosampling; the possibility for sub-group 'boost' sampling, and data linkage.

Results Five alternative methods were assessed (1) random-digit dialling phone surveys: considered unsuitable due to inadequate sample frame and response rate; (2) inviting participants from existing probability surveys to a follow-up sexual health interview: unsuitable because of additional non-response bias, difficulty achieving required sample size, and minimal cost-saving; (3) adding a sexual health module to existing probability survey(s), and (4) conducting a probability survey with fieldworker-selected individuals asked to self-complete a sexual health web-survey: both considered unsuitable due to much-reduced questionnaire; (5) 'web-first' mixed-mode survey, involving postal invitations to complete a web-survey with non-responding addresses followed-up by post and/or fieldworker visit: unsuitable due to concerns about response rate, unmeasurable and measurable response bias, and selection bias.

Conclusion Given major drawbacks of the alternatives examined, the design used for previous waves of Natsal is still considered the best option for achieving a representative sample, enabling detailed data collection, enhancing survey data with biological and routine data, and retaining Natsal's time-series; together maximising Natsal's utility and impact.

Disclosure No significant relationships.

P351

DOWN TO TEST: MUSIC FESTIVALS TO IMPROVE ATTITUDES & SOCIAL NORMS TO STI TESTING & CONDOMS IN HIGH-RISK YOUNG PEOPLE

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Background Sexually transmissible infections (STIs) continue to rise in people aged 15–29 in New South Wales (NSW), Australia ($\geq 30,000$ chlamydia (CT) notifications annually). However, STI testing rates are low and stigma remains about STI and testing.

Methods Down to Test is a social marketing program targeting high-risk young people to improve attitudes and social norms for condom use and STI testing - facilitators for healthy sexual behaviour. The program includes information, blogs & forums at playsafe.health.nsw.gov.au and involves online marketing and face-to-face, peer-led music festival activations – an incentivised VIP area (clean toilets, phone charging, glitter bar, condoms) and access with a urine specimen for CT testing. Market segmentation research of values, attitudes and behaviours identified 2 high-risk groups of young people 'experienced sex positive' and 'dominant risk-takers'. Program strategies and incentives were developed with these groups who identified peers to also help deliver the program.

Results Between 9/2017 and 12/2018, 5783/124,000 (5%) young people registered for the VIP area during 7 NSW festivals. 189/5416 (3.5%) tested CT+. All CT- received SMS, 93% CT+ were informed & 75% confirmed treatment.

Digital engagement metrics: 863,931 impressions, 1% Cut Through Rate for linked advertisements, 0.05% social engagement, and 5,000 peer educator conversations with campaign recall increase of 25%. Pre & post-intervention surveys showed increased social norms for STI testing (24% increase), positive attitudes (26%), and intention to STI test in the next 12 months (32%). Over 80% of participants were within the two high-risk groups.

Conclusion Down to Test successfully engaged high risk young people attending music festivals and improved healthy sexual behaviour facilitators. Applying segmentation research and engaging the identified groups improved the likelihood of success by better targeting the activations. Broad reach across NSW was maximised by using festivals in a variety of locations. The program is adaptable to other locations.

Disclosure No significant relationships.

P352 STD, HIV, AND PREGNANCY TESTING BEHAVIORS AMONG INTERNET AND MOBILE DATING APPLICATION USERS AND NON-USERS, 2016

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Background Use of internet websites and geosocial networking mobile applications for sexual and romantic relationships has grown steadily. We examined the prevalence of dating app use and STD, HIV and pregnancy testing among market research survey respondents.

Methods We analyzed 2015–2016 data from the Scarborough/MARS Healthcare Module, which contains data from two market research data sets. In this sample, 199,308 responses were received (18≥ years), weighted, combined across datasets, and projected to a 2016 U.S. adult population. We also assessed dating app use by demographics, STD, HIV, and pregnancy testing practices in the past year.

Results Of the projected population (n=197, 150,967), 6.2% (7.0% men; 5.3% women) reported using dating apps in the past 30 days. Over half of all dating app users (50.3%) were between the ages of 18–34 years. App users were more likely than non-users to report male gender (55.2% vs 48.1%), Hispanic ethnicity (29.4% v 16.2%) and race other than white (31.3% v 23.1%). Fifty-seven percent of dating app users were never married, and 23.8% were married at the time of use. Overall, a higher proportion of dating app users than non-users reported STD testing (6.5% vs 4.0%, PR=1.64) and HIV testing (5.9% vs 3.8%, PR=1.54), in the past year. However, among 18–24 year olds, STD and HIV testing was 14–16% less common among users, compared to non-users. Women using dating apps were more likely than non-users to take pregnancy tests in the past year (8.8% vs 5.6%, PR=1.57).

Conclusion A small proportion of the general population use dating apps, and STD testing rates were low. However, efforts to build upon the higher rates of reported testing for STD, HIV, and pregnancy among app users (e.g., site advertisements, questions during sexual healthcare visits) might improve testing rates in this group. Targeted attention to adolescents and young adults is warranted.

Disclosure No significant relationships.

P353 SOCIAL APPS AND THE EVOLVING RISK ENVIRONMENT: A CROSS-SECTIONAL SURVEY AMONG MEN WHO ATTEND STDS CLINICS IN GUANGDONG, CHINA

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Background Social apps provided important channels for people to communicate with each other. However, social network apps use also created a unique chance for casual partner seeking. This study aimed to know the situation of the using of social apps for partner seeking purpose among men who attend STDsclinics (MSCs) and to describe sexual behaviors among users.

Methods We conducted a cross-sectional study among MSCs recruited from 9 cities in Guangdong, China from March to August in 2018. Data on socio-demographics, sexual behaviors and social app use for sex-seeking were collected. Multivariable logistic regression models were used to identify the factors associated with partner seeking through social apps.

Results A total of 1954 participants were recruited, with a mean age of 39.9 (SD: 13.9). Overall, 228 (11.7%) ever used a mobile app for partner-seeking. Among people seeking partner through social apps, 36.6% have one more partners, 14.0% met their partners in-person within 24 hours, and 33.8% engaged in condomless intercourse with the last partner found through social apps. Only 27.2% of them negotiated about condom use before meeting in-person, and 12.3% asked for HIV status of the last partner before meeting in-person. Sex-seeking app use was positively associated with having casual partners in the last three months (aOR=3.5, 95%CI 2.6–4.7), ever having anal sex with men (aOR=21.5, 95%CI 10.6–43.6), and not receiving HIV prevention services (aOR=7.9, 95%CI 5.6–11.3). Condomless intercourse with the last partner was positively associated with having more than three partners from app (aOR=5.0, 95%CI 1.9–13.2) and negotiating about condom use with the partner before meeting in-person (aOR=2.2, 95%CI 1.2–4.4).

Conclusion Social apps use has become an important sex-seeking route among Chinese MSCs, which may facilitate the transmission of STDs. Social apps-based interventions are urgently needed.

Disclosure No significant relationships.

P356 HIV-RELATED STIGMA & DISCRIMINATION IN WESTERN NIGERIA: EXPERIENCES OF PEOPLE LIVING WITH HIV & RIGHTS ISSUES

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Background HIV-related stigma and discrimination continue to be major social determinants driving the epidemic of HIV globally despite the advances in medical treatment and increases in the awareness. Hypotheses tested was right awareness of people living with HIV/AIDS influencing HIV-related stigma & discrimination. The study aimed at assessing the level of HIV/AIDS related stigma and discrimination, forms,

effects, and internal stigma experienced by PLHIVs in South-Western Nigeria.

Methods This cross sectional study was carried out at eight PEPFAR supported primary, secondary and tertiary level hospitals in South-Western Nigeria. The target population was adult (18 years and above) male and female persons living with HIV (PLHIVs) including key population. Data was collected from 278 consenting respondents by trained volunteers by a face-to-face interview.

Results The mean age \pm SD of the respondents was 38.48 \pm 11.48 years, 70.05% females, mostly married in a monogamous setting (48.6%), with a formal education (86.3%), traders (33.5%), live in rural area (88.5%) while people in the key populations accounted for 9.4% of the participants. 78.4% elicited negative feelings such as depression and shame after diagnosis. About one-third (33.1%) PLHIVs have ever experienced HIV-related stigma and discrimination mostly gossip, physical abuse, and verbal insult, of which about two-third (63.2%) occurred in the hospital setting, followed by home/community (25.0%). In addition, 8.6% have been refused a job while 5.0% have lost their job because of their HIV status. Rights awareness by PLHIVs does not rule out HIV-related stigma & discrimination experience ($\chi^2 = 5.29$, $df = 1$, $P = 0.021$).

Conclusion A remarkable proportion of PLHIV still face stigma/discrimination with possible dramatic impact on their treatment and resultant quality of life. Efforts therefore, should be made to ensure PLHIV are not only aware of their rights, but are empowered to seek redress if these rights are violated.

Disclosure No significant relationships.

P357 INTERLINKING STIGMA, VIOLENCE AND STI/HIV AMONG INJECTING DRUG USERS IN INDIA

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Background Injecting drug users (IDUs) are at higher risk of acquiring sexually transmitted infections (STIs) and untreated STIs makes IDUs and their partners vulnerable to HIV infection in India especially in case of existing stigma/discrimination and violence against them. This study aims to interlink the stigma, violence and STI/HIV among IDUs.

Methods Data from Integrated biological and behavioural survey (IBBS), 2014–15, conducted among male IDUs in India, has been used in this study. IDUs in IBBS were operationally defined as Men, aged 15 years or more, who has used any psychotropic (addictive/mind altering) substance or drug for recreational or non-medical reasons through injections, at least once in the last 3 months. A total of 3175 interviewed IDUs from Manipur, Nagaland and Maharashtra has been analysed by descriptive and multivariate analysis.

Results Portray that Widowed/divorced/separated IDUs, those who were living alone, and those who had initiated injecting drug use below age 18 years were more likely to suffer general stigma, stigma at health facility and physical violence. IDUs those who have started injecting drug within the first year of drug use were more likely to suffered stigma at health facility (35%) and physical violence (32%). Prevalence of STI was higher among those IDUs who were facing the general

stigma (19.2%), stigma at health facility (21.4%) and physically beaten (26%) because of their IDUs status. Multivariate analysis revealed that IDUs who were facing general stigma, violence and experienced at least one STI symptom were significantly 1.33 ($p < 0.05$) times, 1.98 ($p < 0.001$) and 1.06 ($p < 0.05$) times more likely to have HIV.

Conclusion Existing HIV prevention programmes and service providers should have addressed the existing stigma/discriminations and violence associated with their STI/HIV status among IDUs in India. The critical groups of IDUs needs urgent programme to address the micro and macro level determinants that shape their risk environments.

Disclosure No significant relationships.

P360 IMPROVING HEALTH CARE WORKER UNDERSTANDING OF LGBTQ+ PATIENTS THROUGH STORYTELLING AND EMPATHY

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Background Significant HIV disparities affect LGBTQ+ populations and medical mistrust from experiences of healthcare worker (HCW) stigma is a key barrier to HIV prevention and care. This stigma results from many factors, including lack of HCW understanding of LGBTQ+ experiences. The goal was to determine if storytelling nights, events where LGBTQ+ persons share in-depth, personal accounts of their experiences, increased HCW understanding of LGBTQ+ patients.

Methods The study design was a retrospective post-test design with surveys conducted after each of 5 storytelling nights and qualitative data collected via post-it notes during each event. All city residents were encouraged to attend, with marketing focused on the LGBTQ+ community and HCWs that interact with LGBTQ+ patients. The survey measured changes in HCW understanding of LGBTQ+ patients as a result of the event. Post-it notes measured HCW reactions to LGBTQ+ patient experiences shared through the storytelling and were analyzed using thematic analysis.

Results 416 individuals attended the storytelling nights (mean 83, SD 12.7 per event) and 56 HCWs completed a survey. 49 (87.5%) strongly agreed or agreed that they could better understand their patients' feelings and concerns after the event. 449 post-its (mean 90, SD 23.1 per event) were collected and 43 (9.6%) post-its were directly related to HCW reflections on LGBTQ+ patients. Three themes emerged from post-it responses: learning new approaches for working with LGBTQ+ patients through the stories; storytelling nights meeting an educational need for HCWs working with LGBTQ+ patients; and the realization that HCWs should take more time to learn about each patient's needs.

Conclusion Events that encourage sharing of experiences, such as storytelling nights, may serve as an effective tool for increasing understanding by HCWs of LGBTQ+ patients by the sharing of unique experiences of LGBTQ+ persons. This may ultimately help to decrease medical distrust of LGBTQ+ populations and improve sexual health and well-being.

Disclosure No significant relationships.

P361 PREVALENCE OF BACTERIAL VAGINOSIS AMONG WOMEN ATTENDING SEXUAL HEALTH CLINICS IN NEW YORK CITY, 2017–2018

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Background Bacterial vaginosis (BV) is a common condition among women and is associated with HIV/STI acquisition and adverse pregnancy outcomes. We describe the prevalence of BV diagnoses and repeat BV diagnoses among women attending New York City (NYC) public sexual health clinics (SHC) and examine demographic characteristics associated with BV.

Methods Using electronic medical record data for patients who were assigned female sex at birth (“women”), we identified BV diagnoses made during clinician visits at NYC SHC during January 2017–April 2018, and recurrent BV during a six-month follow-up period through October 2018. BV diagnosis was defined as a physician diagnosis of BV with a vaginal pH ≥ 4.5 , and positive whiff-amine test. We used chi-square tests to compare characteristics of women with and without a BV diagnosis.

Results Of 13,153 women with ≥ 1 visits to the SHC, 34% (4,449) were diagnosed with BV. There were significant differences in BV prevalence by race/ethnicity: 39.5% (95% CI: [38.7–40.3%]) of non-Hispanic black women versus 29.6% ([28.3–30.9%]) Hispanic, 21.2% ([19.1–23.3%]) non-Hispanic white, and 19.7% ([16.5–22.9%]) non-Hispanic Asian women. Women of HIV-negative/unknown HIV status had higher BV prevalence than HIV-positive women (33.9% vs 23.4%, $p=0.02$). Women reporting sex with both men and women had higher BV prevalence (42.0%, 95% CI: [37.5–46.5%]) than women reporting sex with men only (34.5%, [34.2–34.8%]) or women reporting sex with women only (28.1%, [22.2–34.0%]). Among women with BV, 4,404 (99%) received treatment and 1588 (36.1%) of those had another clinician visit within 6 months. Among returning women, 282 (17.8%) were given another BV diagnosis within 3 months, and 601 (37.8%) within 6 months.

Conclusion One-third of women attending NYC SHC were diagnosed with BV, and recurrent BV was common. Additional research is needed to identify effective therapies to reduce the high prevalence and recurrence rates of BV.

Disclosure No significant relationships.

P363 COMBINED ORAL AND TOPICAL ANTIBIOTIC THERAPY FOR MALE PARTNERS OF WOMEN WITH BACTERIAL VAGINOSIS: A PILOT STUDY

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Background More than 50% of women experience recurrence of bacterial vaginosis (BV) within 3–6 months following first-line antibiotics. Increasing evidence suggests that reinfection from an untreated sexual partner contributes to BV-recurrence. We conducted a pilot study of combined oral and topical antibiotic treatment of male partners of women being treated for BV.

Methods Women attending Melbourne Sexual Health Centre with symptomatic BV (≥ 3 Amsel’s criteria and Nugent Score [NS]=4–10) were recruited with their regular male partner (RSP). Women received oral metronidazole 400 mg twice daily (BD; or 2% clindamycin cream *nocte*, if contraindicated), for 7-days. Males received oral metronidazole 400 mg BD and 2% clindamycin cream topically to penile skin BD, for 7-days. Couples self-collected genital samples (vaginal swab, penile swab and male urine) and completed questionnaires for 4-weeks post treatment. The proportion of women cured (NS ≤ 7) at 4-weeks post treatment was calculated. A subset of couples will be followed to 12-weeks post treatment and this data will also be available for presentation. Genital samples will be analysed to understand the impact of partner treatment on the genital microbiota, and the contribution of behaviours and host factors to BV-recurrence.

Results Data from 46 couples has been analysed. Thirty-eight women (83%) reported a past history of BV and 14 (30%) reported intra-uterine device (IUD) use. Most RSPs were uncircumcised ($n=38$, 83%). Treatment adherence was high, with 91% taking $\geq 70\%$ of prescribed doses. The proportion of women cured at 4-weeks was 93% ($n=43/46$, 95%CI: 82–99%). All cases of BV-recurrence ($n=3$) had a past history of BV and an uncircumcised RSP. Two cases had an IUD *in situ* and one reported condomless vaginal sex during treatment.

Conclusion Treating sexual partners of women with BV may be an effective strategy for improving BV-cure. Randomised controlled trials of partner treatment currently underway will help determine the effectiveness of this intervention.

Disclosure No significant relationships.

P364 GARDNERELLA VAGINALIS CLADE DISTRIBUTION IS ASSOCIATED WITH BEHAVIOURS AND NUGENT SCORE IN WOMEN WHO HAVE SEX WITH WOMEN

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Background *Gardnerella vaginalis* (GV) can be detected in women with BV and without BV. Identification of four genetically distinct GV-clades (defined using clade-specific genetic markers) led to the hypothesis that there may be both pathogenic and commensal GV-clades. We conducted a study investigating the distribution and behavioural associations of GV-clades in a cohort of women-who-have-sex-with-women (WSW).

Methods Women self-collected vaginal swabs and completed behavioural questionnaires 3-monthly for 24 months or until incident BV (Nugent Score [NS]=7–10). qPCR assays were used to detect GV and the four GV-clades. Multinomial logistic

regression assessed factors associated with number of GV-clades. Generalized estimating equations population-averaged models assessed factors associated with each GV-clade. Models accounted for repeated measures.

Results 369 specimens from 101 women were analysed. GV was detected in 181 specimens, and most GV-positive specimens had multiple clades present (n=119/181, 66%). Detection of multiple GV-clades was associated with smoking (adjusted relative risk ratio [RRR]:2.52; 95%CI:1.25,5.07), increased lifetime female sex partners (FSP; adjRRR:2.43; 95%CI:1.09,5.38), and a NS=4-6 (intermediate microbiota) or NS=7-10 (Nugent BV) relative to no clades. GV4 was the most prevalent clade (n=136/369; 37%; 95% CI: 32,42%), followed by GV1 (n=116/369; 31%; 95% CI: 27,36%) and GV2 (n=76/369; 21%; 95% CI: 17,25%). GV3 was uncommon (n=17/369; 5%; 95% CI:3,7%). GV1 was associated with a NS=7-10 (adjusted odds ratio[AOR]:3.87; 95% CI:1.75,8.56), smoking (AOR:2.74; 95%CI:1.28,5.87) and report of any sexual partners (AOR:3.41; 95%CI:1.18,9.86). GV2 was associated with NS=4-6 (AOR:3.28; 95% CI:1.00,10.77), sharing of sex-toys (AOR:2.30; 95% CI:1.05,5.04) and recent male sex partners (AOR:6.58; 95% CI:2.02,21.40). GV4 presence was associated with increased lifetime FSPs (AOR:3.17; 95%CI:1.25,5.07).

Conclusion GV1 and presence of multiple GV-clades was associated with Nugent BV in WSW, whereas GV2 was associated with intermediate microbiota. Individual GV-clades were associated with a range of differing sexual behaviours in adjusted analyses. These associations are of uncertain importance, but do provide support for exchange of GV-clades between sexual partners.

Disclosure No significant relationships.

P365 MICROBIAL RISK FACTORS FOR ACQUISITION OF SYMPTOMATIC BACTERIAL VAGINOSIS (BV)

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Background Vaginal dysbiosis is common among women of reproductive age but many women having vaginal dysbiosis do not develop symptomatic BV requiring treatment. Our objective was to identify microbiota using quantitative PCR (qPCR) which were associated with acquisition of symptomatic BV.

Methods In this secondary analysis of a vaccine trial, 440 healthy asymptomatic sexually active women aged 18-40 had vaginal swabs collected at baseline and returned at 1, 2 and 4 months. Eleven vaginal microbes at baseline were identified using qPCR (five species of *Lactobacillus* (*crispatus*, *vaginalis*, *jensenii*, *gasseri*, *iners*), three species of *Prevotella* (*bivia*, *timonensis*, *ammii*), *Atopobium vaginae* (AVAG), *Gardnerella vaginalis* (GVAG) and *Megasphaera* phylotype I (MEGA)). Time to first acquisition of symptomatic BV was based on self-report of antibiotic treatment for BV. Cox proportional hazards models were used to evaluate the association of microbiota with BV acquisition.

Results Thirty-five women developed symptomatic BV over 130.7 person-years (PY) of follow-up for an overall rate of 27/100PY. Women who acquired BV had a lower baseline prevalence of *L. crispatus* than those who did not (31.4% vs

57.8%; $P=0.012$), and a higher prevalence and log concentration of GVAG (97.1% vs 76.0%), AVAG (77.1% vs 43.7%), MEGA (65.7% vs 23.2%), *P. timonensis* (80.0% vs 61.7%), and *P. ammii* (51.4% vs 20.5%), ($P\leq 0.001$). In multivariable analyses, women who had GVAG, AVAG, and MEGA at baseline had a significantly higher BV acquisition rate (74/100 PY, hazard ratio=21.2; 95% confidence interval: 2.8-158.8) compared to women who had none of these microorganisms (rate=4/100 PY). Women who had only one (BV rate=16/100 PY) or two (BV rate=14/100 PY) of the three microbes detected at baseline were not more likely to acquire BV ($P\geq 0.14$).

Conclusion Although many individual bacteria contribute to the dysbiotic communities associated with BV, the combination of GVAG, AVAG, and MEGA rather than presence of lactobacilli predicts symptomatic BV.

Disclosure No significant relationships.

P366 AN EVALUATION OF THE BD MAX™ VAGINAL PANEL COMPARED TO THE NUGENT SCORE FOR DIAGNOSIS OF BACTERIAL VAGINOSIS (BV)

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Background The Nugent criteria have been used as a comparator to Amsel criteria for diagnosis of BV. The BD MAX™ Vaginal Panel (MVP) received market authorization by the FDA as a molecular test to aid in the diagnosis of vaginitis/vaginosis. The assay detects *Lactobacillus crispatus*, *L. jensenii*, *Gardnerella vaginalis*, *Atopobium vaginae*, *Megasphaera-1* and BVAB-2, utilizing a semi-quantitative algorithm. Our objective was to evaluate agreement between Nugent score (NS) and MVP and to identify factors contributing to the discordance between methods.

Methods 303 women aged 18-40 presenting with a complaint of vaginitis symptoms provided informed consent and were enrolled at 8 community practice sites affiliated with a single medical system. Clinicians evaluated study participants per local practice and 5 additional vaginal swabs were collected. Vaginal swabs were evaluated by the MVP, plus NS (≥ 6) for diagnosis of BV. Quantitative PCR (qPCR) was used to evaluate vaginal microbiota in the samples yielding discordant results.

Results Of the 290 evaluable samples, the level of agreement between NS and MVP was 88% with 36 discordant results. There were 6 Nugent 0-3 and 13 NS 4-6 that were BV positive by MVP. Of these 19, the median concentration of *L. iners* by qPCR was log concentration 7.3, *A. vaginae* was 6.7 and *G. vaginalis* was 7.5. Of the 17 positive for BV by NS (median NS 8) but negative by MVP, the median concentration of *G. vaginalis* was 7.5 but *A. vaginae* and *L. crispatus* had medians of 0 by qPCR.

Conclusion Nugent score and MVP had high levels of agreement for diagnosis of BV. Because *L. iners* is indistinguishable from *L. crispatus* and *L. jensenii* by Gram stain, high concentrations of this microorganism contribute to lower NS and substantially contributes to the NS-/MVP+ discordance. The primary source of discordance for NS+/MVP- samples is lack of *A. vaginae*.

Disclosure No significant relationships.

P367 HORMONAL CONTRACEPTION AND RISK OF STIS AND BACTERIAL VAGINOSIS IN SOUTH AFRICAN ADOLESCENTS: A RANDOMIZED TRIAL

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Background Young women in sub-Saharan Africa are at high risk for sexually transmitted infections (STIs) and often rely on hormonal contraception (HC) to prevent unwanted pregnancies. Some observational data suggest that HC might affect STI risk. We examined the impact of three HC methods on the adolescent STI incidence and BV prevalence in a randomized trial.

Methods 130 adolescent females aged 15 to 19 from Cape Town were enrolled and randomized into three study arms: 1. injectable norethisterone enanthate (NET-EN), 2. combined oral contraceptives (COCs) or 3. combined contraceptive vaginal ring (CCVR) for 16 weeks. Participants then switched to a second HC for a final four months. Vaginal samples were collected at baseline, crossover and exit for STI (chlamydia, gonorrhoea, mycoplasma and trichomoniasis) and bacterial vaginosis (BV) testing by Nugent scoring.

Results At baseline, the BV and STI prevalence was 44% and 42%, respectively. There were no significant differences in STI incidence between study arms at crossover, however in an according to protocol analyses, participants using COCs were significantly less likely to present with any STI than participants using either NET-EN (OR 0.22, 95% CI 0.06–0.71, $p=0.017$) or CCVR (OR 0.21, 95% CI 0.05–0.69, $p=0.015$). Specifically, participants on CCVR were more likely to be infected with *N. gonorrhoea* (OR 11.7, 95% CI 2.0–224, $p=0.025$). These associations stayed significant after adjusting for sexual risk behaviour, including condom use. There was a decreased prevalence of BV in the COC arm and an increased BV prevalence in the NET-EN and CCVR arms at crossover, but these differences were not statistically significant.

Conclusion Use of COCs was associated with lower BV prevalence and STI incidence compared to NET-EN and CCVR use.

Disclosure No significant relationships.

P368 LOW PREVALENCE OF VAGINAL DYSBIOSIS IN KENYAN ADOLESCENT GIRLS

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Background Vaginal dysbiosis is a risk factor for sexually transmitted infections (STI) and HIV in young women, and is highly prevalent in Africa. We sought to describe the microbiota of younger African women, before engaging in sexual behavior.

Methods Adolescent girls aged 16–21 were recruited in Thika, Kenya. Eligible participants were HIV and HSV-2 seronegative, and reported sexual naiveté or one lifetime sexual partner. Nugent score was determined from vaginal Gram stains. Girls were tested for *Neisseria gonorrhoea* (NG), *Chlamydia trachomatis* (CT), and *Trichomonas vaginalis* (TV). Chi-square testing was used to compare BV with other variables.

Results We enrolled 400 girls with a median age of 18.6 years (range 16–21). The majority (322 girls, 80.5%) reported no history of sexual intercourse, while 78 (19.5%) reported sex with 1 lifetime partner. Reported sexual partners were older, with median age of 22 years (IQR 19–25). At enrollment, 375 girls had vaginal Gram stains: 338 girls (90%) had a normal Nugent score of 0–3. BV (Nugent score ≥ 7) was uncommon (21 girls, 5.6%). Girls with BV were older (median age 19.3, IQR 17.9–20.3) than girls with Nugent score 0–3 (median age 18.6, IQR 17.6–19.3) and Nugent score 4–6 (median age 18.6, IQR 17.9–19.8). Of 373 girls with STI testing, 49 girls were diagnosed with STIs and 7 girls had both STI and BV. BV was significantly associated with self-reported sexual intercourse: 52% of girls with Nugent score ≥ 7 reported prior sex, compared to 18% of those with Nugent score 0–3 ($p = 0.001$).

Conclusion Kenyan adolescent girls in a low-risk cohort have *Lactobacillus*-dominated vaginal microbiota, and only 5.6% of girls had evidence of BV. BV was found more often in girls who self-reported sexual intercourse. Interventions to prevent the onset of vaginal dysbiosis could be beneficial for African women.

Disclosure No significant relationships.

P369 INCIDENCE OF VAGINAL INFECTIONS IN KENYAN WOMEN RANDOMIZED TO CONTINUOUS OR CYCLIC CONTRACEPTIVE RING (CVR)

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Background Bacterial vaginosis (BV) is common in sub-Saharan African women, confers elevated risk for HIV acquisition, and is associated with menses. Antibiotic treatment provides symptomatic relief, but recurrence is common. Limited data support a favorable effect of a CVR containing estrogen and progesterone (NuvaRing) on vaginal bacteria, increasing quantities of favorable *Lactobacillus* species and reducing those of BV-associated bacteria (BVAB). We randomized women treated for BV in Thika, Kenya to continuous (menstrual suppression) vs cyclic (regular menses) use of NuvaRing, and assessed effects on BV.

Methods Women aged 18–40 years were enrolled and treated for BV defined by Amsel clinical criteria. One month later, they were randomized and evaluated monthly for 7 months. We used a logistic regression model with robust standard errors to compare BV incidence in each study arm at two

months (immediate post-CVR) and 3–6 months (sustained post-CVR) relative to the 1-month visit (pre-CVR).

Results Between April 2016 to November 2017, 151 women (median age 27 y) were enrolled and 122 (81.9%) initiated CVR; 30 (24.6%) were HIV-infected. Six women (4.9%) had BV at the pre-CVR visit. Over a median duration of follow-up of 4.7 months, BV incidence/recurrence was 10.2% at the immediate post-CVR visit and 7.1% over the sustained post-CVR visits. In a model combining CVR arms that adjusted for age and unprotected sex, we observed a non-significant increase in BV incidence/recurrence immediately post-CVR (adjusted OR = 2.5 (0.9, 7.2), after which BV returned to a level comparable to CVR insertion (AOR=1.2 (0.8, 1.9).

Conclusion Cumulative incidence of recurrent BV in the 6 months after CVR initiation is lower than historically reported rates in prospective studies, which are typically in $\geq 50\%$ range. Concomitant incidence of vulvovaginal candidiasis, however, requires further study. The CVR should be considered for potential long-term optimization of the vaginal environment.

Disclosure No significant relationships.

P370 PREVALENCE OF CHLAMYDIA, GONORRHOEA, *M. GENITALIUM* AND *T. VAGINALIS* IN THE GENERAL POPULATION OF SLOVENIA, 2016–2017

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Background To inform sexually transmitted infections (STIs) prevention and control, objective of the second National Survey of Sexual Lifestyles, Attitudes and Health was to estimate the prevalence of *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Mycoplasma genitalium* and *Trichomonas vaginalis* infections.

Methods A survey of the general population aged 18–49 was conducted in 2016–2017. We used stratified two-stage probability sampling from the Central Population Registry. Survey respondents were invited to contribute first void urine specimens for testing for *C. trachomatis* and unlinked anonymous testing for other STIs to obtain population prevalence estimates. Specimens were tested for *C. trachomatis* with specific real time PCR targeting both cryptic plasmid and bacterial chromosome. Positive results were confirmed by Sanger sequencing of the amplicon. Other STIs were detected by a commercially available multiplex PCR (FTD Urethritis plus, fast-track Diagnostics). To avoid false negative results, the human house keeping gene was amplified in all tested samples.

Results Urine specimens from 452 men and 635 women (56.4% of all survey respondents) were tested for chlamydia. Overall weighted prevalence was 0.5% (95% CI 0.1% to 1.4%) in men and 1.7% (95% CI 0.9% to 3.1%) in women. Age-specific prevalence was the highest among 18–24 years old (men: 2.8%; 95%CI 0.9% to 8.5%; women: 4.7%; 95% CI 1.6% to 10.7%). Urine specimens from 430 men and 593

women (53.0% of all survey respondents), were tested for other STIs. No infections with *N. gonorrhoeae* were found. Weighted prevalence estimate for *M. genitalium* was 0.5% (95% CI 0.2% to 1.5%) in men and 0.3% (95% CI 0.0% to 0.9%) in women. Parasite *T. vaginalis* was detected in one woman only. Corresponding weighted prevalence was 0.2% (95% CI 0.0%–0.9%).

Conclusion The prevalence of *C. trachomatis* infection in the general population of Slovenians aged 18–24 was substantial. The other three STIs were relatively rare.

Disclosure No significant relationships.

P371 EFFECT OF METRONIDAZOLE TREATMENT ON RECURRENT AND PERSISTENT BACTERIAL VAGINOSIS: A PILOT STUDY

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Background This study aims to investigate the effect of metronidazole for the treatment of recurrent and persistent bacterial vaginosis (BV).

Methods Stored vaginal swabs of 80 African American (AA) women were randomly selected from a previously conducted clinical trial for this pilot study. Women with BV were treated with metronidazole. Vaginal smears were categorized by the Nugent score (NS) [0–3, normal; 4–6, intermediate state; 7–10, BV]. Women were classified as recurrent BV (RBV), persistent BV (PBV) or no BV based on three consecutive NS. RBV occurs when an episode of BV occurs after successful treatment of a prior episode. PBV occurs in instances when BV treatment fails to restore healthy *Lactobacillus* levels. All women were asymptomatic for BV at baseline and followed every two months for four months.

Results After four months, 22.5% (CI: 13%, 32%) of women did not have BV, 7.5% (CI: 2%, 13%) had RBV and 70% had PBV (CI: 60%, 80%). 30% of treated women did not have BV compared to 15% of untreated women ($p=0.18$). BV recurred among 12.5% of treated women and 2.5% of untreated women ($p=0.2$). BV persisted among 57.5% of treated women and 82.5% of untreated women ($p=0.03$). Women that were treated had 0.33 decreased odds (95%CI: 0.12, 0.92, $p\leq 0.05$) of having PBV as compared to untreated women. The mean age was 21.4 years (SD: 2.11 years). Prior antibiotic use among the sample was low (3.8%), and 75% of women were not treated for BV during their lifetime. Among those who were previously treated for BV, 60% were treated more than five times. Douching was reported by 49% of the sample.

Conclusion These preliminary findings suggest, standard BV treatment may not be effective among women with RBV or adherence to treatment may be low among women with asymptomatic BV.

Disclosure No significant relationships.

P372 BACTERIAL VAGINOSIS AND HIGH-RISK HUMAN PAPILLOMAVIRUS COINFECTION AMONG AFRICAN AMERICAN WOMEN IN THE UNITED STATES

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Background Bacterial vaginosis (BV) increases the risk of many sexually transmitted infections. The co-occurrence of persistent BV and high-risk HPV (HrHPV) increases the risk of developing cervical cancer. This study aims to investigate the co-occurrence of HrHPV and BV among young women in the US.

Methods Stored vaginal swabs were acquired from a previously completed clinical trial. The kinds of bacteria present in the samples were identified by classifying 16S rRNA gene sequences in each sample using high-throughput pyrosequencing. HPV genotyping was performed using quantitative polymerase chain reaction using TaqMan probes in a customized plate (ThermoFisher Scientific; Waltham, Massachusetts). BV was classified using Nugent Scores of Gram Stain.

Results Eighty reproductive age African American (AA) women were included in the analysis. The point prevalence of HrHPV was 48.1% (95%CI: 37–59%). The mean age of the participants was 21.4 years (SD: 2.11), 81.2% graduated high school. Prior antibiotic use was low (3.8%), and 75% were not treated for BV during their lifetime. Among those who had been treated previously for BV, most women were treated \geq five times (60%). According to Nugent Scores, 70% had BV, 13.7% had intermediate flora and 16.3% were healthy. Among HrHPV positive women, 66.7% were infected with single HrHPV genotype, 33.3% with multiple HrHPV genotypes. Concurrent HrHPV and BV infection was found among 33.3% of the sample. However, there was no significant difference between the prevalence of HrHPV among women with and without BV.

Conclusion Co-occurrence of hrHPV and BV among this group of young African American women was relatively high. Considering that these conditions are very common among women worldwide, further research in this field is imperative. More studies are needed to accurately evaluate temporal sequence of acquisition of both conditions in any attempt to establish a causal relationship.

Disclosure No significant relationships.

P373 CO-OCCURRENCE OF BACTERIAL VAGINOSIS AND TRICHOMONAS VAGINALIS AMONG YOUNG AFRICAN AMERICAN WOMEN

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Background While the etiology of bacterial vaginosis (BV) is still not known, it is described as a polymicrobial condition that lacks lactic-acid producing *Lactobacillus* species with an overgrowth of anaerobic bacteria and elevated vaginal pH. This study aims to evaluate the relationship between BV assessed by Nugent scoring of vaginal Gram stain and *Trichomonas vaginalis* infection among African American young women in the U.S.

Methods Stored vaginal swabs from a previously completed clinical trial were acquired for this study. The kinds of bacteria present in the samples were identified by classifying 16S rRNA gene sequences using high-throughput pyrosequencing. Vaginal smears were also categorized by the Nugent Gram stain score (0–3, normal; 4–6, intermediate state; 7–10, BV). TV genotyping was performed using quantitative polymerase chain reaction, performed using TaqMan probes in a customized plate (Thermo Fisher Scientific; Waltham, Massachusetts). Descriptive statistics were conducted to determine the odds of TV infection among women with BV.

Results This study included 80 African American reproductive age women with a mean age of 21.4 years (SD: 2.11 years). Most (81.2%) women had graduated high school. 70% (95% CI: 37–59%) had BV, 13.7% had intermediate and 16.3% had healthy vaginal flora. TV was diagnosed among 11.1% (95% CI: 4–8%) of the women. Prior antibiotic use was low (3.8%), and 75% of women had not been treated for BV during their lifetime. Among those who were previously treated for BV, 60% were treated five or more time. Douching was reported by 49% of the sample. 55% of TV cases had concurrent BV, while 11.1% of TV cases also had intermediate vaginal flora. There were no association with prior antibiotic use, hormonal contraception, douching or prior treatment.

Conclusion Young African American women of reproductive age found to have abnormal vaginal flora should be screened for *Trichomonas vaginalis* infection.

Disclosure

No significant relationships.

P374 OVERLAP BETWEEN AMSEL'S CRITERIA, NUGENT'S GRAM STAIN SCORE, AND VAGINAL MICROBIOTA COMMUNITY STATE TYPES

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Background Bacterial vaginosis (BV) is characterized by low-*Lactobacilli* and increased anaerobes. BV can be determined by clinical assessment (Amsel's criteria) or microscopy (Nugent scoring); molecular methods are also under study. We investigated concordance between Amsel-BV, Nugent-BV and low-*Lactobacillus* vaginal microbiota identified via 16S rRNA gene sequencing.

Methods Vaginal swabs and clinical data were collected from women enrolled in a longitudinal study. Amsel's criteria were determined clinically and Nugent scoring (Nugent-BV=7–10, intermediate=4–6) was determined by microscopy. Vaginal microbiota were characterized using 16S rRNA gene sequencing and categorized into 7 community state types (CSTs): 4 dominated by *Lactobacillus* spp. (CST I, II, III and V), and 3 by *Streptococcus* spp. (CST VI), *Bifidobacterium* spp. (CST VII), or a variety of anaerobes (CST IV).

Results 110 samples, ~10 from each CST, were selected. 5.5% (n=6) had Amsel-BV, 32.7% (n=36) Nugent-BV, and 36.4% (n=40) had low-*Lactobacillus* CSTs (IV, VI, VII); 8.2% had symptoms. Among Amsel-BV samples, 83.3% had Nugent-BV, 16.7% had intermediate Nugent score and all were CST IV. 86.1% of women with Nugent-BV and 85% of women with low-*Lactobacillus* CSTs did not have Amsel-BV. 22.2% of those with Nugent-BV did not have low-*Lactobacillus* CSTs; of these 50% were CST III (*L. iners*-dominated). 46.7% of CST-III had a vaginal pH ≥ 4.5 , and 13.3% had a Nugent BV score. 22 samples had a vaginal pH ≥ 4.5 and a normal Nugent score: 45.5% were in CST III, 9.1% in low-*Lactobacillus* CSTs. 30.6% women with Nugent-BV had a vaginal pH < 4.5 ; of these 45.5% were in CST IV.

Conclusion Nugent score and low-*Lactobacillus* CST were concordant. *L. iners*-dominated CSTs often had normal Nugent scores and high pH. Among mostly asymptomatic women, a large proportion with low-*Lactobacillus* CSTs did not have Amsel-BV. Future studies assessing long term clinical outcomes will be needed to determine whether molecular methods provide added actionable or prognostic information.

Disclosure No significant relationships.

P375 RISK FACTORS FOR INCIDENT BACTERIAL VAGINOSIS AMONG HETEROSEXUAL WOMEN

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Background The exact etiology of bacterial vaginosis (BV) is unknown and it is controversial whether BV is a sexually transmitted infection (STI). *Gardnerella vaginalis* is present in 95–100% of BV cases. However, it is also found in women with normal vaginal flora and colonization is not sufficient for BV development. We investigated risk factors for incident BV (iBV) in a longitudinal study of heterosexual women.

Methods Women ages 18–45 with no Amsel criteria, Nugent score 0–3, no recent antibiotic use, and no evidence of STI were followed for iBV (Nugent score 7–10 on 3 consecutive days) with daily self-collected vaginal swabs for 8 weeks. Vaginal swabs were also obtained at enrollment for *G. vaginalis* quantitative PCR. Time to iBV was estimated and baseline participant characteristics were compared according to development of iBV or not. All analyses were conducted using SAS v9.4.

Results Between January 2015–May 2018, 164 eligible heterosexual women were enrolled, of which the majority were African American (73%). Of those enrolled, 29 (17.7%) developed iBV at a median time of 21 (range 6–50) days. Women with iBV were significantly more likely to be older (33 \pm 7 years vs 30 \pm 7 years; $p=0.02$), African American (93% vs 69%; $p=0.02$), have a BV history (72.4% vs 48.2%; $p=0.02$), and have a pregnancy history (78% vs 54%; $p=0.02$). They were also significantly more likely to have detectable *G. vaginalis* by quantitative PCR at enrollment (81% vs 60%; $p=0.04$) with a higher median number of

copies/ μ L (4,850 [1,890–30,100] vs 1,340 [217–9,550]; $p=0.03$). No significant difference was found between women with iBV and those without regarding current tobacco use, history of bacterial STI, and lifetime number of sexual partners.

Conclusion This study confirms previous cross-sectional findings of risk factors for iBV among heterosexual women and examines the potential role of *G. vaginalis* in iBV pathogenesis.

Disclosure No significant relationships.

P380 THE ASSOCIATION BETWEEN SOCIAL SUPPORT, VIOLENCE EXPERIENCE, AND SOCIAL SERVICE NEEDS AMONG A SELECT SAMPLE OF URBAN ADULTS

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Background Experiencing violence is associated with negative health outcomes including increased substance use, mental health problems, and sexual risk behaviors. Studies show associations between strong perceived social support and decreased negative health outcomes. The objectives of this study were: (1) determine the impact of violence (exposure and victimization) on social service needs and perceived health status, and (2) assess whether social support is associated with decreased violence experience among a select sample of urban adults.

Methods A cross-sectional survey was conducted among 187 adults seen in one of 7 urban clinics as part of a larger project between September 2015 and March 2018. A multivariable logistic regression model was used, adjusting for the clinic site as well as age and gender identity.

Results 131 (72%) individuals had ever witnessed and 89 (49%) had ever experienced physical assault. Violence victimization was associated with an 8.6-fold odds (95% CI: 2.4, 31.4) of needing housing assistance and 3.4-fold increased odds (95% CI: 1.4, 8.5) of needing mental health/substance use support services. Exposure to violence was associated with a 5.2-fold increased odds (95% CI: 2.0, 13.4) of needing housing assistance, a 12.4-fold increased odds (95% CI: 2.1, 74.0) of needing transportation support, and a 0.5 decreased odds (95% CI: 0.3, 0.8) of reporting optimal health status. Increased perceived social support was associated with 0.54 odds (95% CI: 0.4, 0.8) and 0.62 odds (95% CI: 0.4, 0.9) of violence exposure and victimization, respectively.

Conclusion Violence experiences were common in this sample of urban adults, and were associated with increased social service needs and suboptimal perceived health status. Augmenting sources of social support is one possible mechanism for addressing these issues. Including care for the effects of experiencing violence as well as social service needs are important in optimizing the health of key populations.

Disclosure No significant relationships.

P382 FACTORS AFFECTING HEPATITIS C CARE IN PRISONS IN ENGLAND: A QUALITATIVE ANALYSIS OF STAKEHOLDERS IN LONDON AND ENGLAND

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Background NHS England is committed to eliminating Hepatitis C (HCV) virus infection as a public health problem by 2025. Prisons are a key setting for any elimination strategy due to the high prevalence of infection among prisoners, often due to injecting drug use (IDU). During 2018 we sought to understand barriers and enablers of acceptable HCV care to incarcerated people.

Methods We used a purposive sampling strategy to identify and recruit key stakeholders along the HCV care cascade in English prisons. We interviewed key stakeholders including commissioners, healthcare providers and patient advocates. The semi-structured interviews were recorded, transcribed, and analysed thematically. PHE Research Ethics Group approved the project.

Results Sixteen individuals were interviewed including nurses/doctors (primary and secondary care), commissioners in prisons and community settings, third sector organisations, an incarcerated person, and laboratory personnel. Nine were based in London. Participants identified a number of important barriers. These included: Resource challenges (staffing levels, completing demands), care pathway issues (eg. implementation of testing, high patient turnover, continuity across prisons and to the community, patient nonattendance at clinic, overdependence on a single individual to ensure that the pathway functioned, and lack of reflex HCV RNA testing in laboratories), and patient and staff perceptions (eg. stigma, misunderstanding DAA side effects, cultural issues towards health and HCV). They also identified enablers that included: Providing resources (presence of a designated/paid champion), Senior support including from Governors (allowing stigma, patient attendance and pathway issues to be addressed), Collaboration (between prisons, personnel in prison, and community organisations), Peer to peer education and support, and a Focus on fail-safes in the pathway including effective planning for release or transfer.

Conclusion Prisons could be an important setting for HCV elimination strategies but multiple barriers exist to achieving model care pathways for HCV in prison. This research has identified areas of good practice and important areas for improvement.

Disclosure No significant relationships.

P384 EXTENSION FOR COMMUNITY HEALTHCARE OUTCOMES (ECHO) IMPLEMENTED FOR HEPATITIS C (HCV)/HIV CO-INFECTED PATIENTS IN TEXAS, USA

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Background HCV prevalence in people living with HIV (PLWHIV) is approximately 25% and progression of liver

disease is accelerated in PLWHIV. ECHO is a telementoring “hub and spoke” model based on knowledge-sharing networks led by expert teams using videoconferencing for sessions with community healthcare providers. We describe development and implementation of an HIV/HCV ECHO to educate/support primary care and infectious disease (ID) providers to treat HCV in PLWHIV.

Methods Development began in October 2017. The expert panel assembled consisted of: ID specialist, hepatologist, psychiatrist, addiction medicine specialist, pharmacist, community health worker. An HIV/HCV didactic curriculum was developed. Initial spoke sites were providers at five HIV clinics. Equipment set up was ensured at the hub site. Minimal hardware requirement for spoke participation was a smart phone. A project website was developed. Innovations in use of REDCap, a cloud database platform, were developed. UT Health San Antonio HIV/HCV ECHO launched 1st October 2018.

Results One-hour ECHO sessions are held twice a month. The HIV/HCV curriculum covers 11 topics. From 1st October 2018 – 22nd January 2019, 158 individuals participated in sessions including clinicians responsible for 1,155 PLWHIV, 42 co-infected with HCV. REDCap innovations included direct entry of de-identified clinical information for sessions into REDCap with export into a PDF format, automatic assignment of ECHO identification numbers for initial and follow up case presentations, direct entry of information required for Continuing Medical Education credit into REDCap. Website views were 1887 with 253 individuals using the site.

Conclusion ECHO has been an effective foundation for a growing Community of Practice and Learning for HIV/HCV management. REDCap innovations facilitate ECHO administration. Reach to HIV/HCV co-infected patients has been demonstrated. The ECHO model should be considered to improve education about HCV management among HIV providers and to improve access to HCV treatment and cure for PLWHIV in their medical home.

Disclosure No significant relationships.

P386 CANCER RISK AMONG PEOPLE WITH HIV, HBV AND/OR HCV INFECTIONS

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Background HIV, hepatitis B virus (HBV) and hepatitis C virus (HCV) infections each are associated with increased cancer risk. In this study, we assessed the effect of co-occurrence of HIV, HBV and HCV on all cancers, anal cancer, non-Hodgkin Lymphoma (NHL) and liver cancer.

Methods We used the British Columbia Hepatitis Testers Cohort (BC-HTC) which includes all individuals (~1.7 million) tested for HCV or HIV, or diagnosed with HCV, HIV, or HBV linked with data on cancers. We included individuals tested for all three infections since 1990 and followed them

from the date of their last test until the first cancer diagnosis, death, or 12/31/2015. We utilized the Fine and Grey competing risks regression model to estimate adjusted sub-distributional hazard ratios (aHRs) for outcomes, with death as a competing risk.

Results Among 514,501 individuals tested for all infections, 12,586 had any cancer (2.45%), 100 had anal cancer (0.02%), 552 had NHL (0.11%), and 1,081 had liver cancer (0.21%) during a median follow-up of 4.19 years. Compared to no infection, the aHR for all cancers was the highest for HIV/HBV co-infections (HR 2.55, 95% CI: 1.91–3.42) followed by triple infections (aHR 2.29, 95% CI: 1.80–2.89). The risk of anal cancer was higher among individuals with HIV (triple infection aHR 22.61, 95% CI: 7.27–70.33), while risk of the liver cancer was higher among those with HBV or HCV mono or co-infections and triple infections. The risk of NHL was the highest among HIV/HBV co-infections followed by triple infection.

Conclusion HIV, HBV and HCV infections are associated with an overall higher risk of cancer. The highest risks for anal cancer and NHL were among those living with HIV infection. The observed association between HCV and anal cancer, which may be due to the presence of human papillomavirus and/or residual confounding, requires further investigation.

Disclosure No significant relationships.

P387 ASSESSMENT OF THE PERFORMANCE OF WHO PREQUALIFIED HIV RAPID TESTS AND HCV RAPID TECHNOLOGY ON DRIED BLOOD SPOT ELUATS

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Background Rapid testing is a new technological alternative in the diagnostics of HIV and HCV. In view of their intrinsic performance, they can be used on several specimens: whole blood, serum; and plasma. The present study aims to evaluate the performance of HIV and HCV rapid tests on Dried Blood Spots (DBS) eluates.

Methods Using a Respondent Driven Sampling protocol, 492 dried blood samples were collected from intravenous drug users. The serostatus of the samples towards HIV and HCV was determined by electrochemiluminescence (Cobase411 - Roche, USA) taken as the gold standard. HIV-positive cases were confirmed by Western Blot (HIVBlot 2.2, MPDiagnostics). The rapid tests evaluated are based on immunochromatography, are WHO prequalified: KHB Colloidal HIV 1 + 2 (KHB, China), SD Bioline HIV 1 + 2 (SDBionline, Korea) and UniGold HIV 1 + 2 (Unigold, Ireland). For HCV, these are: KHBColloidal HCV (KHB, China), INFO (Turkclab, Turkey); and ABON (Abon, China).

Results From the HIV rapid tests assessment showed that SDBionline highlighted a specificity of 96.28% and a sensitivity of 70.97%, whereas KHB showed a sensitivity of 87.1% and a specificity of 98.51%. UniGold had the highest specificity (100%) and the lowest sensitivity (45.1%). In comparison with the HIV rapid tests, the HCV tests had very low specificities: 18.52% for KHB; 37.04% for INFO and 47.62% for

ABON. On the other hand, sensitivity for all HCV rapid tests was 100%.

Conclusion To sum up, HIV and HCV rapid tests were shown to be able to detect anti-HIV and anti-HCV antibodies in DBS eluates. However Based on the overall results of the HCV rapid tests, it is recommended that DBS specimens eluate should not be used in HCV serological Tests. This indicates that there is a great need for further studies to argue the use rapid tests for serological screening of DBS eluatsts.

Disclosure No significant relationships.

P388 EVOLUTION OF HEPATITIS C CARE CASCADES AMONG HIV AND HEPATITIS B CO-INFECTED PATIENTS IN BRITISH COLUMBIA, CANADA

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Background Improvements in tolerability and cure rates of hepatitis C virus (HCV) with direct acting antiviral (DAA) treatment led to expansion of patients treated for HCV; however, research examining the impact of these changes on linkage to care and treatment initiation among patients with hepatitis B (HBV) and HIV co-infection is limited. We compared the care cascades for patients with HBV and HIV co-infection before and after the introduction of DAAs, among a large population-based cohort in British Columbia (BC).

Methods We analyzed data from the BC Hepatitis Testers Cohort, including all individuals tested for HCV or HIV between 1992 and 2015 at the BC Centre for Disease Control Public Health Laboratory, as well as cases of HIV (1980–2015), HCV (1990–2015), HBV (1990–2015), and active tuberculosis (1990–2015) included in registries of reportable diseases in BC. Care cascades were stratified by HIV and HBV co-infection and compared for all individuals with HCV alive at the end of 2012 (pre-DAA) and 2017 (post-DAA), including the following stages: (1) HCV diagnosed; (2) HCV RNA tested; (3) HCV RNA positive; (4) HCV genotyped; (5) initiated antiviral treatment; and (6) sustained viral response (SVR).

Results 53,030 individuals diagnosed with HCV were alive in 2012 and 52,987 in 2017, were included in respective care cascades. In comparison to the pre-DAA era (2012), there were considerable increases in genotyping, treatment, and cure among individuals from all co-infection categories in 2017. For example, the proportion of those with known active infection who initiated treatment was 52% versus 23% among HCV/HIV ($p < 0.01$), 51% versus 33% among HCV/HBV ($p < 0.01$), 54% versus 20% among HCV/HBV/HIV ($p < 0.01$), in 2017 and 2012 respectively.

Conclusion Considerable improvements have been noted in linkage to care and treatment of HCV in BC following introduction of DAAs, particularly among patients with HBV and HIV co-infections.

Disclosure No significant relationships.

P390 IMPROVING THE UPTAKE OF HIV-CENTERED PREVENTATIVE AND TREATMENT SERVICES BY ADOLESCENTS

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10.1136/sextrans-2019-sti.484

Background There is approximately 6.3million people living with HIV in South Africa with nearly a third of all new HIV infections occurring in 15–24 year olds with adolescent girls being up to eight times more likely to be infected with HIV than their male counterparts. In addition, 52 percent of all sexually active young people who reside in rural areas have reported having never used condoms with their most recent partners.

Methods At facility-level, MatCH deployed a roving clinical team, consisting of clinical and a psychosocial advisors, who provided the following: (a) onsite training and mentoring of healthcare workers on the delivery of adolescent friendly services, (b) identification of healthcare workers as Adolescent Champions, (c) developing dedicated consultation rooms for adolescents to seek clinical and psychosocial support and to be fast-tracked for immediate management. At patient-level, MatCH designed an HIV/STI preventative package of care inclusive of: HIV testing services, behavioural risk assessments, PrEP initiation for at-risk HIV-negative adolescents, STI, gender-based violence and TB screening and management, same-day ART initiation for HIV-positive adolescents and ongoing psychosocial support via one-on-one adherence counselling and linking to peer-led support groups.

Results Comparative review of 8-month data, revealed a 70% increase in the number of adolescents accessing HIV testing services at PHC facilities. Of those who tested HIV-positive, linkage to care improved by 98% as compared to the baseline of 63%. 90% uptake of PrEP by at-risk HIV negative females aged 15–19years as compared to the 10% uptake seen amongst their male counterparts within the same age group. Improved healthcare worker confidence in (a) managing at-risk HIV negative adolescents, (b) initiating HIV positive onto ART and (c) delivering comprehensive package of HIV-centered adolescent friendly services.

Conclusion The provision of adolescent-friendly services at primary healthcare facilities is essential to improving the uptake of HIV-centered prevention and treatment strategies by at-risk adolescents.

Disclosure No significant relationships.

P391 YOUNG PEOPLE'S EXPERIENCES WITH CLINICAL CARE AND PREFERENCES FOR DELIVERY OF NEW POINT-OF-CARE TESTS FOR STIS IN ENGLAND

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Background Young people in the UK face multiple barriers to attending sexual health clinics (SHCs) and are at high risk for sexually transmitted infections (STIs), despite widely available free and confidential STI testing. Studies have shown that point-of-care tests (POCTs) for STIs, which can accurately diagnose and treat patients in one clinical visit, have potential

to change clinical practice. It has been recommended that young people be consulted in advance of changes to care.

Methods We conducted a secondary analysis of qualitative in-depth interviews with young participants of the *Precise* study, which explored patient experiences of SHC services and their opinions of POCT implementation plans. Attendees were purposively sampled at three SHCs in England. Interviews were thematically analysed using NVivo (V10) to investigate young people's perceptions of their healthcare needs and preferences for POCTs.

Results Ten young people aged 17–22 years, including: three women-who-have-sex-with-men, four heterosexual men and three men-who-have-sex-with-men were interviewed between June 2015 and February 2016. Participants generally regarded the tests as innovations to improve SHC experiences including the potential to reduce time-to-results and receive results from trusted sexual health experts. Participants raised concerns that POCT implementation may shorten consultation times and changes to pathways may unintentionally impact on privacy and/or cause confusion. Participants suggested increase in provision of information to patients, including potential waiting times and self-sampling instructions, along with recommendations to safeguard privacy around sample provision and clinical consultation times.

Conclusion Many of our young participants discussed waiting for results to be anxiety-producing, with provision of POCTs mitigating this concern, increasing satisfaction with SHC care and potentially paving the way for increased attendance among this group. However, participants suggest that other barriers, specifically around confusion and privacy, are likely to mitigate positive effects if not addressed by appropriate clinical implementation plans.

Disclosure No significant relationships.

P392 TEENS' EXPERIENCES FOLLOWING SEXUAL ASSAULT: A SYSTEMATIC REVIEW OF QUALITATIVE RESEARCH

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Background Data shows adolescents have the highest rate of sexual assault. Adolescents who were raped during childhood show a relation with risky behaviours such as being sexually active at a younger age and poor use of contraception. Furthermore, they have a greater number of pregnancies and abortions, are at higher risk for HIV and STI's, higher rates of depression and suicidal thoughts and attempts, self-mutilation, eating disorders and obesity (Crawford-Jakubiak, Alderman & Leventhal, 2017; Fier, 2017; Brabant, Hébert & Chagnon, 2013; Keeshin et al., 2013).

Adolescents appear to have special needs when it comes to sexual health care services (Kulyk et al., 2013). Even though the emotional, physical, and social consequences of sexual assault are similar to those of adults, 'adolescents have less life experience and emotional fortitude to handle the trauma' (Bein, 2011) associated with sexual assault. Even so, they have proved hard to reach by health and support services.

A review of the literature shows few studies actually focus on adolescents' experiences and needs after sexual assault. The current study is part of a larger (doctoral) study into teens'

experiences with sexual assault support services in co-operation with Umbrella Clinics.

Methods This study's objective was to explore teens' experiences following sexual assault by systematically reviewing and synthesizing published qualitative studies in this area. A narrative review of literature has been undertaken in order to identify publications that explore teens' experiences following sexual assault. Only studies focussed on teen participants (13–19 years old), as opposed to retrospective accounts from adults, were included.

Results Important themes such as help-seeking behaviours, barriers, disclosure, the role of peers, importance of language, coping and gender emerged.

Conclusion This study identifies the complex nature of sexual assault specifically in combination with adolescence. Findings identify issues for service improvement and a significant need for research inclusive of adolescents' narratives.

Disclosure No significant relationships.

P393 SITUATION ANALYSIS OF ADOLESCENT AND YOUNG FEMALES IN AKURE, ONDO STATE, NIGERIA

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10.1136/sextrans-2019-sti.487

Background Kids & Teens Resource Centre, a non-government organisation working in the SRHR space in Nigeria conducted a situational analysis into the current status of Adolescents and Young Persons (AYPS) in Ondo State with a view to ascertaining the SRH challenges in various communities across Ondo state. This research also aimed at engaging AYPs in order to understand their knowledge, attitudes and practices as it pertains to sexual and reproductive health.

Methods A qualitative methodology was adopted for this study, using focus group discussions and key informant interviews. There were 18 FGDs and 101 KIIs conducted in all, during the primary research phase and desk research was conducted during the secondary research phase. In total, over 200 individual respondents were reached for this analysis.

Results 20% of girls and women aged 10 to 24 in Ondo have undergone some degree of genital mutilation, Ondo state has the highest rate of teenage pregnancy in the South West with about 20 percent of young women from ages 13 to 19, four percent of young women aged 15 to 19 are married against their wish. And the policy environment has not been too friendly especially with implementation.

Conclusion Social mobilization advocacy for community stakeholders, including traditional and religious leaders.

Engaging AYPs to ensure that they are at the centre of any policies or intervention formulated for them.

Youth friendly centers should be built in every LGA and trained personals be put in those centres to attend to AYPSRHR.

Disclosure No significant relationships.

P395 ACCEPTABILITY OF POINT OF CARE TESTING FOR CHLAMYDIA TRACHOMATIS IN ADOLESCENTS: IF WE MAKE IT, WILL THEY TAKE IT?

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10.1136/sextrans-2019-sti.488

Background Women 15–19 yo have the highest prevalence of *C. trachomatis* (Ct) infection in the US. Despite the increase in the number of cases reported, chlamydia may still be under reported as the majority of patients do not have symptoms. Point of care tests (POCT) for Ct and other STIs are currently under development. Should these tests be made available for purchase over the counter (OTC)?

Methods An anonymous 12-item questionnaire was administered to patients attending the Adolescent clinic at University Hospital of Brooklyn, NY. The clinic serves an inner-city population that is predominantly African American and Caribbean American.

Results Completed questionnaires were obtained from 99 adolescents, 12–21 yo, median 18, 74 females, 25 males. 86 responders identified themselves as straight; 1 girl as gay, 12 as bisexual. Only 27% of responders (17% girls, 44% boys) reported an adequate knowledge of Ct infection including transmission and complications. 16 girls and 3 boys reported prior positive test for Ct, all stated they were treated but 2 girls did not inform their sexual partners. Only 43.3% indicated that they would be interested in purchasing a Ct OTC (9(36%) boys, 34(46%) girls), 62% were willing to pay \$20 or less. Although almost 100% indicated that they would report to their doctor and get treatment for partner, 4 would not inform their partners.

Conclusion Less than half of the respondents indicated they would buy an OTC for Ct if available. Many of these young people also had poor understanding of the transmission and risks of Ct infection. Cost was also an issue, with the majority willing to pay \$20 or less. Especially worrisome was that a small number were unwilling to notify their partners of a positive test, and had not done so in the past. The impact on linkage to care may have important public health implications.

Disclosure No significant relationships.

P397 INTRA-VAGINAL PRACTICES AMONG ADOLESCENT GIRLS AND YOUNG WOMEN IN SOUTH AFRICA: RISK FOR HIV ACQUISITION

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Background Women around the world use intra-vaginal practices (IVPs) for varying reasons. IVPs can disrupt the vaginal microbiome and induce inflammation, increasing susceptibility

to bacterial vaginosis (BV), a risk for HIV acquisition. Limited research has focused on IVPs and their correlates among adolescent girls and young women (AGYW) in South Africa, a key population for HIV prevention efforts.

Methods We used cross-sectional baseline survey data from 253 HIV-negative or HIV-status unknown AGYW (16–24 years) enrolled in AYAZAZI, a community-based cohort study in Soweto and Durban, South Africa (2014–2016). We measured IVP use in the past 30 days for 11 IVPs (yes vs no) and estimated the prevalence of using ≥ 1 IVP in the past 30 days (yes vs no). Using existing literature, we identified 18 determinants of IVP use. We estimated the total causal effect of each determinant on any IVP use in the past 30 days using separate logistic regression models adjusted for confounding within the counterfactual framework of causal inference.

Results Mean age was 19 years, 67.2% were in school, and 81.8% ever had sex. Overall IVP prevalence was 76.7% (59% vs 81% among those who had never vs ever had sex; $p=0.016$). The most common IVPs included: washing intravaginally with water only (66%), with soap (41%), and with other products including towels or sponges (41%). AGYW who reported binge drinking (aOR=7.6; 95%CI: 3.2–18.4), a higher monthly income ($\geq R1601$ vs $\leq R400$; aOR=7.4; 95%CI: 1.6–33.9), engaged in transactional sex (aOR=4.4; 95%CI: 1.0–19.1), and/or reported any symptoms of genital tract infections (aOR=4.9; 95%CI: 1.0–23.0) had higher adjusted odds of using IVPs.

Conclusion Over three-quarters of South African AGYW in this study reported IVPs with differences by socio-economic, behavioral, and clinical characteristics. Further investigation of IVP motives and implications for BV and HIV acquisition risk among young women are warranted.

Disclosure No significant relationships.

P398 CAN VIDEO-CONSULTATIONS CONTRIBUTE TO DIMINISHING WAITING LISTS? A DEMONSTRATION PROJECT IN THE NETHERLANDS

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Background The 25 Centers for Sexual Health (CSHs) in The Netherlands offer free STI and Sexual Health consultations to adolescents: annually approximately 70,000 STI and 11,000 Sexual Health consultations. In some regions there are waiting times for the consultations. Furthermore, the reach of regular consultations is limited among lower educated young people. In a joint pilot project the CSHs wanted to gain insight into whether online video-consultations can contribute to solving these problems. In the first phase of this project, the key question is whether a video consultation is appreciated and can offer sufficient quality, and – if so – for which services and for which target groups? We also explored the time periods of the video consultations.

Methods The key question is approached from two perspectives: client and professional. In 8 regions CSHs offered video consultations – including STI testing methods on distance – to adolescents for whom no physical examination was necessary. Both clients and professionals filled out an online questionnaire directly after the (video)consultation. 20 adolescents

were interviewed, all professionals participated in regional organized focusgroups. To create a reference frame, regular consultations were evaluated in the same way. The software of the video-consultations registered time periods.

Results 332 clients evaluated the video-consultations, professionals 535. Clients appreciated the video-consultations on the same positive level as the regular consultations: good contact with professional, enough possibilities to answer all questions and good advice. The professionals also evaluated the video-consultations positive. The time periods of the video-consultations: 43% less than 10 minutes, 37% 10–15 minutes, 21% more than 15 minutes.

Conclusion For consultations without the need for physical examinations and no complex requests, video-consultations can provide the same quality as regular consultations and they are appreciated by the clients. Efficiency advantages seem limited if the time needed to organize STI-testing on a distance is included.

Disclosure No significant relationships.

P399 HIV PREVENTION AMONG YOUNG KEY POPULATION: COMMUNITY-BASED STRATEGY OUTCOMES, BRAZIL

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10.1136/sextrans-2019-sti.491

Background Brazil's HIV epidemic is largely concentrated among key populations whose HIV infection rates can be up to 30 times higher than those observed in the general population. Rapid HIV testing and combination prevention in community settings, delivered by peers, allows for easier access to HIV testing. Our aim is to present the percentage of positive HIV rapid tests and intersectional risk factors of young key populations (YKP) targeted by the 'Live Better Knowing' programme, a nationwide initiative launched by the Brazilian Ministry of Health in close collaboration with NGOs.

Methods Programmatic data were analyzed, collected through Registration form of the Monitoring and Evaluation System Registration Form (SIMAV-Pro), collected from January 1st 2016 from December 31st 2018. 51 Brazilian NGOs administered the form and offer rapid oral fluid HIV tests (DPP HIV-1/2 Bio-Manguinhos/Fiocruz) and combination prevention packages to sex workers, men who have sex with men (MSM), trans people, people who use drugs and and youngsters in these populations.

Results In total, 88,052 were tested aged from 15 to 24 yo, 69.2% were nonwhite, 58.9% reported drug use, 2.6% commercial sex, and 13.8% drug use and commercial sex combined. Overall, 49% reported condom use during their last sexual intercourse and 9% reported STI symptoms in the last 12 months. The general HIV prevalence found was 1% and its distribution among women, transvestites, trans women, trans men, MSM, and heterosexual men was 17%, 9%, 5%, 1%, 49%, and 19% respectively.

Conclusion Community-based rapid HIV testing delivered by peers reached YKP that had not previously accessed HIV testing. Given the combination of drug use and sex work, comprehensive combination prevention services need to be delivered. Our analyses suggest the need to impact behaviors

related YKP focusing on sex workers, people who use drugs, MSM, and Trans people. These findings support community-based strategies in public health policies.

Disclosure No significant relationships.

P400 **QUALITY IMPROVEMENT INITIATIVES TO STRENGTHEN VIRAL SUPPRESSION AMONG ALHIVS IN INSTITUTE OF HUMAN VIROLOGY SITES IN ABUJA**

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10.1136/sextrans-2019-sti.492

Background Adolescents living with HIV (ALHIVs) in high ALHIV-burden, resource-limited settings like Nigeria have significantly inferior outcomes from antiretroviral therapy. This paper expands on these inferior outcomes including inferior access to and coverage of ART, higher rates of loss to follow-up, poor adherence, increased needs for psychosocial support and sexual reproductive health services. This study reports on initiatives to identify and bridge gaps in achieving HIV suppression among Nigerian ALHIVs, and ensuring they are not left behind in the UNAIDS 90-90-90 targets.

Methods A retrospective chart review was conducted for ALHIVs aged 10 to 19 years who attended IHVN facilities in Abuja from June 2017–July 2018 with viral loads ≥ 1000 copies/ml. Quality improvement projects known as ‘small tests of change’ to improve poor performing areas were initiated. This performance review initiative captured data on a template that highlights the Problem Statement, a Root Cause Analysis, Ideas Intended for Use, an Aims Statement, and a Plan Do Study Act (PDSA). This approach forms the basis of a monitoring cycle to track innovation and outcomes, which may be considered as failed, ongoing, or successfully completed.

Results Inadequate ALHIV suppression was captured as the **Problem Statement**, the **Root Cause Analysis** highlighted challenges with - disclosure of HIV status, ART adherence, HIV/AIDS related stigma and transition to adult services. Some **Ideas intended for Use** included- Intensified Adherence Counselling, peer mentoring, and youth friendly services, while the **Aims Statement** was a need to implement initiatives that strengthen ALHIV suppression rates. **The Plan Do Study Act (PDSA)** stages are currently - successfully completed and on going.

Conclusion Attempts to address the needs of ALHIVs are burdened with many challenges, which are magnified in sub-Saharan Africa where HIV prevalence is high and resources are scarce. These report detail strategies initiated to ensure ALHIVs are not left behind in the UNAIDS 90-90-90 targets.

Disclosure No significant relationships.

P401 **PROVISION OF ONLINE AND OFFLINE HIV SELF-TESTING KITS FOR STUDENTS ATTENDING UNIVERSITIES: EXPERIENCE FROM SICHUAN, CHINA**

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Background Recent years saw climbing cases of newly HIV infection among students attending universities in China. HIV self-testing (HIVST) has the potential to reach students who do not access facility-based services. We aimed to evaluate the effect of a program providing both online and offline HIVST for students attending universities in China.

Methods HIVST awareness campaigns were conducted in five universities between November 2017 and December 2018 in Luzhou, southwestern China’s Sichuan Province. Eligible participants were students attending the five participating universities who were willing to use HIVST. For online HIVST, participants were recruited via social media and provided with a HIVST kit through postal services. For offline HIVST, participants were recruited via campus promotion and provided with a HIVST on site. Participants self-tested their HIV status using a finger-prick HIVST kit with text and pictorial instructions. Testing results were uploaded to online recording system via mobile phones.

Results A total of 649 (122 online, 527 offline) HIVST kits were distributed, of which 490 testing results were returned (82 online and 408 offline). The success rate was high for both online and offline HIVST (91.5% vs 93.6%). All qualified HIVST results were HIV negative. Participants’ average age was 19.9 (range 16–29) years. Male students were more likely than their female counterparts to use HIVST (464 vs 26). The reasons for male students to test for HIV were unprotected vaginal intercourse with a woman (114, 24.6%), unprotected anal intercourse with another man (55, 11.9%). The proportion of MSM in online testers were higher than that in offline testers (56.4% vs 43.6%).

Conclusion This study found high level of qualified results and feedback of HIVST among students attending universities in Luzhou, China. HIVST could be widely implemented to facilitate the HIV testing on campus. Further studies are needed assess the feasibility of its scaling up.

Disclosure No significant relationships.

P402 **LARGE DUTCH STUDY REVEALS LOW-EDUCATED YOUNGSTERS ARE AN IMPORTANT TARGET GROUP FOR SEXUAL HEALTH PREVENTION ACTIVITIES**

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10.1136/sextrans-2019-sti.494

Background Youngsters under the age of twenty-five have an increased risk for sexual health problems. Therefore, a large population based online survey on the sexual health of

youngsters was performed. In this study it was assessed whether the education level of youngsters was associated with various sexual health topics.

Methods A total of 3772 youngsters between 12–25 years old from South Limburg participated in an online survey (38% low-educated, 62% high-educated). Participants were recruited through their school or through a sample from the population register. The study sample was weighted for population based characteristics such as age and sex. Topics included in the survey were experience with pregnancy, sexting and sexual diversity. Outcomes were compared between low-educated and high-educated participants using chi-square tests with complex samples.

Results The study showed that 6.4% of low-educated youngsters had experience with pregnancy compared to 0.9% of high-educated youngsters ($p < 0.001$). Fifteen percent of those with a lower education level had a negative experience with sexting compared to 8% of the high-educated youngsters ($p < 0.001$). Twenty-seven percent of the low-educated youngsters did not accept homosexuality compared to 15% of the high-educated youngsters ($p < 0.001$). In addition, 21% of the low-educated youngsters and 11% of the high-educated youngsters did not accept gender non-conformity ($p = 0.001$).

Conclusion Low-educated youngsters had more experience with pregnancy, more negative experiences with sexting and more often a negative attitude towards sexual diversity in comparison to high-educated youngsters. This indicates that low-educated youngsters are an important target group for sex education and sexual health prevention activities.

Disclosure No significant relationships.

P405 SOCIAL LEARNING THEORY AND HEALTH BELIEF MODEL AS A PREDICTOR AND INFLUENCER OF YOUTH BEHAVIOR IN HIV TESTING

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10.1136/sextrans-2019-sti.495

Background HIV counseling and testing (HCT) is widely considered an integral part of HIV prevention and treatment strategies in Kenya. However, recent studies show that slum youth are a highly vulnerable group due environmental factors namely, security, shelter, (economic) poverty, and risky behavior (social) and lack of amenities. Youth in urban slums of Kenya is a group at substantial risk for HIV infection, especially women. This paper examines the correlates of access to HIV testing, and checks if variation exists in these associations (context under testing and motivations for HIV testing (or lack thereof).

Methods Drawing on 2013 data from Kenya National Aids Control Council, 6042 (51% female) youth (12–22 years) living in Kariadudu and Korokocho slums in Nairobi, correlates of and motivations for HIV testing (or lack thereof) were explored using the Health Belief Model (HBM) as a theoretical framework. HBM, a social learning theory (recently relabelled social cognitive theory) is applied in this study to problems of explaining, predicting, and influencing behavior; on self-efficacy, and locus of control with respect to motivations for HIV testing (or lack thereof). Bivariate analyses were employed to assess reasons for or against testing.

Results 61% of males and 62% of females requested last HIV test while 41% of males and 51% of females reported

mandatory HIV tests. About 75% females took HIV tests during pregnancy. Perceived risk for HIV infection was motivation to HIV testing. Over 50% of slum youth never tested for HIV because they believed they were not at risk.

Conclusion Voluntary HIV Testing Centres intervention helped the youth to accurately assess HIV infection risk levels and increase awareness, potential value of HIV testing, and motivation for testing. Mainstreaming Prevention of Mother-to-Child Transmission services helped increase (mandatory) HIV testing rates among females. Routine testing and counseling among all visiting clinic clients can increase HIV status awareness among the youth.

Disclosure No significant relationships.

P407 'MTV SHUGA': MASS MEDIA COMMUNICATION, HSV2 AND SEXUAL HEALTH IN ADOLESCENT GIRLS AND YOUNG WOMEN IN RURAL SOUTH AFRICA

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10.1136/sextrans-2019-sti.496

Background Adolescent girls and young women (AGYW) in South Africa are at high risk of HIV and early pregnancy. MTV-Shuga, a mass-media edu-drama, improved some sexual health outcomes in a randomised trial amongst young people in Nigeria. We used the national free-to-air TV screening of MTV-Shuga (the “Down South” series), concurrent with the roll-out of a large scale-up of combination HIV prevention for AGYW - to test the hypothesis that mass-media edu-drama can improve the sexual health of AGYW in a rural and resource-constrained area of KwaZulu-Natal.

Methods We followed a representative population-based prospective cohort of females aged 13–23 between May 2017 and September 2018. We measured the relationship between exposure to MTV-Shuga (i.e., reporting seeing ≥ 1 of 24 episodes; able to recall any storyline) and: incident HSV-2; incident pregnancy; condom use at last sex; uptake of HIV-testing and contraception; and awareness of HIV Pre-Exposure Prophylaxis (PrEP).

Results 2183 (85.5%) eligible participants were surveyed at baseline, of whom 1853 (86.5%) completed follow-up. MTV-Shuga exposure was low – 152 (8.2%) reported seeing ≥ 1 episode and 73 (3.9%) recalled any storyline – while teenage pregnancy and incident HSV-2 were high (6.4 and 11.3/100 person-years respectively). MTV-Shuga exposed AGYW were from wealthier households ($p < 0.001$) and urban areas ($p < 0.001$). After adjusting for confounders, MTV-Shuga watching was associated with significantly greater awareness of PrEP (aOR=3.3, 95%CI: 2.12, 5.14) and less likelihood (non-significant) of acquiring HSV-2 or early (<19 years-old) pregnancy (aOR=0.55, 95%CI: 0.24, 1.29).

Conclusion AGYW exposure to the MTV-Shuga edu-drama was very low in a setting where AGYW remain at high risk for STI, HIV and early pregnancy. Nevertheless, there is a suggestion that those who were exposed to MTV-Shuga had

better sexual health outcomes. There is a need for strategies to raise uptake of such edu-dramas, and to evaluate whether wider coverage leads to population impact.

Disclosure No significant relationships.

P410 PROGRAM EVALUATION TO PROVIDE HIV AND STI INFORMATION IN JUNIOR HIGH SCHOOLS IN KPANDO, GHANA

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Background We are a group of young people, aged 15 to 23 in Junior and Senior High School who are living with HIV. We are starting the conversation in our community to educate youth about HIV and STI. We do this together with our sister organization UNiTED. UNiTED conducts regular health education about HIV and STI in 13 schools. As 'The STARS' we conduct activities on World AIDS Days (WAD) in 19 schools. To evaluate the impact of our activities a program evaluation took place in June 2018.

Methods The program evaluation was a survey to assess students' knowledge about health behaviors. This survey was conducted in 4 schools that did not have the UNiTED health lessons and 3 schools that did have UNiTED health lesson and were also part of the WAD activities. The tool used was a modified version of validated Knowledge Attitude Practices (KAP) survey.

Results 382 JHS students participated in this study, aged between 10 and 24 years old, with a mean age of 14.6 years old. 195 attended form 1 and 185 attended form 2. On safe sex, STIs and teenage pregnancy, the intervention group scored 1.5% higher in comparison with the control group. The intervention group scored 0.4% lower on the topic HIV/AIDS than the control group. Both results were not significant.

Conclusion While the results from the process evaluation of STI education show that the 2017 activities did not have the desired effect of increasing knowledge about STIs in the students which took part in the WAD activities in 2017 we are using the findings of the study to better integrate UNiTED's in school education with the WAD to create synergies for learning which we hope will increase the effectiveness of the two activities. We will conduct another evaluation of knowledge secondary school student's in 2019.

Disclosure No significant relationships.

P411 ACCEPTABILITY OF A PHONE APP-BASED MOTIVATIONAL INTERVIEWING INTERVENTION FOR YOUNG MEN'S SEXUAL HEALTH

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10.1136/sextrans-2019-sti.498

Background Motivational interviewing (MI) is an effective communication style for facilitating behavior change. Pairing MI with a smartphone app has the potential to engage young men, a traditionally hard-to-reach population. We assessed young men's experiences in a pilot study examining the use

of a smartphone app with phone-based MI coaching by trained community health coaches (one female, one male).

Methods Fourteen (of 26) predominantly black and Hispanic men, ages 16–19 years, who participated in the pilot study were interviewed about their experience. They participated in app activities and coaching that addressed sexual health or fitness (comparison group). Interviews were transcribed and coded using thematic analysis.

Results Participants found the app activities and coaching to be acceptable. In both arms, the young men were asked about sexual health and reported being comfortable discussing it in this format. In the sexual health arm, they reported gaining knowledge about contraceptive methods and sexually transmitted infections, which some shared with their sexual partners. Participants were comfortable with the coach's gender; a benefit of a female coach was her perspective on sexual health. Most preferred phone rather than in-person or video coaching sessions due to not having to travel, ease of rescheduling sessions, and increased privacy regarding sensitive subjects. The most common obstacle to participation was phone replacement; others included parental monitoring and restriction of phone privileges. Over time, the young men felt positively about their connection to the coach. They sometimes viewed the coach as having medical expertise beyond the scope of his/her training.

Conclusion Phone app-based MI with community health coaches has great potential for use with young men for a variety of health issues including sexual health; however, it has unique obstacles. Phone accessibility may restrict young men's ability to fully engage and perceptions of a coach's expertise should be regularly clarified.

Disclosure No significant relationships.

P412 AN EXPLORATORY ANALYSIS OF ASSOCIATIONS BETWEEN PSYCHO-SOCIAL FACTORS AND SYSTEMIC INFLAMMATION AMONG SOUTH AFRICAN YOUTH

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10.1136/sextrans-2019-sti.499

Background Psycho-social factors affect biological processes, including inflammation and immune response, yet their contribution to gender and socio-economic disparity of HIV is not well understood. In South Africa, 38% of new HIV infections occur in 15–24 year olds, with 3-times higher incidence among females. In this exploratory study, we examined associations between psycho-social factors and biomarkers of inflammation that may be linked to HIV acquisition in South African youth.

Methods Baseline plasma and linked cross-sectional survey data were obtained from the AYAZAZI study, which enrolled 425 HIV uninfected or HIV status-unknown youth (16–24 years

old; 60% female) in Durban and Soweto (2014–2016). Survey data captured social and clinical determinants of health (e.g., gender, income, food insecurity, body mass index [BMI]) and psycho-social characteristics (depression, anxiety, stress, substance use). A random, gender-stratified subset of 39 HIV-negative participants was selected. Luminex[®] assays were used to analyze 12 plasma biomarkers. Associations between biomarkers and social, clinical, and psycho-social factors were assessed using Spearman's rank correlation.

Results Median age was 18 (IQR: 17–20); 19/39 were female. Consistent with prior studies, high depression symptomology scores were associated with elevated pro-inflammatory (IFN- α 2, IL-1 α , IL-6, IL-12(p40), MIP-1 β) and anti-inflammatory (IL-4, IL-10) cytokines (all $p < 0.05$). Low BMI correlated with elevated pro-inflammatory (IFN- α 2, IFN- γ , IL-1 α , IL-1 β , IL-6, IL-12(p70), IP-10 and TNF- α) and anti-inflammatory (IL-10) biomarker levels (all $p < 0.05$). Associations were also observed between some biomarkers and indicators of anxiety, food insecurity, low income, and financial responsibility for dependents, which varied between sites.

Conclusion Results indicate that psycho-social, clinical, and socio-economic challenges are associated with inflammatory biomarker levels in South African youth. This suggests a link between social determinants of health and biological factors that modulate disease risk, possibly including inflammatory conditions associated with increased HIV transmission. Further analysis is required to confirm these results and investigate their implications for HIV prevention.

Disclosure No significant relationships.

P413 A DYADIC INTERVENTION FOR STI PREVENTION IN YOUTH: FEASIBILITY, ACCEPTABILITY & PRELIMINARY EFFECTIVENESS

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10.1136/sextrans-2019-sti.500

Background Sexually transmitted infection (STI) prevention strategies for adolescents and young adults (AYA) primarily rely on individual approaches leaving sexual partners with significant unmet sexual and reproductive health needs. This paper describes the research methods and preliminary feasibility, acceptability, and preliminary effectiveness of a dyad-based behavioral intervention that augments individual evidence-based interventions with joint health education counseling for STI-affected AYA dyads within a primary care setting.

Methods Index participants were AYA 15–25 years, engaged in heterosexual intercourse, history of positive STI, Baltimore City resident, willing to recruit their main sexual partner for the study. Exclusions include: one or both partners has HIV infection, pending incarceration, greater than five years age difference, evidence of partner violence. Index and partner completed a single individual session separately with a gender-matched health educator. Dyads were randomized to receive an additional joint debriefing session together, and separately completed a telephone interview 6 weeks post intervention.

Results 18 dyads were recruited over 11 months. Mean age [range] females: 21.5 [17–26], males: 22.7 [18–27]. Mean age difference within dyads: 1.4 years. Acceptability was high with 100% agree/strongly agree it was a great opportunity to reflect on relationship with their partner and a worthwhile use of their time. More in the intervention group endorsed feeling closer to their partner than when they arrived for the visit (94 vs 88%). 100% of dyads were still together at 6 weeks. Participants reported high confidence that they could negotiate condom use with their partner even if partner did not want to, mean 9.3 (sd =2.2) out of 10.

Conclusion AYA endorsed helpfulness of the intervention. Participants showed high confidence in condom negotiation with their partner 6 weeks following the intervention. Recruitment of AYA dyads is a challenge, and more successful with young adults; however, dyadic interventions show promising impact on behavior that can prevent STI.

Disclosure No significant relationships.

P415 THE DECISION-MAKING PROCESS OF SELF-INITIATED HIV TESTING AMONG YOUTH: A QUALITATIVE STUDY

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10.1136/sextrans-2019-sti.501

Background In the United States, youth have the lowest rates of HIV testing in comparison to the general population. Only 33% of youth aged 18 to 24 years have ever been tested for HIV infection, and approximately 51% of HIV-infected youth are unaware of their HIV serostatus. Low rates of HIV testing drive transmission, late diagnoses, and poor health outcomes including difficulty achieving viral suppression and death. Self-initiated testing (i.e., testing without the immediate recommendation of a clinician) has been identified as a strategy that can improve testing rates in this population. However, little is known about how youth self-initiate HIV testing or strategies that can enhance its uptake. Therefore, the purpose of this study was to describe the decision-making process of youth who self-initiated HIV testing.

Methods A qualitative study was conducted with 30 youth aged 18 to 24 years who self-initiated HIV testing, recruited directly from multiple HIV testing sites in South Florida. Data was collected using a demographic and sexual history questionnaire and audio-recorded individual in-depth interviews. Data analysis occurred using interpretative phenomenological analysis, allowing the rigorous exploration of participant's experiences and perspectives.

Results The findings from this study describe how youth acknowledge their vulnerability to HIV infection and navigate the process of deciding and self-initiating testing. Some supporting themes that further explain this finding include *Self-convincing, Conversation Prompts, The Right Place and Right Time, and Finding HIV testing sites*.

Conclusion Despite current clinical guidelines recommending routine HIV testing, there are still challenges in HIV testing among youth. Findings from this study are pivotal for subsequent studies that seek to further understand self-initiated HIV testing among youth and design targeted interventions that will improve testing uptake. Additionally, this study will reveal areas for recommendations that will

enhance structuring and targeting of HIV testing services for youth.

Disclosure No significant relationships.

P416 LONGITUDINAL RELATIONSHIP AND SEXUAL HEALTH OUTCOMES FOR ADOLESCENT AND YOUNG ADULTS WITH PELVIC INFLAMMATORY DISEASE

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10.1136/sextrans-2019-sti.502

Background Many adolescent and young women (AYA) remain in relationships with their sexual partners at 3-months post-PID, but little is known about how those relationships continue to evolve and integrate risk reduction behaviors. The purpose of this study is to examine 12-month longitudinal sexual and reproductive health behaviors post-PID.

Methods Participants in the Technology Enhanced Community Health Nursing Study (N=286), a large randomized controlled trial of an intervention to improve PID outcomes were enrolled in quarterly post-trial telephone follow-up interviews. This analysis presents data from participants who completed 12 months of follow-up (N=72). Participants were queried about interim symptoms, sexual and reproductive behaviors, and clinical outcomes such as recurrent STI, pregnancy, chronic abdominal pain) and relationship status. Data were analyzed using descriptive and logistic regression analyses.

Results Of 72 participants who completed the 12-month post-trial follow-up, 33 were in the intervention group, and 39 were in the control group, and 42 (58%) reported new partners in the last 12 months. Participants with new partners were not more likely to report having an STI than women without new partners (estimated odds ratio 1.6, 95% CI 0.5, 4.6, $p = 0.470$) or to have used contraceptives in the past 12 months (OR = 4.5 95% CI 0.3, 244.5, $p = 0.301$), but are more likely to have had lower abdominal pain (OR 5.6 95% CI 1.8, 18.9, $p=0.001$). Most women (86%) reported condom use in the prior 12 months, but there were no differences in condom use over the last year based on new partner status.

Conclusion Most AYA who experience PID acquire new partners during the year post-PID, but are not more likely to use condoms at 12 months. Given the increased association with lower abdominal pain, booster STI risk reduction strategies may be indicated to prevent associated sequelae among affected patients.

Disclosure No significant relationships.

PS02 – POSTER VIEWING SESSION – TUESDAY

Tuesday, July 16, 2019

5:45 PM – 7:00 PM

P417 HIGH INTEREST IN SYPHILIS PRE- AND POST-EXPOSURE PROPHYLAXIS AMONG GAY, BISEXUAL AND OTHER MSM IN VANCOUVER AND TORONTO

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10.1136/sextrans-2019-sti.503

Background Novel strategies for preventing bacterial sexually transmitted infections (STIs) are urgently needed. We assessed the acceptability of doxycycline-based syphilis pre- and post- exposure prophylaxis (PrEP/PEP) in a survey of gay, bisexual and other men who have sex with men (gbMSM) at risk.

Methods We recruited gbMSM from Toronto and Vancouver sexual health clinics during routine visits from 06/2018-08/2018. The questionnaire included demographics, sexual history/behaviours and knowledge/opinions regarding STI prevention. We analyzed data using descriptive statistics and constructed separate multivariable logistic regression models for willingness to use syphilis PrEP and PEP, with number of male partners in the last six months as the primary predictor, controlling for city, self-perceived syphilis risk, prior syphilis, concern about STI acquisition, number of different STIs previously diagnosed, depression, problem drug use and previous/existing HIV PrEP/PEP use.

Results Among 424 participants, 56.4%/43.6% were recruited in Toronto/Vancouver. Median (interquartile range) age was 31.0 (26.0, 39.0) years, 61.7% had completed postsecondary education and 54.4% were White. Median number of male partners in the past 6 months was 6.0 (3.0, 13.0), and 18.2% had ≥ 1 prior syphilis diagnosis. 60.1% and 44.1% indicated willingness to use syphilis PEP and PrEP respectively; 36.6% were unwilling to use either. Most participants were familiar with antibiotic resistance (89.0%) and agreed that syphilis rates are rising in Canada (68.2%), but only 55.4% believed they were at risk for syphilis. Agreement with the latter statement was significantly associated with willingness to use syphilis PrEP (aOR=1.6; 95%CI=1.0, 2.5), as was previous/existing HIV PrEP use (aOR=2.2;95% CI=1.1,4.3) and being "very concerned" about STI acquisition (aOR=1.9;95%CI=1.0,3.4). Odds of being willing to use syphilis PEP were higher in Toronto versus Vancouver (aOR=2.0;95%CI=1.2,3.4) and increased with the number of different STIs previously diagnosed (aOR=1.4;95% CI=1.2,1.7).

Conclusion There is considerable interest in syphilis PrEP/PEP in gbMSM attending STI clinics in Toronto and Vancouver. Further research on such approaches is warranted.

Disclosure No significant relationships.

P418 UPTAKE OF HIV PRE-EXPOSURE PROPHYLAXIS (PrEP) IN WESTERN NIGERIA: ARE HEALTHCARE PROVIDERS PREPARED FOR THE KEY POPULATIONS?

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10.1136/sextrans-2019-sti.504

Background HIV pre-exposure prophylaxis (PrEP) can decrease HIV incidence among several high-risk populations. In order to successfully implement PrEP, healthcare providers will need to have knowledge about counselling, monitoring and drug adherence. This study was carried out to determine the awareness, practice and preparedness of healthcare professionals to prescribe PrEP in clinical settings especially to key populations in our communities and identify the factors associated with or encouraging its prescription.

Methods This cross-sectional study was carried out in randomly selected primary, secondary and tertiary level hospitals in Western Nigeria. The target population were physicians and nurses largely involved in the antiretroviral clinics in the hospitals. Data was collected by trained volunteers and supervised by appointed supervisors by a face-to-face interview. All data were statistically analysed, using Statistical Package for the Social Sciences (SPSS) and statistical test of significance was performed with Chi-Square test.

Results A total of 256 consenting respondents participated in the study with a mean age \pm SD of 38.52 ± 9.29 years. A total of 89.8% of the respondents have heard about PrEP, with 54.3% of them aware of both oral and topical PrEP while only 4.3% have ever prescribed PrEP. The main factor associated with PrEP prescription was work experience ($\chi^2 = 20.815$, $df = 1$, $p = 0.001$). Work experience has lower association with PrEP prescription (OR: 0.88, 95% CI: 0.82–0.95).

Conclusion Healthcare professionals in public hospitals in Nigeria are PrEP aware and willing to prescribe, but few have actually ever done the prescription. Regular supply of drugs for pre-exposure prophylaxis purpose and addressing the potential safety issues and medication-related adverse effects will help aid the PrEP implementation effort nationwide especially with focus on the key populations of men having sex with (MSM) who are in a hostile environment in our own neighbourhood.

Disclosure No significant relationships.

P419 PATTERNS OF GROUP SEX ACTIVITY AMONG GAY AND BISEXUAL MEN IN MELBOURNE AND SYDNEY IN AUSTRALIA, 2013–2018

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10.1136/sextrans-2019-sti.505

Background This study analysed trends in group sex among gay and bisexual men (GBM) and the factors associated with group sex. It is important to understand GBM who engage in group sex as they may be at risk of and require more intensive screening for sexually transmitted infections (STI).

Methods The Gay Community Periodic Surveys are annual behavioural surveys of GBM. We analysed data collected from

Melbourne and Sydney during 2013–2018. Participants were eligible if they were ≥ 16 years, male, and reported sex with men in the last 5 years. We calculated trends in group sex (sex involving at least two other men) in the last 6 months and used multivariable logistic regression to identify factors associated with it.

Results Among 31,341 GBM, the proportion engaging in group sex increased from 30.9% in 2013 to 36.8% in 2018 ($p_{\text{trend}} < 0.001$). Group sex was associated with having ≥ 10 male partners in the last 6 months (aOR: 3.63; 95% CI: 3.38–3.90), using Viagra (aOR: 1.40; 95% CI: 1.29–1.52) and testing for HIV/STI in the last 12 months (aOR: 1.36; 95% CI: 1.25–1.47). Compared with HIV-negative GBM who did not use PrEP ($n=23,003$), HIV-negative GBM who used PrEP ($n=2,299$; aOR: 1.57; 95% CI: 1.39–1.77) and HIV-positive GBM ($n=2,701$; aOR: 1.15; 95% CI: 1.03–1.28) were more likely to report group sex. GBM who met male partners at private sex parties (aOR: 5.03; 95% CI: 4.30–5.89) and saunas (aOR: 2.34; 95% CI: 2.17–2.51) had the highest odds of engaging in group sex.

Conclusion Group sex has become more common among GBM in Melbourne and Sydney over the last 6 years. While group sex is concentrated among PrEP users and HIV-positive GBM, there remains a large group of non-PrEP-users who engaged in group sex and would benefit from regular STI screening (and potentially the offer of PrEP).

Disclosure No significant relationships.

P420 UNDERSTANDING PREP SERVICE DELIVERY PREFERENCES AMONG BLACK WOMEN IN URBAN AND RURAL COUNTIES IN THE US DEEP SOUTH

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10.1136/sextrans-2019-sti.506

Background In the US, women account for approximately 20% of all new HIV infections, among which two-thirds are Black women. These health disparities are most pronounced in the Deep South. We conducted focus groups in urban and rural settings in Alabama to understand attitudes and preferences for PrEP service delivery among Black women.

Methods Our group members consisted of HIV-negative women between the ages of 16–65. Items and analyses were grounded in a conceptual framework using constructs from two behavioral models. Two coders independently conducted inductive and deductive thematic coding to determine major themes.

Results 25 rural (median age 44, 48% income $< \$25,000$, 36% Bachelor's degree) and 22 urban residents (median age 35, 14% income $< \$25,000$, 54% Bachelor's degree) were enrolled. Common themes identified among both groups of women were lack of awareness regarding PrEP and openness to utilization of PrEP if self-perceived risk for HIV was high. Among rural women, many expressed more overall distrust in knowing their partners risk of HIV infection as well as fear of potential disclosure if accessing PrEP within their community. Rural women also reported more concerns about stigma related to PrEP and structural barriers limiting access to service. Many rural women felt churches could be avenues to

increase PrEP awareness. While urban women did not endorse the same concerns over where they would receive PrEP, they commonly reported concerns that PrEP would lead to increased “promiscuity” among its users.

Conclusion Black women in the Deep South had differing preferences regarding PrEP service delivery and messaging depending on whether they lived in urban or rural settings. These findings can inform targeted intervention development by emphasizing the need for partnerships with trusted community organizations and utilization of service delivery strategies that allow for anonymity to increase uptake of PrEP especially among rural Black women.

Disclosure No significant relationships.

P421 “THE PROMISE OF PREP”: MOTIVATIONS FOR TAKING PREP AMONG EARLY-ADOPTING NEW ZEALAND GAY AND BISEXUAL MEN

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10.1136/sextrans-2019-sti.507

Background In 2018 amid rising HIV diagnoses, New Zealand became one of the first countries to fully fund pre-exposure prophylaxis (PrEP) through its public health system. PrEP has clear HIV prevention benefits but also potential trade-offs, namely behavioural risk compensation among gay and bisexual men (GBM). These concerns can trouble public health leadership, soften PrEP promotion and delay service re-orientation towards PrEP delivery, hampering implementation. Understanding the motivations of early PrEP adopters could address stakeholder concerns and improve PrEP roll-out.

Methods We examined data from the baseline “NZPrEP” demonstration project among 150 GBM conducted in Auckland sexual health clinics 2017–18. All participants completed a linked anonymous online survey at enrolment. Open-ended responses to questions on PrEP motivations and clinic experiences were coded in NVivo and subject to inductive thematic analysis. Secondly, using a deductive approach we applied the identified themes to the theory of planned behaviour (TPB).

Results We identified six motivations by early-adopters for taking PrEP: risky behaviour; engaging in condomless sex; altruism; risk reduction and prevention; early and free access to PrEP; and peace of mind and autonomy. These themes clearly mapped onto the three main tenets of TPB, namely behavioural beliefs, normative behaviours, and perceived behavioural control. In addition, five themes were also identified regarding PrEP implementation: accessibility; clearer communication; greater promotion; clinic attitude; and gratitude.

Conclusion Early-adopters expressed several motivations for PrEP that align with recognised public health values. Themes such as altruism (wanting to protect partners and the community as well as oneself), risky behaviours (difficulties negotiating safe sex) and peace of mind (reducing anxiety in a high HIV prevalence community) can help persuade stakeholders that PrEP is an ethical as well as an effective HIV prevention tool. Such findings are especially pertinent for government officials, general practitioners, the general public and gay communities themselves.

Disclosure No significant relationships.

P422 USE OF DOXYCYCLINE PROPHYLAXIS AGAINST STI AMONG GAY AND BISEXUAL MEN TAKING PRE-EXPOSURE PROPHYLAXIS IN MELBOURNE

Eric Chow*, Christopher Fairley. *Alfred Health, Melbourne Sexual Health Centre, Carlton, Australia*

10.1136/sextrans-2019-sti.508

Background Two trials have shown the use of doxycycline prophylaxis could prevent sexually transmitted infections such as chlamydia and syphilis among men who have sex with men (MSM) but its use is controversial because of concerns about the potential to increase antimicrobial resistance. This study aimed to estimate the proportion of MSM who used doxycycline prophylaxis and the related factors.

Methods MSM who taking pre-exposure prophylaxis for HIV (PrEP) attended the Melbourne Sexual Health Centre between June and November 2018 were invited to complete a question on whether they had taken doxycycline to prevent STI in the past month. Demographic characteristics and sexual behavioural data were also collected as part of routine STI care. Multivariable logistic regression with generalised estimating equations was used to identify the factors associated with the use of doxycycline prophylaxis for STI.

Results There were 1,686 men reported taking PrEP during the study period and 1,065 (63%) completed the additional question on doxycycline. Of those, 105 men (9.9%; 95% CI: 8.1–11.8%) used doxycycline prophylaxis in the past month. Multivariable analysis showed that men who injected drugs in the last 3 months had higher odds of using doxycycline prophylaxis (aOR 3.26; 95% CI: 1.50–7.08) compared to those who did not inject drugs. Use of doxycycline prophylaxis was not associated with demographic characteristics (age and country of birth) and sexual behaviours (number of casual partners and condomless anal sex in the last 3 months).

Conclusion About one in ten MSM taking PrEP who also use doxycycline prophylaxis to prevent STI. This is the first estimate among Australian MSM and it is similar to the data from London showing 8% of MSM taking doxycycline prophylaxis in a sample of 106 MSM. Use of doxycycline prophylaxis is associated with drug use behaviours but not sexual behaviours.

Disclosure No significant relationships.

P423 PRE-EXPOSURE PROPHYLAXIS AS AN ALTERNATIVE TO PEP FOR ELECTIVES. SURVEY ASSESSING MEDICAL STUDENTS’ KNOWLEDGE AND BELIEFS

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Background Pre-exposure prophylaxis (PrEP) is indicated for many populations at a higher risk of acquiring HIV through sexual exposure. Healthcare students engaging in medical electives may also be at a higher risk of acquiring HIV through occupational exposure. Since access to post-exposure

prophylaxis (PEP) can be variable and costly, PrEP may be a more effective consideration.

Methods We conducted an anonymous online questionnaire assessing knowledge, attitudes and beliefs about PEP, PrEP and HIV risk among medical students at a UK medical school (GKT School of Medical Education) over 6 weeks. Data was collected using the SurveyMonkey™ platform.

Results The response rate was 351/2295 (15.3%). 312/351 (89%) would consider PrEP as an alternative to PEP for their elective if prescribed by a healthcare professional. Of these, 183/312 (59%) would be comfortable obtaining PrEP online. Concerns were around the quality of the medication 84/129 (65%), side effects 57/129 (44%), low perceived risk of HIV exposure 43/129 (33%), efficacy of PrEP 38/129 (29%), drug resistance 26/129 (20%), adherence 19/129 (15%) and cost 15/129 (12%). 276/351 (79%) were aware of PrEP. However, students reported limited knowledge with an average knowledge score of 2.65/5. 48/351 (14%) planned on taking a supply of PEP on elective. 88/351 (25%) were visiting areas with a high HIV prevalence of whom 59 intended to engage in a high-risk specialty. Of the highest risk students, 40/59 (68%) were aware of the high HIV prevalence but only 14/59 (24%) were planning on taking PrEP.

Conclusion Medical Students are open to the idea of considering PrEP to reduce their risk of HIV through occupational or sexual exposure. Students report low knowledge of PrEP, and variable knowledge of their individual risks and mitigations. This research indicates a need for robust educational interventions highlighting the benefits of PrEP among medical students and their healthcare advisers.

Disclosure No significant relationships.

P424 HIGH PREVALENCE AND INCIDENCE OF BACTERIAL STIS IN YOUNG WOMEN AT HIGH RISK OF HIV PRIOR TO PREP SCALE-UP IN KENYA

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Background Young women account for more than half of new HIV infections in sub-Saharan Africa and are a target population for HIV pre-exposure prophylaxis (PrEP). Although it protects against HIV acquisition, PrEP lacks protection against bacterial sexually transmitted infections (STIs). High rates of STIs have been reported among PrEP-using men who have sex with men (MSM) in high income countries. STI rates among African adolescent girls and young women (AGYW) have not been well-described.

Methods POWER is a multi-site PrEP implementation science project among AGYW aged 16–25 in Kisumu, Kenya (beginning August 2017) as well as South Africa; we describe results from the Kenyan cohort here. At enrollment, participants are offered PrEP; follow-up visits are at month-one and then quarterly for 36 months with STI testing at enrollment before PrEP initiation and every 6 months. Urine samples were tested for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* by nucleic acid amplification (NAAT) and participants with infections returned to the research site for treatment.

Results To date, 708 Kenyan women have enrolled in POWER with 17% prevalence of *C. trachomatis* and 8% of *N. gonorrhoeae* at enrollment. Among the 65 women with 6-month follow-up in Kenya; the incidence of *C. trachomatis* and *N. gonorrhoeae* were 40.0 and 12.3 per 100 person-years.

Conclusion In a PrEP scale-up cohort among Kenyan AGYW, STI prevalence and incidence were very high, which predict substantial morbidity. These STI rates are comparable to those seen among PrEP-using MSM in the US after years of rising rates; Kenya has had only early PrEP roll-out and thus these findings are largely prior to community delivery of PrEP. It is not yet known if STI rates will increase among with PrEP use in Kenya, and PrEP roll-out programs provide a crucial opportunity to address both HIV and STI epidemics simultaneously.

Disclosure No significant relationships.

P425 CAPTURING MISSED OPPORTUNITIES FOR PREP PRESCRIPTION IN PATIENT DIAGNOSED WITH OTHER STIS

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Background Sexually transmitted infection (STI) testing in hospital-based settings represents an opportunity to intervene and prescribe pre-exposure prophylaxis (PrEP) to prevent HIV infections.

Methods Electronic health records of patient visits at NYC Health+Hospitals(H+H)/Bellevue between 1/1/14-7/30/17 were queried for positive STIs (gonorrhea (GC) and chlamydia (CT) & syphilis) results by hospital location and time. Visit data also included: patient demographic characteristics and PrEP prescriptions. Generalized estimating equations using a logit link, to account for repeated within patient measures, were used to explore the relationship between having a medical follow-up visit in ≤30 and ≤90 days following STI testing, which represents an opportunity to provide PrEP prescription, and demographic factors, controlling for key confounders.

Results A total of 1,169 HIV-negative patients with 1+ STI diagnosis contributed 1,275 visits, of whom 700 (58%) were female with mean age of 32 yrs (SD=12.3)] and 532 (42%) were male with mean age of 44 yrs (SD 16.3). The majority of patients were Black (40%) or Hispanic/Latino (50%). In this sample, only 27 patients received PrEP. Overall, chlamydia was the most common (135/11%), followed by syphilis (476/38%) and gonorrhea (135/11%). Two-thirds of patients with a +STI diagnosis originated from the ED (33%) and OB/GYN clinics (32%); an additional 11% were diagnosed in Medicine clinics. 78% of patients did not have follow up ≤30 days after +STI diagnosis. In adjusted analyses, the adjusted OR for follow up ≤30 days after +STI diagnosis was lower for Black patients [0.39 (95%CI 0.21–0.72, p<0.01)] and higher for patients ≥45 years old 2.20 [(95%CI 1.16–4.19, p= 0.02)].

Conclusion STI testing at a major, publicly-funded hospital within NYC H&H is an opportunity to discuss and prescribe PrEP. However, our findings suggest that there are significant missed opportunities for linkage to care after a +STI diagnosis and PrEP initiation, especially in the ED among young Black patients.

Disclosure No significant relationships.

P426 RISK FACTORS ASSOCIATED WITH GONORRHEA INFECTION AMONG PREP PATIENTS IN A MONTREAL CLINIC

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Background Pre-exposure prophylaxis (PrEP) is effective for preventing HIV transmission. Studies demonstrated high sexually transmitted infection (STI) incidence among men who have sex with men (MSM) using PrEP. We aim to identify risk factors associated with Gonorrhoea infection among our PrEP cohort from 2013 to 2018.

Methods This retrospective cohort study of the PrEP cohort of Clinique médicale l'Actuel (Montreal, Canada) including MSM, ages ≥ 18 , who consulted for PrEP from January 2013 to November 2018. We defined two groups: Gonorrhoea infected (during 12 months after PrEP initiation) and non-infected. Cumulative incidence of Gonorrhoea during 12 months after PrEP initiation was calculated. Behavioural risks characteristics (condom use, number of partners and history of STIs before PrEP) and Gonorrhoea infection odds Ratio (OR) were compared between groups. Analyses were performed by using Stata 11.

Results Among 1159 patients who consulted for PrEP, 763 (66%) had a university degree, 540 (47%) an annual revenue higher than \$55000 and the median age was 36 years (IQR: 29–44); 929 (80%) patients received daily baseline regimen. The Gonorrhoea cumulative incidence was 18%. There's no significant difference between groups, infected and non-infected respectively, in condomless anal sex (95% v. 93%, $p=0.20$) and mean number of sexual partner (19 vs 20, $p=0.74$). However, infected group reported history of STIs superior than non-infected (84% vs 75%, $p=0.006$), translating to a Gonorrhoea infection risk (OR: 1.77, 95%CI: 1.18–2.64, adjusted by age, condomless anal sex and number of sexual partner).

Conclusion We found Gonorrhoea infection among PrEP users was significantly associated with history of STIs. PrEP reaches high-risk individuals with STIs. Our results indicate the need for support which takes into consideration contextual lifestyle. The 3-month follow-up of patients on PrEP is a great opportunity to test and treat them frequently and to provide adequate and regular counseling.

Disclosure No significant relationships.

P427 SUPPLEMENT: APPEARANCE AND PERFORMANCE-ENHANCING SUPPLEMENTS USE IN PEOPLE ON PRE-EXPOSURE PROPHYLAXIS

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Background Men-who-have-sex-with-men (MSM) may experience more body image dissatisfaction compared to heterosexual men. The desire to be muscular has been linked with use of appearance- and performance-enhancing supplements (APES), including muscle-building supplements, steroids, and fat-burning products. APES use has been associated with

potential health risks including serious liver and renal abnormalities. The purpose of this study was to describe the use and safety of APES among people attending an ambulatory pre-exposure prophylaxis (PrEP) clinic.

Methods All participants ≥ 18 years on tenofovir disoproxil fumarate/emtricitabine were included; pregnant subjects were excluded. Prospective cross-sectional survey was conducted between February 1, 2018 and September 30, 2018 to assess APES usage, and retrospective chart reviews were done to determine the rates of liver and renal abnormalities from January 1, 2016 to September 30, 2018. RUCAM and Naranjo scales were used to assess causality with liver and renal abnormalities, respectively.

Results Among 50 participants (median 32 years, 52% Caucasian, 86% MSM), 72% reported lifetime APES use and 52% with recent (within the past 6 months) use (APES group). Only 28% had never used APES (non-APES group). APES and non-APES groups had similar rates of liver abnormalities (mostly Grade 1), but 2 (8%) APES participants experienced Grade 3-4 elevations compared to none in the non-APES group. Liver enzyme elevations were possibly associated with creatine ($n=4$), whey protein ($n=3$), steroids ($n=2$), and weight-loss supplements ($n=2$). In the APES group, 12% had elevated serum creatinine (all stage 1) compared to none in the non-APES group. Whey protein ($n=2$), creatine ($n=1$), steroids ($n=1$), and tenofovir disoproxil fumarate ($n=1$) were possibly associated with renal abnormalities.

Conclusion APES usage among people on PrEP was high and possibly associated with liver and/or renal abnormalities. Increasing provider and consumer awareness of potential health risks of APES is encouraged to enhance safety.

Disclosure No significant relationships.

P428 HIV INCIDENCE, AND PRE- AND POST-EXPOSURE PROPHYLAXIS (PREP AND PEP) AMONG PEP USERS AT NEW YORK CITY SEXUAL HEALTH CLINICS

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Background Sexually transmitted disease clinics are well-suited to deliver PEP; few provide full courses (28 days) due to cost. Since 2016, NYC Sexual Health Clinic (SHC) staff have provided full-course PEP to eligible HIV-negative patients, and thereafter attempt linkage to PrEP. We examined HIV incidence and patterns of PrEP/PEP use among a PEP cohort.

Methods We matched men-who-have-sex-with-men (MSM) who received PEP at SHC (09/2016-05/2017) to the citywide HIV surveillance registry to identify new HIV diagnoses between last PEP event during this interval and 06/30/2018. We calculated HIV incidence with time-at-risk starting 28 days after PEP provision; periods of additional PEP supplied at SHC during follow-up were excluded from time-at-risk. We examined subsequent PrEP and repeat PEP use during follow-up. For MSM without PrEP/repeat PEP, we calculated the number-needed-to-treat (NNT) with PrEP for one year to prevent 1 HIV infection (assumed 73% efficacy with 90% adherence).

Results Eleven HIV diagnoses occurred among 520 MSM with 652 person-years (PY) follow-up; HIV incidence was 1.7/100PY (95%CI: 0.8–3.0), and highest among Hispanic MSM (2.6/100PY) and MSM aged <30 years (2.2/100PY). Median time to HIV diagnosis was 178 days (range 41–410). During follow-up, 18% (94/520) received PEP again (range 1–4 times), with 58% of PEP-repeaters (55/94) also given PrEP at some point. Of 460 MSM with SHC visits during follow-up, 202 were linked to or self-reported PrEP use, 200 were not linked to PrEP, and 58 declined navigation for PrEP. Of the 202 who linked to/self-reported PrEP use, 31 (15%) had subsequent PEP event(s) at SHC. Eight of 279 MSM without evidence of PEP/PrEP during follow-up were diagnosed with HIV (incidence=2.3/100PY); NNT=61.

Conclusion Despite PrEP availability, fewer than half of PEP patients took up PrEP and a substantial proportion took PEP repeatedly; research to elucidate underlying reasons for PrEP and PEP use patterns (insurance/cost, convenience, self-perceived risk) is warranted.

Disclosure No significant relationships.

P429 DOES HIV PRE-EXPOSURE PROPHYLAXIS (PREP) INITIATION IN SEXUAL HEALTH CLINICS IMPACT SUBSEQUENT HIV RISK?

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Background Since late 2016, the PrEP program in New York City's 8 sexual health clinics (SHCs) has evolved from a model of active referral to external PrEP providers to on-site PrEP initiation (providing one month of PrEP and provider referral); this was implemented, clinic by clinic, over time. We hypothesized that HIV incidence would be lower for patients who received PrEP medication in SHCs.

Methods We matched the following groups of men-who-have-sex-with-men (MSM) who received SHC PrEP services (12/2016-06/2017) to citywide HIV and STI registries: (1) same-day PrEP initiators, (2) referred-only for PrEP, (3) never-referred (not interested in starting PrEP). We calculated HIV incidence after SHC PrEP service date, using HIV surveillance data through 06/30/2018. We assessed factors associated with HIV diagnosis using Cox models that included initiation vs referred-only status, linkage, age, race/ethnicity, incident STI (chlamydia/gonorrhoea/primary or secondary syphilis), and 3-month history of condomless receptive anal sex and number of sex partners.

Results There were 267 initiators, 607 referred-only, and 96 never-referred patients; 40% of both initiated and referred-only patients linked to PrEP providers. Of all MSM (n=970; 1215 person-years [PY] of follow-up), 18 were newly diagnosed with HIV (median time to diagnosis 221 days; range 23–468). HIV incidence was 1.5/100PY (95%CI 0.9–2.3) and not significantly different by group: 1.8/100PY among initiators (linked: 1.6, non-linked: 2.0); 1.3/100PY referred-only (linked: 0.0, non-linked: 2.2); 1.8/100PY never-referred. HIV

risk did not differ for initiators versus referred-only patients, but was higher among non-linked than linked (aHR 5.6; 95% CI 1.3–25.0) and those with STI versus no STI (aHR 10.1; 95%CI 2.3–44.7).

Conclusion This examination of PrEP initiation in an episodic care setting did not find on-site PrEP provision to be associated with improved linkage and HIV outcomes. Understanding barriers to ongoing PrEP care is critical to improving linkage, and maximizing resources and the benefit of immediate PrEP access.

Disclosure No significant relationships.

P430 PREDICTORS OF INTEREST IN SWITCHING FROM DAILY TO ON-DEMAND HIV PRE-EXPOSURE PROPHYLAXIS (PREP) AMONG AUSTRALIANS

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Background The only HIV pre-exposure prophylaxis (PrEP) regimen approved in Australia is daily co-formulated tenofovir and emtricitabine. As an alternative, on-demand PrEP could offer benefits, including lower pill burden for people having sex infrequently. We surveyed PrEPX study participants to measure interest in switching from daily PrEP to on-demand PrEP.

Methods The survey asked 15 questions on demographics, sexual behaviour, interest in on-demand PrEP, and reasons for interest. Univariate regression analyses assessed associations between interest in on-demand PrEP and other survey questions, and questions with significant ($p < 0.1$) association in univariate analysis were entered in a multivariate regression model.

Results 970 responses were complete. Respondents' median age was 39 years, and 99.6% were male. All had taken daily PrEP, but 14% had ceased PrEP. 469 respondents (48%; 95% CI 45–52) reported interest in on-demand PrEP. In multivariate analysis, interest in on-demand PrEP was independently associated with having ceased PrEP (aOR 2.0, $p < 0.001$), dissatisfaction with daily PrEP (aOR 2.0, $p = 0.027$), difficulty remembering to take pills every day (aOR 1.6, $p = 0.029$), infrequently having sex that conferred HIV risk (aOR 3.7, $p < 0.001$), concerns about long term toxicity from PrEP (aOR 2.7, $p < 0.001$), and having no prior knowledge of on-demand PrEP (aOR 1.6, $p < 0.004$). Respondents who were not interested in on-demand PrEP (N=501) reported concerns about its effectiveness (67%), concerns about not remembering to take a dose at least 2 hours before sex (58%), having unplanned sex (15%), and having frequent sex and hence needing to take PrEP daily (2%).

Conclusion This is the first study of interest in switching from daily to on-demand PrEP. Half of respondents were interested, and interest was most strongly associated with infrequency of sex and concerns about long-term toxicity. However, many respondents had concerns about the effectiveness of on-demand PrEP, and about forgetting to take on-demand PrEP at least two hours before sex.

Disclosure No significant relationships.

P431 EFFECT OF TARGETED INTERVENTION ON CONDOM USE AND AMONG MEN WHO HAVE SEX WITH MEN (MSM) TAKING PREP IN NAIROBI KENYA

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Background In 2017 Kenya became the second country in Africa to roll out PrEP. It prioritized Key population to access free PrEP services. Sex Workers Outreach Program (SWOP) - a HIV/STI research center offers preventive, care and treatment services to female sex workers and MSM within Nairobi. In 2018 SWOP realized high STI cases among MSM on PrEP and introduced an intervention seeking to improve their STI prevention knowledge.

Methods An experimental study was carried out among HIV negative MSM enrolling into PrEP within SWOP clinics. Participants were randomized to control and intervention. Control group received PrEP services as prescribed by the government; the intervention group received targeted health education in addition to government prescribed services. Both arms were followed up for six months and screened for STIs at every visit. Data were collected at baseline and endline using structured questionnaire.

Results 168 MSM enrolled into study with 84(50%) on each arm. At baseline condom use and STI Knowledge was low across both arms. At endline knowledge level had improved significantly in intervention arm compared to control arm with significance association to the targeted health education: Used K.Y Jelly to lubricate condom $\chi^2=4.983$, $df=1$, $P=0.026$. Knew how to use male condoms Fisher's <0.001 . Used condom consistently $\chi^2=0.92$, $df=1$, $P=0.337$. Negotiate for condom use $\chi^2=28.886$, $df=1$ $P<0.001$. Negotiated condom use with regular clients $\chi^2=8.839$, $df=1$, $P=0.003$. Refused sex when client refused condom use $\chi^2=11.483$, $df=1$, $P=0.001$. Syndromically STI cases at month one were 28/84 (33.3%) in control, while 26/84 (30.9%) in intervention arm. At month six cases were 16/38(42%) control and 7/59 (12%) in intervention arm.

Conclusion Targeted health education on condom use among MSM on PrEP is vital in averting STI cases.

Disclosure No significant relationships.

P432 HIGH PREVALENCE AND INCIDENCE OF CURABLE STIS AMONG YOUNG WOMEN INITIATING PREP IN A TOWNSHIP IN SOUTH AFRICA

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10.1136/sextrans-2019-sti.518

Background Sexually-transmitted infections (STIs) in adolescents and young women (AGYW) increase the risk of infertility and the risk of HIV acquisition. Recent data on STIs in African AGYW are limited because of syndromic management and lack of STI testing. PrEP programs that test for STIs can provide critical epidemiologic data to guide policies.

Methods Sexually-active HIV-uninfected AGYW (16–25 years) in a township near Cape Town, South Africa were enrolled in

the 3Ps for Prevention Study to evaluate PrEP uptake and adherence. Nucleic acid amplification testing for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) and a rapid test for *Trichomonas vaginalis* (TV) was conducted at screening and 6 months, and infections were treated. Symptom screening was performed at each visit. Predictors of incident STIs were analysed via Poisson regression to evaluate potential targeting of STI screening.

Results 200 AGYW were enrolled with a median age of 19 (IQR 17–21). At screening one-third of women tested positive for a curable STI: 25% CT, 11% NG, and 6% TV, 98% of whom were asymptomatic. At month 6, the incidence of a curable STI was 52/100 person-years (100py); CT 42/100py, NG 14/100py and TV 10/100py. Most incident STIs were diagnosed in women who did not have these infections at enrolment: 62% of 39 incident CT, 77% of 13 incident NG, and 89% of 9 incident TV infections. No significant associations were found between age, hormonal contraception or IPV and incident STIs.

Conclusion South African AGYW in a PrEP demonstration project had very high prevalence and incidence of asymptomatic curable STIs. Offering STI testing and treatment in PrEP programs is an important reproductive health service, and is valued by AGYW. Treatment of partners and innovative strategies to prevent STIs, including doxycycline post-exposure prophylaxis and vaccines, need to be evaluated in African AGYW.

Disclosure No significant relationships.

P433 LOW HIV INCIDENCE AMONG WOMEN DIAGNOSED WITH SYPHILIS OR GONORRHEA DOES NOT SUPPORT PREP RECOMMENDATIONS, KING COUNTY, WA

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Background The November 2018 U.S. Preventive Services Task Force draft statement recommended clinicians offer HIV pre-exposure prophylaxis (PrEP) to women with recent syphilis (all stages) or gonorrhea diagnosis. We estimated HIV incidence among women in King County, WA following syphilis or gonorrhea diagnosis, and attempted to identify risk factors for HIV acquisition that might prompt clinicians to offer PrEP. **Methods** We matched public health HIV and sexually transmitted infection (STI) surveillance data for 2008–2018. Incidence rate was calculated using person-years (py) of follow-up, defined as time from initial STI diagnosis date to either HIV diagnosis date or end of study period. Women with prior or concurrent (within seven days of STI diagnosis) HIV diagnosis were excluded. Risk factors were identified from disease intervention specialists (DIS) interviews.

Results Between 2008–2018, 5,524 and 397 King County women were diagnosed with gonorrhea and syphilis, respectively. Over 1,705 py (median: 3.8) of follow-up, no incident HIV diagnoses occurred among women diagnosed with syphilis. Among women diagnosed with gonorrhea, 16 incident HIV diagnoses (incidence 0.06/100 py) occurred over 24,758 py (median: 3.7). Median time from gonorrhea to HIV diagnosis was 1.7 years (IQR: 0.5–3.0). DIS interviewed four (25%) of the incident diagnoses following gonorrhea diagnosis; two (50%) had risks identified: both reported injection

drug use (IDU), sex with a person who injected drugs (PWID), and methamphetamine use. DIS interviewed eleven (69%) of the women following HIV diagnosis; nine (82%) reported at least one of following: IDU, methamphetamine use, exchange sex, or serodiscordant, bisexual, or PWID sex partners.

Conclusion HIV incidence among King County women with gonorrhea and syphilis appears to be low. Although these diagnoses do not clearly identify a population that would benefit from the draft PrEP recommendations, the generalizability of these findings is uncertain and additional data on HIV incidence among women following bacterial STIs are needed.

Disclosure No significant relationships.

P434 SUBSTANCE USE PATTERNS AND HIV PREVENTION AMONG GAY AND BISEXUAL MEN IN THE 2014–2015 SEX NOW SURVEY

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Background Qualitative studies suggest that substance use is central to the identities and cultures of many gay and bisexual men (gbMSM) – and a salient factor in how they manage HIV risk. To quantitatively assess this, we examined patterns of substance use and associations with awareness, interest, and uptake of key prevention strategies.

Methods Canadian gbMSM were recruited online and asked to report their frequency of substance use. Latent class analysis identified patterns in use. Demographic-adjusted multivariable multinomial logistic regression models, stratified by HIV-status, assessed associations with key prevention strategies (TasP awareness, PrEP interest, HIV-testing).

Results Among 669 HIV-positive and 7,184 HIV-negative men, six substance use classes were characterized: ‘limited’ (46.0%; i.e., infrequent/low use of most drugs), ‘conventional’ (25.9%; i.e., alcohol, marijuana, and tobacco), ‘club’ (9.5%; i.e., alcohol, cocaine, and psychedelics), ‘sex’ (11.4%; i.e., alcohol, crystal meth, GHB, poppers, and erectile dysfunction drugs), ‘prescription’ (12.1%; i.e., alcohol and prescription drugs), and ‘assorted’ (4.5%; i.e., most drugs) use. Limited use was selected as the referent class in all analyses. Other HIV-positive men were no more likely to have detectable viral-loads, nor were they less likely to know about the preventative benefits of TasP. HIV-negative men in the prescription (aOR:1.37,95%CI:1.15–1.63) and sex (aOR:1.58,95%CI:1.21–2.06) drug use classes were more likely to know about TasP. HIV-negative men in the prescription (aOR:1.6, 95%CI:1.34–1.91), conventional (aOR:1.30,95%CI:1.16–1.45), club (aOR:1.44,95%CI:1.15–1.81), sex (aOR:3.94,95%CI:2.92–5.33), and assorted (aOR:3.06,95%CI:1.64–5.72) use classes were more likely to report interest in taking PrEP. Membership in these classes was associated with higher odds of HIV-testing.

Conclusion Among HIV-positive men, we observed high levels of viral-load undetectability and TasP awareness, independent

of substance use. Among HIV-negative men, multiple patterns of substance use traditionally associated with heightened risk for acquiring HIV were associated with awareness, interest, and uptake of HIV risk management strategies, contravening stereotypes that link substance use to risk-indifferent attitudes.

Disclosure No significant relationships.

P435 USE OF CONDOMS FOR THE PREVENTION OF SEXUALLY TRANSMITTED INFECTIONS (STIS) AMONG HIV PRE-EXPOSURE PROPHYLAXIS (PREP) USERS

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Background HIV PrEP is highly effective at preventing HIV, but not STI, acquisition. We examined the use of condoms to prevent STIs among PrEP-users in the EPIC-NSW trial.

Methods Between March 2016 and April 2018, 9,708 individuals were enrolled. Analysis was restricted to participants who completed the optional end-of-study survey and were on-study for ≥ 1 year prior. STI diagnoses came from medical records; other data were from the end-of-study survey. We used multivariate logistic regression to assess independent associations between those agreeing with the statement, “I use condoms to avoid getting STIs” (“STI-condom-users”) and those disagreeing. **Results** 2,915 participants were included; 92.5% were gay men. In the previous year, 54.2%, 25.6%, and 20.2% were diagnosed with no, one, and ≥ 2 STIs, respectively. 1,127 (38.7%) reported being STI-condom-users. In multivariate analysis, there was no difference in mean STIs diagnosed in the previous year (0.7 vs 0.8, $p=0.244$). STI-condom-users were younger (39 vs 41 years, $p=0.004$), less likely to live in a suburb with $\geq 10\%$ gay men (24.8% vs 35.5%, $p<0.001$), less likely to report any condomless sex in the previous 6 months (85.9% vs 93.3%, $p<0.001$), and had been on-study less time (1.4 vs 1.6 years, $p=0.003$). STI-condom-users were more: concerned about acquiring STIs (95.1% vs 88.9%, $p=0.025$), likely to discuss STI results with partners (88.3% vs 79.8%, $p<0.001$), and likely to believe condoms prevent STI transmission (96.7% vs 89.6%, $p<0.001$). Fewer STI-condom-users had rejected a sexual partner for wanting to use condoms (9.6% vs 32.7%, $p<0.001$), while more had been rejected for wanting to use condoms (45.0% vs 26.2%, $p<0.001$).

Conclusion Most PrEP-users did not use condoms for STI prevention, despite strong beliefs in its effectiveness. STI-condom-users did not have fewer STIs, reflecting high levels of condomless sex. Our results suggest alternative methods of STI prevention should be trialled for PrEP-users.

Disclosure No significant relationships.

P436 BARRIERS TO ADHERENCE TO HIV TREATMENT AMONG ADOLESCENTS AND YOUTH ENROLLED IN ARV IN TWO DISTRICT HOSPITALS IN RURAL RWANDA

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Background Rwanda provides free HIV treatment to all HIV positive person. Adolescents and youth have poorer treatment adherence and experience higher treatment failure than adults. This study aimed at exploring the barriers to adherence among adolescents and youth in two district hospitals in rural Rwanda.

Methods Adolescents and youth within the age of 10 to 24 years who have been on HIV treatment for at least one year in the two hospitals and their appointment adherence were identified through electronic medical records. Questionnaires were completed by consented participants or their parents and were used to measure treatment adherence in the previous 30 days and in the previous 3 days. In-depth interviews were also conducted to explore the factors associated with poor adherence and outcomes.

Results Among the 139 adolescents enrolled for treatment, 58% had good appointment keeping. Out of the 72 questionnaires completed, 87% reported adhering to at least 95% of treatment in the previous 30 days and 47% reported poor adherence in the previous 3 days. Reported factors causing poor adherence included poverty, stigma, and lack of parents.

Conclusion The level of adherence to HIV treatment was low among adolescents and youth in rural Rwanda. Creation of projects that can improve social economic status to Adolescent who are on HIV treatment as well as provision of family care to orphanage HIV adolescent patients would improve their treatment adherence.

Disclosure No significant relationships.

P438 GAY, BISEXUAL AND OTHER MEN WHO HAVE SEX WITH MEN PREFER SEXUAL HEALTH CLINIC NURSES OVER FAMILY PHYSICIANS FOR PREP DELIVERY

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Background More providers are needed to deliver PrEP at scale. We examined intentions to seek PrEP from family physicians (FPs) and sexual health clinic nurses (RNs) within an implementation science study on decentralizing PrEP delivery to gay, bisexual and other men who have sex with men (gbMSM).

Methods Strategy A was a knowledge dissemination intervention in which community organizations distributed info-cards

to gbMSM considering PrEP. Men used the cards to view an online module and meet with their FPs, who could use the card to complete an accredited e-module about PrEP. Strategy B was an implementation intervention in which gbMSM could instead access PrEP from sexual health RNs. Participants completed an optional survey at baseline and 6 months. We used descriptive statistics to characterize the sample and logistic regression to identify characteristics associated with intentions to seek PrEP from FPs vs RNs.

Results From 3013 cards distributed, 339 men accessed the module; 179 completed the baseline survey and are included in this analysis. Median (IQR) age was 31 (26,40) years, 97.7% were cisgender males and 46.4% had a prior bacterial STI. Most (n=119, 66.5%) had a FP, of which only 59.5% were 'out' to them. Of 97 respondents with a FP and wanting to start PrEP, 35.1% vs 65.0% intended to use Strategy A vs B respectively (p=0.003). In univariable analyses, characteristics associated with intent to approach FPs included being 'out' to that doctor (OR=10.67, 95%CI=3.35, 33.96), very good/excellent physician skills in general communication (OR=3.42, 95%CI=1.38, 8.48) and participatory decision-making (OR=3.33, 95%CI=1.14, 9.79). In multivariable analysis, being 'out' was the only significant predictor (aOR=14.35, 95%CI=1.59, 129.83).

Conclusion Among gbMSM with a FP, sexual health clinic RNs were preferred over FPs for PrEP by most. Multiple strategies are needed to increase numbers of PrEP providers, including interventions to help gbMSM feel comfortable disclosing sexual orientation.

Disclosure No significant relationships.

P439 INSURANCE COVERAGE, FINANCIAL STRAIN, AND ADHERENCE TO PRE-EXPOSURE PROPHYLAXIS AMONG GAY/BISEXUAL MEN IN THE UNITED STATES

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Background Pre-exposure prophylaxis (PrEP) is highly effective in preventing HIV infection, but many at-risk patients have difficulty adhering to the drug over time. Past studies suggest that financial factors, including health insurance coverage, high out-of-pocket expenses, and more general financial strain, may be key factors in PrEP care utilization particularly in the United States, where PrEP is not covered by all insurance plans. However, to date, few studies have explored whether these factors co-occur with disruptions in adherence that are long enough to reduce PrEP's effectiveness.

Methods We recruited 40 PrEP-experienced patients from a sexual health clinic in the northeastern US and instructed them to dispense their PrEP from an internet-connected pill bottle over a 6-month study period. During the study period, participants were also asked to complete monthly surveys assessing insurance coverage, type, and financial strain.

Results GEE models showed that the odds of having a lapse in PrEP adherence of 3+ days were also nearly three times higher in months when participants had incomplete insurance coverage (OR=2.94, p<0.001) and the rate of lapse days was five times higher (IRR=5.00, p<0.001). Participants also had significantly higher percent adherent days ($\beta=0.23$, p=0.003) and lapse days occurred nearly four times less often

($IRR=0.27$, $p<0.001$) in months they were insured with Medicaid, versus individual- or employer-provided plans. Finally, the odds of experiencing a significant lapse in adherence was about two times higher ($OR=1.77$, $p=0.049$) and lapse days occurred significantly more frequently ($IRR=1.38$, $p<0.001$) in high financial strain months.

Conclusion Our results suggest that insurance coverage plays a vital role in ensuring patients maintain protective levels of PrEP over time. Although having any coverage is critical, our findings also show that those with private insurance may have more difficulty adhering to PrEP at protective levels, possibly due to restrictions these providers place on obtaining PrEP.

Disclosure No significant relationships.

P440 ASSESSMENT OF POTENTIAL PRE-EXPOSURE PROPHYLAXIS (PREP) COMPLIANCE IN INTRAVENOUS DRUG USERS ACCESSING OUTREACH SERVICES

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Background Internationally, approximately one out of every ten new HIV infections has previously been attributed to intravenous drug use (IVDU). PrEP compliance among people with intravenous drug use (PWID) may decrease new HIV infection. This study assessed perceptions of PrEP, risk for contracting HIV, and potential compliance with PrEP among PWID.

Methods Clients accessing IVDU mobile outreach van services, aged ≥ 18 years, completed anonymous self-report questionnaires about “Beliefs about Medicines” and “Perceived Risk of HIV” via iPad following informed consent.

Results Socio-demographics $N=100$, aged 18–63 years (50% <37 years), non-Hispanic White (56.5%), Hispanic (38.4%); male (59.6%), sex with men (28%), sex with women (51%), sex with both (16%), length of IVDU (1–9 years). Most separated/divorced (31.4%) or never married (47.5%); high school education or less (54.5%); currently (64%) or previously (75.8%) homeless; ever prison (54.5%) or arrested (89%); HIV testing (98%); currently HIV+ (2%). Risk Behavior: Money/drugs for sex (50%); uses condoms (30%), alcohol (93%), heroin (89%), marijuana (95%) prescriptions to get high (70%), LSD (69%), ecstasy (63%) cocaine (89%) meth (81%), crack (59%). Co-morbidities: Schizophrenia (7%), Anxiety (59%), Depression (60%), Hepatitis (36%), Diabetes (6%) and HTN (25%). Medication: Getting prescriptions easy (65.7%); visiting doctor monthly/blood drawn no big deal (80.8%); don't like PrEP for long time (55.6%); concerned forget medications (53.6%), or medication side-effects (42.7%); think about HIV often (74.8%); HIV risk moderate/great (39.3%). Most medications addictive (43.5%); benefits out weight risks (57.6%); safe (47.5%); work better when taken regularly (60.6%); 46% requested PrEP clinic information.

Conclusions PWID perceived high-risk for HIV. High levels of co-morbidities, substance use, limited HIV protective behavior and homelessness existed. Positive attitudes toward and interest in medication use for disease prevention and concerns regarding long-term medication or forgetting medications. PrEP adherence among PWID presents clinical challenges. Addressing risks, co-morbidities and inconsistent use of PrEP may optimize adherence.

Disclosure No significant relationships.

P442 IMPLEMENTING PRE-EXPOSURE PROPHYLAXIS FOR HIV: EXPERIENCES IN A HEALTH DEPARTMENT BASED STI CLINIC

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Background Despite the availability of PrEP, the uptake is sub-optimal. Guilford County in North Carolina has seen a steady increase in the rates of HIV amongst high-risk groups, especially Black men-who-have-sex-with men (MSM). Many people receive preventative services through health departments and they are expected to play an integral role in PrEP services. The Guilford County Health Department (GCHD) PrEP clinic was established to provide services to their patients who were at high-risk of acquiring HIV. The aim of this study is to describe a health department's experience in implementing PrEP services and to identify risk related trends for patients screen/enrolled in an effort to optimize services.

Methods We conducted a retrospective review of six months of data from the GCHD PrEP clinic. Fisher's Exact Tests were used to test for differences between groups for outcomes of interest.

Results Between March 2018 and September 2018, 65 patients were referred to the PrEP clinic for initiation of PrEP. 94% of all patients were male. Forty-eight patients identified as MSM of which 63% were Black. Of all patients screened at their referral visit for STIs, over half (55%) tested positive for at least one bacterial STI, with pharyngeal gonorrhoea being the most common ($p=0.022$). Forty-six patients were prescribed PrEP, 31 were insured. 3 HIV seroconversions occurred in the interval between referral and initial PrEP visit.

Conclusion Majority of new HIV cases in Guilford County occur in Black MSM, and most of the patients screened for PrEP services at the clinic were Black MSM indicating that the patients accessing PrEP services are those that are most greatly impacted by the HIV epidemic in Guilford County. The high prevalence of STIs among patients initiating PrEP emphasizes the opportunity and significance of simultaneous STD screening and PrEP services. Financial resources have helped offer PrEP to high-risk groups.

Disclosure No significant relationships.

P443 ELIGIBILITY FOR AND USE OF HIV PRE-EXPOSURE PROPHYLAXIS AMONG AUSTRALIAN GAY AND BISEXUAL MEN OVER TIME

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Background Gay and bisexual men (GBM) increasingly use HIV Pre-exposure prophylaxis (PrEP) to prevent HIV infection. Eligibility for PrEP in Australia is based on behavioral criteria including methamphetamine use or condomless sex. It is unclear what proportions of GBM initiating PrEP meet these criteria over time.

Methods The Flux prospective cohort study enrolled Australian GBM between 2014 and 2018, following them every six months. We report PrEP use and behavioral eligibility for PrEP over time. Sexually transmissible infections data were not collected.

Results Among 1518 non HIV-positive men who were not using PrEP at baseline, mean age was 37.2 years (SD 13.13). Incident PrEP use increased from 2.8% at visit 2 to 11.9% at visit 6 (p-trend<0.001); eligibility for PrEP increased from 24.5% at baseline to 34.1% at visit 5 but fell to 20.4% at visit 6. Among all PrEP non-users, over one third were eligible for PrEP at some time during follow-up: 22.9% were eligible at visit 2; this proportion remained stable over subsequent visits (21.5% at visit 5) but fell to 9.6% at visit 6. Less than 1% of PrEP users subsequently ceased use. Among continuing PrEP users, the proportion of non-eligible men remained steady at about 25% over time. Similar proportions (about 10%) became eligible as ceased being eligible between visits.

Conclusion Although PrEP use or non-use was largely consistent with behavioral criteria for eligibility for its use, a substantial minority of GBM did not appear to use PrEP according to eligibility guidelines. About one-quarter of men who used PrEP were not eligible at the time while a similar proportion of PrEP non-users were eligible for its use, suggesting some underestimation of HIV risk. Greater efforts are needed to address these discrepancies between PrEP eligibility and its use, as engagement in risk behaviors changes over time.

Disclosure No significant relationships.

P444 A CASE SERIES OF PRE-EXPOSURE PROPHYLAXIS FAILURES IN MEN USING EVENT-BASED-DOSING IN LONDON, UK

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Background British guidelines recommend both event-based dosing (EBD) and daily dosing of combined tenofovir/emtricitabine (TDF/FTC) for HIV pre-exposure prophylaxis (PrEP) for men who have sex with men (MSM). Access to PrEP in

the UK is either through a clinical study with limited capacity or by purchasing online. Dosing schedules are usually self-selected, often without access to professional advice or evidenced-based information. Non-daily dosing is popular as it is believed to be less toxic and more affordable than daily dosing.

Methods We describe three cases of HIV acquisition despite use of PrEP.

Results All were MSM and had a negative antigen/antibody HIV tests at 3 months of use. Case 1 switched to EBD after one month of daily PrEP. After several months he switched back to daily PrEP and had a positive HIV-1 antibody test six weeks later. Case 2 switched to EBD after 5 months of daily PrEP due to lower frequency of sex. He reported excellent adherence. He had a positive HIV-1 antibody test 4 months later. Case 3 was taking EBD PrEP for a total of 9 months. He had a positive HIV-1 antibody 5 months after his last negative HIV test. This was two months after his last episode of condomless sex. He reported occasional late dosing and some use of recreational drugs.

Conclusion It is likely that all three cases became infected while taking event-based PrEP. Two cases switched between daily and EBD due to lower self-perceived risk of HIV or frequency of sex. It is not clear if this may have affected PrEP efficacy. Evidence for effective EBD is strongly dependent on adherence and timing of doses. It is therefore vital that PrEP provision includes objective HIV risk assessment, adherence support and evidence-based dosing information to optimise efficacy.

Disclosure No significant relationships.

P445 ANXIETY ABOUT HIV AND USE OF HIV PRE-EXPOSURE PROPHYLAXIS AMONG GAY AND BISEXUAL MEN

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Background Many gay and bisexual men (GBM) experience anxiety about HIV, particularly in relation to sex. Use of HIV pre-exposure prophylaxis (PrEP) as an HIV prevention strategy may affect levels of HIV-related anxiety among GBM.

Methods Flux is an Australian online prospective study of GBM enrolled between 2014 and 2018. We measured anxiety using the generalized anxiety disorder assessment (GAD7) scale and a newly developed HIV anxiety scale developed using Principal Components Analysis. We assessed behavioral eligibility for PrEP based on Australian PrEP clinical prescribing guidelines. We used multivariate logistic regression to assess associations between use of PrEP and both GAD7 and HIV-specific anxiety.

Results Among 1574 men who completed the HIV anxiety scale, mean age was 37.2 years (SD 13.13). Men aged 25 years or younger had higher HIV anxiety scores than their older counterparts (p<0.001). Men who reported condomless anal intercourse with casual partners (CLAIC) scored higher on HIV anxiety than men who reported no CLAIC (p=0.033). Among 1168 men who were not eligible for PrEP

according to Australian guidelines, neither GAD7 nor HIV anxiety was independently associated with PrEP use. Among 406 PrEP-eligible men (26.2%), PrEP users scored lower on GAD7 than did non-users (OR=0.95; 95%CI: 0.92–0.99) and PrEP use was independently associated with lower HIV anxiety (aOR=0.91; 95%CI: 0.85–0.97).

Conclusion Among men who were eligible for PrEP, its use was independently associated with lower levels of anxiety in general, and of HIV anxiety specifically. PrEP use may help reduce anxiety among men who are at risk of HIV and may therefore offer perceived benefits in addition to avoiding HIV infection. This perceived benefit may be an important consideration in recommendations for PrEP use.

Disclosure No significant relationships.

P446 USE OF ANTIBIOTIC PROPHYLAXIS FOR SEXUALLY TRANSMITTED INFECTIONS AMONG GAY AND BISEXUAL MEN IN AUSTRALIA

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Background Antibiotic prophylaxis can reduce the risk of sexually transmitted infections (STIs), but concerns remain about its safety and feasibility of its implementation. We conducted an online survey to quantify current use of and interest in antibiotic prophylaxis among Australian gay and bisexual men.

Methods From June to December 2018 our survey was promoted through gay community organisations and Melbourne Sexual Health Centre. The survey asked about demographics, sexual history, drug use, use of HIV pre-exposure prophylaxis (PrEP), history of STIs, use of antibiotic prophylaxis and attitudes towards antibiotic prophylaxis. We used logistic regression analyses to compare responses from respondents who had used antibiotic prophylaxis, respondents who had not used but were interested, and respondents who were not interested.

Results A total of 517 survey responses were complete: 68 respondents (13%) had previously used antibiotics to prevent STIs and 323 (63%) expressed interest in using antibiotic prophylaxis. In univariate analyses, compared to respondents with no previous use and no interest, users of antibiotic prophylaxis were older (*Mdn*=43 years vs *Mdn*=34 years, *p*=0.018), had higher numbers of sexual partners (*M*=14 vs *M*=5, *p*=0.002), were more likely to report recent group sex (64.7% vs 42.1%, *p*=0.003), to be using HIV PrEP (66.2% vs 35.7%, *p*<0.001), and report a recent bacterial STI diagnosis (57.4% vs 31.0%, *p*<0.001). However, in multivariate analysis, users of antibiotic prophylaxis were not more likely to report a recent bacterial STI diagnosis (aOR=1.65, 95%CI 0.8–3.5), after adjusting for age, sexual partner numbers, drug use, and PrEP use.

Conclusion A majority of respondents expressed interest in antibiotic prophylaxis and 13% had used antibiotic

prophylaxis. Users of antibiotic prophylaxis reported more STI risk factors and had more bacterial STIs than non-users. However, the use of antibiotic prophylaxis was not independently associated with a higher risk of STI diagnosis.

Disclosure No significant relationships.

P447 AWARENESS AND ACCEPTABILITY OF PRE-EXPOSURE PROPHYLAXIS AMONG MSM: RESULTS FROM SCOTLAND'S GAY BAR SURVEY

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Background Scotland was the first country to introduce free criterion-based PrEP for all citizens. So far, uptake has been almost exclusively among MSM. Herein, we examine PrEP awareness and acceptability among MSM in Scotland from a national level behavioural surveillance project.

Methods Time and location sampling was used to survey *n*=972 MSM across the commercial gay scenes of Scotland's two largest cities.

Results 5.4% of participants were HIV+. 94.6% were HIV-/untested, of whom, 4.5% were on PrEP. Most of the remaining men had heard of PrEP (81.7%). Multivariate logistic regression suggested that gay men (OR=2.76), men aged 26–35 (OR=2.38) and 36–45 (OR=2.31), men who used the gay scene \geq twice a month (OR=2.19), reported an HIV test in the last year (OR=1.96) or an STI other than HIV diagnosed in the last year (OR=3.47) were significantly (*p*<0.05) more likely to have heard of PrEP. Around one third (31.1%) of HIV-/untested men said they were likely to use PrEP now it is available. Multivariate logistic regression suggested that gay men (OR=2.23), younger men (18–25, OR=2.73; 26–35, OR=2.48; 36–45, OR=2.00), single men (OR=2.08), men who use the gay scene \geq twice a month (OR=1.51), men who report high risk condomless anal intercourse (OR=1.61), an HIV test in the last year (OR=1.95) or an STI other than HIV diagnosed in the last year (OR=1.61) were significantly more likely to consider using PrEP in the future.

Conclusion PrEP awareness among MSM in Scotland is high, but disparities in awareness remain along traditional indicators of inequality. Findings suggest substantial interest in PrEP, particularly among those most likely to benefit although other issues may be more indicative of use than pure behavioural risk. As the biobehavioural HIV risk management strategies now available to MSM require high levels of health literacy, health promotion strategies must focus on enabling men to negotiate these complexities.

Disclosure No significant relationships.

P448 ARE WE ENROLLING MEN WHO HAVE SEX WITH MEN WITH GREATEST HIV ACQUISITION RISK IN A PRE-EXPOSURE PROPHYLAXIS PROGRAM?

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Background Black men who have sex with men (BMSM) experience severe HIV disparities. Pre-exposure prophylaxis (PrEP) is a potential tool for reducing disparities especially when those at greatest risk are prioritized for PrEP delivery. To evaluate whether IMPACT, a multi-site PrEP demonstration project, enrolled MSM at greatest risk, this study examined associations between age, race, and HIV risk factors with PrEP program enrollment.

Methods Age, (13–24, 25+), race (non-Hispanic black, non-Hispanic white, other), HIV risk factors (STI diagnosis, multiple partners in past 3 months and HIV-positive partner, condomless sex in past 12 months), and PrEP program enrollment (receipt AND acceptance of referral to PrEP provider) were collected from September 2015 through March 2018 for HIV-negative MSM screened by IMPACT. Multivariable logistic regression was used to determine the association between age, race, and HIV risk factors with PrEP program enrollment.

Results IMPACT screened 1883 MSM and enrolled 1413 (75.0%). 1231(65.4%) were non-Hispanic black; 484(25.7%) were 13–24; 593(31.5%) had recent STI; 802(43%) reported multiple sex partners; 832(44%) reported condomless sex and 325(17.3%) reported an HIV-positive sex partner. Individuals with black race (compared to white) (AOR=0.2; 95% CI=0.15–0.31), an HIV-positive sex partner (AOR=0.32; 95% CI=0.24–0.42), and a recent STI (AOR=0.30; 95% CI=0.24–0.39) were significantly less likely to be enrolled. Individuals with multiple partners (AOR=1.34; 95% CI=1.04–1.73), age 13–24 (AOR=1.99; 95% CI=1.49–2.65), and condomless sex (AOR=2.24; 95% CI=1.74–2.88) were significantly more likely to be enrolled.

Conclusion These findings suggest significant barriers to PrEP enrollment for BMSM which may widen rather than reduce HIV disparities. Importantly, youth and MSM reporting condomless sex and multiple partners were more likely to be enrolled. Yet, negative associations between enrollment and black race, recent STI, HIV-positive sex partners suggest critical challenges engaging MSM at greatest risk for HIV which may diminish PrEP effectiveness as a public health prevention tool if unaddressed.

Disclosure No significant relationships.

ART, PrEP, gay bisexual and other men who have sex with men, USA

P449 WHO'S GOT PREP? ASSOCIATION BETWEEN RACE, RECENT STI AND RECEIPT OF PREP PRESCRIPTION AMONG MSM ENROLLED IN A PREP PROGRAM

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Background Pre-exposure prophylaxis (PrEP) is a potential tool for reducing racial HIV disparities by reducing HIV acquisition among those at greatest risk. A recent bacterial STI is an important biomarker of HIV acquisition risk and represents one target for prioritizing PrEP in populations with the greatest HIV burden. Receipt of a PrEP prescription is an important step of the PrEP cascade. This study assessed whether race and recent STI diagnoses were associated with receipt of a PrEP prescription among men who have sex with men (MSM) in a PrEP program.

Methods Race (non-Hispanic black, non-Hispanic white, other), recent STI diagnosis (self-reported diagnosis in past 3 months) and data on receipt of a PrEP prescription among MSM who met clinical eligibility criteria for PrEP were collected from September 2015 through March 2018. Participants were enrolled at one of six clinical sites participating in IMPACT, a multi-site PrEP demonstration project. Multivariable logistic regression analysis was used to determine the associations between race and recent STI diagnosis with receipt of a PrEP prescription.

Results IMPACT screened 308 MSM as clinically eligible for PrEP and 287(93.2%) received a PrEP prescription; 153 (49.7%) were non-Hispanic black and 109(35.4%) reported an STI diagnosis. MSM with black race (compared to white) (AOR=0.170; 95% CI=0.047–0.607) were significantly less likely to receive a PrEP prescription. MSM with a recent STI diagnosis (AOR=4.874; 95% CI=1.377–17.249) were more likely to receive a PrEP prescription.

Conclusion MSM with recent STI diagnosis were more likely to receive PrEP prescriptions. The finding that black MSM are less likely to receive prescriptions suggest a barrier to PrEP delivery that may widen rather than reduce HIV disparities. Identifying and understanding these barriers to PrEP delivery are an important target for future research.

Disclosure No significant relationships.

P450 PREP USE, STD ACQUISITION AND SEXUAL RISK BEHAVIOR

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Background Some studies have shown an association between HIV pre-exposure prophylaxis (PrEP) use, STD acquisition and increased sexual risk behaviors (e.g. condomless sex). The objective was to determine the association between PrEP use, STD infection (i.e. syphilis, gonorrhoea, chlamydia) and sexual risk behaviors (i.e. condomless sex, sex partner concurrency) in one mid-Atlantic city with an established epidemic of HIV.

Methods Data came from the Understanding Sexual Health in Networks Study (USHINE), an ongoing longitudinal cohort study of MSM between the ages of 18–45. Participants completed an egocentric sexual network survey. Summary statistics, chi-squared tests, and t-tests were used for hypothesis testing.

Results 173 men completed the sexual network survey. 52 (30.1%) men were HIV uninfected and 52 (30.1%) men reported PrEP use. PrEP users (vs non-users) were less likely to be positive for syphilis (10.6% vs 26.8%, $p=0.03$), but no more likely to be positive for gonorrhoea (15.4% vs 8.0%, $p=0.25$) or chlamydia (17.3% vs 16.0%, $p=0.86$). PrEP users (vs non-users) were more likely to report condomless sex (88.5% vs 69.2%, $p=0.02$) and sex partner concurrency (57.7% vs 32.7%, $p=0.01$).

Conclusion PrEP users were less likely to be infected with syphilis and no more likely than non-PrEP users to be gonorrhoea and chlamydia infected. PrEP users were more likely to report sexual risk behaviors including condomless sex and sex partner concurrency compared to non-PrEP users. The increased sexual risk behaviors among PrEP users is concerning and emphasizes the importance of prevention messaging for PrEP users.

Disclosure No significant relationships.

P452 A NURSE-LED HIV PRE-EXPOSURE PROPHYLAXIS PROGRAM AT COOL AID COMMUNITY HEALTH CENTRE FOR MEN WHO HAVE SEX WITH MEN

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Background Gay, bisexual and MSM continue to comprise the greatest number of new HIV diagnosis in BC (BCCDC, 2016). The complexity of the HIV epidemic among MSM has highlighted the need for broader approaches to HIV prevention. Publicly funded access to PrEP in BC began in 2018. The low barrier MSM STI testing clinic at Cool Aid CHC demonstrates that PrEP can be implemented successfully through a nurse-led program.

Methods Description of model of care/intervention: This novel CHC based Men's STI Testing Clinic is staffed by STI certified practice nurses and run in partnership with AIDS

Vancouver Island (AVI). It is advertised through MSM social media sites by the AVI Men's Wellness Coordinator. At the initial visit, clients complete a HIRI-MSM index, a sexual/medical history, required screening and participate in PrEP counseling and education. Physicians review the results and sign the PrEP prescription. Clients without primary care are accepted as patients at the clinic.

Results Effectiveness: Our innovative non-judgemental, nurse-led model has removed barriers to sexual health screening and enrolled 124 MSM in the PrEP program. Initial PrEP screening showed an STI incidence of 19% and a previous syphilis diagnosis in 15% of those screened. After PrEP initiation STI incidence increased by 7%, highlighting the need for continued safer sex education. There have been no HIV infections amongst PrEP recipients. 20% have discontinued PrEP after approval. 56% of those enrolled felt unable to access PrEP through their physician. 44% of PrEP clients are now linked to primary care at Cool Aid CHC, demonstrating that PrEP can be a tool to prevent HIV transmission in MSM, while engaging patients in primary care and regular STI screening.

Conclusion and next steps: This innovative program increased access to PrEP for MSM, increased STI testing/treatment, helped to prevent HIV transmission and linked clients to primary care.

Disclosure No significant relationships.

P453 INCIDENCE AND PREDICTORS OF URETHRAL AND RECTAL CHLAMYDIA AND GONORRHOEA AMONG MEN WHO HAVE SEX WITH MEN TAKING PREP IN KENYA

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Background We measured the incidence and associated factors of urethral and rectal *C. trachomatis* (CT) and *N. gonorrhoeae* (NG) among a Kenyan cohort of MSM taking PrEP.

Methods Enrolled MSM underwent audio computer assisted self-interview for behaviour and socio-demographics, with medical examination every 6 months. CT and NG were diagnosed by polymerase chain reaction assay in urine and rectal swabs at baseline, 6- and 12- months. We identified factors associated with incident urethral infection using multivariable Cox regression and report adjusted hazard ratios (aHR).

Results October 2017 - January 2018, 158 participants were enrolled and initiated PrEP. Follow-up was 99% (month 6) and 93% (month 12). At baseline, 10.4% had urethral CT/NG (either or both infections), and 3.3% had rectal CT/NG, with total 11.4% prevalence CT/NG. At 6 months, CT/NG was 7.7% (urethral) and 0% (rectal), and 10.2% (urethral) and 0% (rectal) at 12 months. There were 22 incident infections (19 CT, 2 NG, 1 CT and NG) during 152 person-years (py) follow-up, with no re-infections (13.9 cases/100 py; 95% CI: 9.2–21.1). Risk decreased 12% per one year increase in age (aHR=0.88, $p=0.012$) and was 73% lower for men reporting last sex partner being female (aHR=0.37, $p=0.019$). For each one unit increase in social support, men had 3%

increased CT and/or NG risk (aHR=1.03, $p<0.001$), and men reporting having sex in exchange for money at screening were 2.35 times more likely to be infected ($p=0.072$). Number of sex partners, sexual positioning, condom use, lubricant use, and self-reported PrEP adherence were not associated with infection.

Conclusion The incidence of urethral CT/NG infection was high in our cohort of MSM taking PrEP, despite risk reduction counselling and repeated testing and treatment, supporting need for ongoing etiologic testing and more effective risk reduction intervention. Additional analyses will examine risk compensation.

Disclosure No significant relationships.

P454 EMERGENCY DEPARTMENT (ED)-BASED HIV PRE-EXPOSURE PROPHYLAXIS (PREP) REFERRAL PROGRAM – USING EDS AS A PORTAL FOR PREP SERVICES

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Background U.S. Emergency Departments (EDs) serve many patients at high risk for HIV and could serve as a portal of entry for pre-exposure prophylaxis (PrEP). We conducted a pilot study to determine feasibility and acceptability of PrEP referral from the ED.

Methods From late December 2018 to March 2019, a pilot PrEP referral program was integrated into an established HIV/HCV screening program in an urban U.S. ED with HIV seroprevalence of 6%. Patients were deemed PrEP referral eligible if they had recent STI-related visit (<2 months) and tested HIV negative, or a negative HIV test during the current ED visit. The PrEP referral program was implemented by HIV/HCV program staff and trained volunteers. Patients were approached by convenience sampling based on staff availability. HIV risk and interest in PrEP referral was assessed through an electronic survey based on CDC PrEP guidelines. Patients expressing interest in PrEP were referred to PrEP peer navigators from the adult infectious disease specialty clinic and pediatric clinic. Referrals, scheduled and completed appointments, and PrEP initiation were collected.

Results In this ongoing program, 290 ED patients were screened, 162 approached and 89 (55%) took the survey. 68 (42%) were categorized as high-risk and eligible for PrEP referral. Of these 68 patients, 36 (53%) accepted PrEP referral, 15 (22%) were successfully contacted by phone with additional 21 (31%) pending for follow-up calls, six (9%) were scheduled for appointments, and two (3%) completed an appointment.

Conclusion Our preliminary findings demonstrate a high interest for PrEP referral and comparable PrEP care cascade outcomes in high-risk ED patients indicating that implementation of an ED-based PrEP referral program is feasible and acceptable and could serve as an important portal for PrEP care. Barriers along the PrEP care continuum to better engage and retain patients should be addressed as a future direction.

Disclosure No significant relationships.

P455 AWARENESS, KNOWLEDGE AND WILLINGNESS TO USE HIV PREP AMONG MSM AND TG PEOPLE IN BALI, INDONESIA

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Background World Health Organisation in 2014 has recommended Pre-Exposure Prophylaxis (PrEP) as HIV prevention tool for men who have sex with men (MSM) along with other prevention strategies. Before PrEP implementation is introduced in Indonesia, it is vitally important to have an evidence base about the awareness, knowledge and acceptability among MSM and transgender people and the differences in knowledge and PrEP acceptability based on sexual risk factors of MSM and transgender people.

Methods A cross-sectional study was conducted between July and November 2017 in an MSM clinic in Denpasar, Bali, Indonesia. The key outcomes were exploring the awareness, knowledge and willingness to use PrEP among MSM and transgender people in Bali, Indonesia and determining demographic and sexual risk factors associated with knowledge and willingness to use PrEP.

Results A total of 164 participants were recruited into the study but only 124 participants were eligible and included in the analysis. Of these, 69 out of 124 (55.6%) participants had never heard about PrEP. Among those 55 (44.4%) participants who had heard about PrEP, education and occupation were the only factors associated with PrEP knowledge. Men with the University education showed higher knowledge scores (29.2) and were more likely to use PrEP compared with men with lower education levels. 73 out of 124 participants (58.9%) were willing to take PrEP in the future and education was the only factor associated with PrEP willingness.

Conclusion This is the first study to report data on awareness, knowledge and willingness to use PrEP in Bali and is only the second such study conducted in Indonesia. Consistent with similar studies in other countries, this study found limited knowledge of PrEP among MSM and transgender participants. As PrEP is not yet publicly available in Indonesia, it is crucially important to prepare the community by education and disseminating accurate information.

Disclosure No significant relationships.

P457 A SINGLE DOSE OF BEHAVIOUR CHANGE: THE IMPACT OF TESTING ON BEHAVIOUR AND CHLAMYDIA TRANSMISSION

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Background The aim was to explore short-term effects of chlamydia testing on sexual behaviour also taking into account psychological characteristics, and to estimate the impact on chlamydia transmission of interventions aimed at sustaining or enhancing testing effects.

Methods A cohort study was conducted among heterosexual STI clinic visitors aged 18–24 years. Risk classes based on behavioural and psychological characteristics, and transitions between classes three weeks after chlamydia testing, were identified using latent transition analysis. We developed a pair compartmental model with a susceptible-infected-susceptible structure informed by the cohort study. We estimated the impact of sustaining the found short-term effects of testing and of interventions enhancing these effects in those diagnosed, in those tested negative, or in all tested on chlamydia prevalence after five years relative to no effect.

Results Four classes were identified (n=810, 13% chlamydia positive (CT+)): 19% of people were in class 1 (5% CT+), 15% in class 2 (10% CT+), 47% in class 3 (16% CT+), and 19% in class 4 (17% CT+). The number of new partners in the past year was higher in class 3 and 4, compared to class 1 and 2. Class 2 and 4 had lower intentions to use condoms, reported less condom use, and were more impulsive, compared to class 1 and 3. Chlamydia positives were more likely to move to a lower risk class after testing, compared to chlamydia negatives. Sustaining this short-term effect resulted in an estimated relative reduction in chlamydia prevalence of 27%. The impact of interventions enhancing behaviour change in those tested negative (–45%) or in all tested (–48%) was estimated to be larger than in those diagnosed (–31%).

Conclusion Testing has strong short-term effects in chlamydia positives, but not in chlamydia negatives. Sustaining these effects is vital in controlling chlamydia transmission, as are interventions enhancing behaviour change in chlamydia negatives.

Disclosure No significant relationships.

P458 GENITAL CHLAMYDIA TRACHOMATIS AND MYCOPLASMA GENITALIUM AMONG INFERTILE WOMEN IN UNIVERSITY COLLEGE HOSPITAL, IBADAN

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Background *Chlamydia trachomatis* and *Mycoplasma genitalium* are both intracellular pathogen of Sexually Transmitted Infection (STI) that has been reportedly associated with various gynaecological morbidities. The asymptomatic carrier state of *Chlamydia trachomatis* and *Mycoplasma genitalium* facilitates infertility sequelae and perinatal transmission among other complications. Due to the fastidious nature of both organisms, Polymerase Chain Reaction (PCR) are considered more reliable for accurate diagnosis. The aim was to determine the prevalence and risk factors for *Chlamydia trachomatis* and *Mycoplasma genitalium* infection among infertile women in University College Hospital, Ibadan, Nigeria.

Methods A Cross-sectional hospital-based study conducted at the Infertility clinic of the University College Hospital, Ibadan, Nigeria using random sampling technique. Ethical approval was received from UI/UCH ethical approval committee.

Information was collected from the 150 consenting women using structured questionnaire, on sociodemographic and behavioral characteristics of the respondents. Endocervical swabs were obtained for DNA extraction. The presence of *Chlamydia trachomatis* and *Mycoplasma genitalium* were detected from the extracted DNA by the use of conventional PCR. Bands corresponding to 241 and 495kb were documented as positive for *Chlamydia trachomatis* and *Mycoplasma genitalium* respectively. All data were analyzed using SPSS version 20.0. Associated risk factors were assessed with logistic regression.

Results Among the infertile women 11(7.30%) had evidence of *Chlamydia trachomatis* and 32(21.3%) *Mycoplasma genitalium*. Only 1(0.7%) had co-infection. Associated risk factors of *Chlamydia trachomatis* included past history of gonorrhoea (OR=8.37, p value = 0.002) and Multiple sex partners (OR=6.67, p value= 0.007). No associated risk factors were found for *Mycoplasma genitalium*.

Conclusion Considering the prevalence of *Chlamydia trachomatis*, the high rates identified for *Mycoplasma genitalium* as a single infection and the low co-infection among the participants, their screening should be included in the microbiological evaluation of infertile women. The risk factors for the infections are similar to those peculiar to other STI

Disclosure No significant relationships.

P459 TOWARDS A UNIVERSAL TOOL FOR ESTIMATING CHLAMYDIA PREVALENCE FROM SURVEILLANCE DATA: A SYSTEMATIC COMPARISON OF MODELS

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Background Chlamydia is the most commonly-diagnosed bacterial STI worldwide. Models have been developed to estimate chlamydia prevalence from surveillance data in Australia and the UK, respectively, by Ali, Cameron et al. (AC) and Lewis & White (LW). To assess robustness, we compared the models' prevalence estimates when applied to the same data.

Methods The models were applied to Australian 2001–2016 surveillance data to produce annual prevalence estimates in age-sex categories of 15–19, 20–24, 25–29 years for each sex. Two sets of input parameters (the “prior” and “posterior” parameters from the AC modelling study) were used.

Results The LW model produced higher prevalence estimates than the AC model in every age-sex category, with both “prior” and “posterior” parameterisation. Prevalence estimates for Australian women aged 15–29 in 2015 were 2.5%(95% CrI:2.4%–2.7%) and 5.1%(95%CrI:4.0%–6.0%) from the AC model and LW model (using “prior” parameters), respectively; the corresponding empirical estimate from literature was 3.3% (95%CI:2.1%–4.5%). Averaging over all years, the LW model produced prevalence estimates that were 2.5x higher than the

AC model for Australian men aged 15–29, and 1.9x higher in women. Neither model agreed perfectly with the empirical prevalence estimates; the LW model tended to be closer in younger age-categories and the AC model closer in older age-categories. The AC model was closer to empirical estimates in men than women.

Conclusion Substantial differences were observed between chlamydia prevalence estimates produced by the two models. These findings have important implications for researchers, policymakers and healthcare professionals, as estimation methods must be robust before they are used to inform public health policy, e.g. assessing the impact of chlamydia-control interventions. Health care systems and associated surveillance systems vary by country, and work to understand the reasons for the models' differences is planned, including applying the models to English data, in collaboration with the Universities of Bern, New South Wales, and Otago.

Disclosure No significant relationships.

P460 ASSESSMENT OF TUBAL FACTOR INFERTILITY ATTRIBUTABLE TO CHLAMYDIA WITH PGP3 SEROLOGY

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Background Our recent case-control study explored the *Chlamydia trachomatis* population attributable fraction (PAF) for tubal factor infertility (TFI) using an elementary body enzyme-linked immunosorbent serological assay (EB-ELISA) or a commercially available (Medac) major outer membrane protein ELISA to measure prior chlamydial infection. We examined data from this study using a Pgp3 enhanced ELISA (Pgp3).

Methods In this study of women with TFI by hysterosalpingogram (cases) and non-TFI infertility (controls) in two U.S. infertility clinics, we assessed anti-*C. trachomatis* seropositivity by Pgp3. We then assessed the association between chlamydia seropositivity and TFI using adjusted odds ratios (aOR) along with 95% confidence intervals (CI) stratified by race. Finally, the adjusted chlamydia TFI PAF (aPAF) and 95% CI based on the Pgp3 assay were estimated.

Results All black (n=107) and 618 of 620 non-black women had Pgp3 results. Seropositivity frequency by Pgp3 was 66% (95% CI 52–80%) for black cases, 72% (60–83%) for black controls, 26% (19–33%) for non-black cases, and 15% (12–18%) for non-black controls. Pgp3 was not associated with TFI among black women (aOR 1.1 [95% CI 0.4–3.3]). Among non-black women, Pgp3 seropositivity was associated with TFI (aOR 1.8 [95% CI 1.1–3.0]) adjusting for clinic, age, income, trichomonas, and endometriosis. Using Pgp3 and adjusting for the same variables, chlamydia TFI aPAF was 12% (95% CI 1–22%) in non-black women.

Conclusion Among non-black women, Pgp3 ELISA seropositivity was associated with TFI. Assays to estimate chlamydia TFI PAF merit further investigation, especially in black women. Chlamydial TFI may be prevented in all women by early identification and treatment of chlamydia.

Disclosure No significant relationships.

P461 BACTERIAL LOAD OF CHLAMYDIA IN THE OROPHARYNX AND SALIVA AMONG GAY AND BISEXUAL MEN WITH UNTREATED OROPHARYNGEAL CHLAMYDIA

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Background Previous studies have found that saliva can carry infectious gonorrhoea, which has led to the hypothesis that saliva could play an important role in gonorrhoea transmission. However, no study has examined the role of saliva in chlamydia transmission. The aim of this study was to determine whether *Chlamydia trachomatis* could be detected in saliva and to determine if the infection is specific to an anatomical site; oropharynx or tonsils.

Methods Men who have sex with men (MSM) who tested positive for oropharyngeal chlamydia at Melbourne Sexual Health Centre, who had no antibiotics in the past 4 weeks, and returned for treatment within 14 days between August 2017 and August 2018 were invited to participate. On the day of treatment, throat swabs were taken by clinicians at the tonsillar fossae and another at the posterior oropharynx. A saliva sample was also collected. All samples were tested for Chlamydia by nucleic acid amplification tests. The sample adequacy and bacterial load of *Chlamydia trachomatis* were assessed by quantitative PCR.

Results Forty-two MSM were included with a median age of 28 (Interquartile range [IQR]:25–33). The majority of men (76.2%; n=32) tested positive at both the tonsils and the oropharynx, followed by 9.5% (n=4) positive at the oropharynx only, and 4.8% (n=2) positive at the tonsils only. Chlamydia was detected in saliva in two-thirds of men (68.0%; n=29). The median bacterial load of chlamydia was 446 copies/ml (IQR: 204–1390 copies/ml) in saliva, 1230 copies/ml (IQR: 538–18200 copies/ml) from the tonsils and 1660 copies/ml (IQR: 456–22400 copies/ml) at the oropharynx. The chlamydia loads did not differ between the tonsils and the oropharynx (p=0.865).

Conclusion Chlamydia can be detected in saliva in most of oropharyngeal chlamydia cases among MSM. Sampling both the tonsils and oropharynx is important for optimal detection of oropharyngeal chlamydia.

Disclosure No significant relationships.

P462 RE-TESTING FOR CHLAMYDIA IN THE NATIONAL CHLAMYDIA SCREENING PROGRAMME IN BRISTOL, ENGLAND: AN ANALYSIS OF SURVEILLANCE DATA

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Background England's National Chlamydia Screening Programme (NCSP) recommends that sexually active people <25

years test for *Chlamydia trachomatis* annually and on change of sexual partner. Since 2013, NCSP has also recommended re-testing three months after testing positive. We used a detailed dataset to investigate characteristics associated with repeated chlamydia testing.

Methods We used surveillance data of community-based chlamydia testing (excluding online testing and specialist sexual health services) among men and women aged 15–24 years in the Bristol area, January 2011–December 2017. Repeat-testing was defined as returning for further testing within the Bristol area, at least 42 days after initially testing. Initial tests <3 months from December 2017 were excluded. We used logistic regression to compare odds of repeat-testing by initial test result, testing service, residence, initial test result and sexual risk behaviour, adjusted for age and whether the 2013 guidance was operating.

Results 14.11% (n=76,758) of women and 7.81% (n=28,038) of men repeat-tested within the study period. Of those with a positive result, 31.21% (n=5,104) of women and 14.88% (n=2,386) of men repeat-tested. Repeat-testing was associated with positive initial tests (Females: Adjusted Odds Ratio 1.90, 95% Confidence Interval 1.76–2.05; Males: 1.98, 1.71–2.27), having ≥2 sexual partners in the last year (1.17, 1.11–1.23; 1.15, 1.02–1.31), having a new sexual partner in the last 3 months (1.31, 1.24–1.38; 1.55, 1.36–1.77), living in the city of Bristol (1.68, 1.57–1.80; 1.43, 1.25–1.65) and testing through Contraception and Sexual Health clinics, which can treat uncomplicated infections, rather than other settings (1.34, 1.28–1.41; 1.37, 1.23–1.53).

Conclusion It was encouraging that initial positive tests and riskier sexual behaviour, which mean individuals are more likely to be infected, were associated with re-testing. However, we observed low uptake of re-testing with disparities by residence and testing service. These results will inform strategies to increase the uptake of re-testing within the Bristol area.

Disclosure No significant relationships.

P463

PARTICIPATION AND RETENTION OF WOMEN IN A PROSPECTIVE MULTICENTER STUDY ON *CHLAMYDIA TRACHOMATIS* INFECTIONS (FEMCURE)

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Background The participation of women in prospective sexual health research is key to understanding mechanisms of their health, and best practices need to be shared. We here evaluate

participation, retention, and associated factors, of women in a multicenter prospective cohort (FemCure) providing insights in internal and external validity of this prospective study.

Methods *Chlamydia trachomatis* (CT) infected adult women, negative for HIV, syphilis and *Neisseria gonorrhoeae* were eligible to be pre-selected and included at three sexually transmitted infection (STI) clinics in The Netherlands (2016–2017). The planned follow-up for participants was 3 months with 2-weekly rectal and vaginal CT self-sampling and online questionnaires at home and at the clinic. We aimed to optimize participation by simultaneously implementing a mix of strategies (e.g. research in an existing clinical infrastructure, incentives, easy data collection, text message reminders). We calculated proportions of women pre-selected, included and retained (completed follow-up). Associations with non-pre-selection, non-inclusion and non-retention (attrition) were assessed (using logistic and Cox regression).

Results Of 4916 women attending the clinics, 1763 (35.9%) were pre-selected, of whom 560 (31.8%) were included. Study site, non-Western migration background, high education, and no STI history were associated with non-pre-selection and non-inclusion. Self-reported reasons for non-inclusion were: unable to attend clinic, language-barriers, or too much expected effort. Retention was 76.3% (n=427). Attrition was 10.71/100 person-months (95% confidence-interval 9.97, 12.69). Women who withdrew felt incapable or unwilling to invest more time. Attrition was associated with young age and low education. Retained women expressed a high study satisfaction.

Conclusion In an outpatient clinical setting, it proved feasible to include and retain women in an intensive prospective cohort with moderate (3 months) follow-up time. External validity may be limited as the study population was not representative (sampling-bias), but this need not affect internal validity. Selective attrition however (potential selection-bias) should be accounted for when interpreting the study-results.

Disclosure No significant relationships.

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TREATMENT FAILURE IN RECTAL *CHLAMYDIA TRACHOMATIS* AZITHROMYCIN TREATED WOMEN DRIVEN BY HIGH VIABLE BACTERIAL LOAD (FEMCURE)

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Background Rectal infections with *Chlamydia trachomatis* (CT) are prevalent in women visiting a STI outpatient clinic.

While azithromycin is the most used treatment, microbiological treatment failure in rectal CT is common and its drivers remain unclear.

Methods This study is part of a prospective multicentre cohort study (FemCure). Current analyses included 112 women clinically-diagnosed (by nucleic acid amplification test [NAAT]) with rectal and vaginal CT, who not vomited and denied rectal and vaginal unprotected sex. Four weeks after azithromycin treatment (1g single dose) participants self-collected vaginal and rectal samples. Samples were tested for CT-DNA (NAAT) and viable CT-load (viability polymerase chain reaction [V-PCR]). We evaluated two endpoints: (1) failure by NAAT-positivity and (2) failure by V-PCR-positivity. Enrolment-risk-factors associated with failure were assessed using multivariable logistic regression; i.e., age, education, migratory-background, previous CT, NAAT Cq-value [marker CT-DNA load], culture, viable CT [V-PCR positive], viable load [\log_{10} copies/ml], vaginal CT.

Results (1) Failure by NAAT (21.4%; 24/112) was independently associated with both rectal and vaginal NAAT Cq-values; both aOR: 0.8 per unit decrease in the NAAT Cq-value (95% CI:0.7–0.9, $p<0.01$). Of the 49 women with a rectal or vaginal Cq-value ≥ 36 at clinic-diagnosis (43.8% of patients), 8.1% had rectal failure, compared to 31.7% when having Cq values ≤ 36 ($p<0.01$). (2) Failure by V-PCR (16.1%;18/112) was independently associated with the rectal viable load; aOR: 1.7 per \log_{10} copies/ml increase (95%CI:1.3–2.3). Of the 47 (42.0%) women without a viable rectal CT at diagnosis, 4.3% had failure, compared to 24.6% when having viable rectal CT at diagnosis ($p<0.01$). Vaginal failure by NAAT was 7.1% (8/112); failure by V-PCR was 2.7% (3/112).

Conclusion In an outpatient clinical setting, azithromycin rectal CT microbiological treatment failure was common and associated with higher pre-treatment (viable) loads. The lower azithromycin treatment failure in patients with NAAT Cq-values ≥ 36 or non-viable rectal CT might result in different treatment choices.

Disclosure No significant relationships.

P465 CHLAMYDIA-SCREENING FOR WOMEN UNDER THE AGE OF 25 YEARS IN GERMANY – HOW ARE WE DOING?

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Background An opportunistic screening program for *Chlamydia trachomatis* (CT) was introduced in Germany in 2008, targeting sexually active women under the age of 25. The program suffers from low coverage (~12%) and its impact on the epidemiology of CT in the German setting remains unclear. As CT is not notifiable in Germany, we used alternative data sources to describe CT-epidemiology in the context of the screening program.

Methods Urine-PCR results from two population-based, nationwide health surveys of adults (DEGS, 2008–2011, subsample=2,364) and minors (KiGGS-Wave 2, 2014–2017, subsample=619) were analyzed. Weighted CT-prevalences were estimated for adults. Prevalence estimation for age-subgroups and adolescents was not possible due to high coefficients of variation, instead unweighted CT-positive proportions were

calculated in an explorative analysis. Data from a CT laboratory sentinel system were used to obtain the number of screening tests performed and the proportion of positive results by age and year.

Results The weighted prevalence of CT in the general German population aged 18–44 was estimated at 1.2% (95% confidence interval (95%CI): 0.6%–2.2%) among women and 1.9% (95%CI: 1.2%–3.0%) among men. The highest unweighted CT-positive proportions were found in the younger age groups in both women (18–24y: 2.4%, 95%CI 1.1%–5.0%; 25–34y: 1.5%, 95%CI 0.7%–3.3%) and men (18–24y: 2.0%, 95%CI 0.9%–4.4%; 25–34y: 2.9%, 95%CI 1.6%–5.2%). Among 15- to 17-year-old girls, an unweighted CT-positive proportion of 6.2% (95%CI 2.9%–12.6%) was found. Sentinel data from 2014–2016 (467,474 screening-tests of 15–24 year-old women) showed positive-result proportions of 3.4% (95%CI 3.1%–3.7%), 6.1% (95%CI 5.9%–6.4%) and 3.9% (95%CI 3.7%–4.0%) among 15-, 19- and 24-year-olds, respectively.

Conclusion The German screening program seems to correctly target the women most at risk and may thus prevent cases of CT-sequelae. However, through its low coverage and the exclusion of men, who serve as a reservoir for the infection, the program is not likely to reduce CT-prevalence effectively.

Disclosure No significant relationships.

P466 HIGH PREVALENCE OF EXTRAGENITAL CHLAMYDIA TRACHOMATIS (CT) IN HETEROSEXUAL WOMEN: VALIDATION OF POOLED SAMPLES

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Background Studies have shown high rates of concurrent rectal CT in women with urogenital infection. Extra-genital STI testing in women is not routine, and would be cost-prohibitive for all women. Pooling of samples from different anatomical sites is an effective method of testing for bacterial STIs, however is most commonly used in men who have sex with men. Before implementing pooled sampling within our services we performed a small validation comparing triple site sampling with pooled sampling for detection of CT and *Neisseria gonorrhoea* (NG) in women <25 years.

Methods This validation was performed at a level 3 genito-urinary medicine clinic in London from January – March 2018. Patients were both symptomatic and asymptomatic. Samples were taken by either clinician or patient. All samples were tested using Aptima Combo 2 nucleic acid amplification tests.

Results 99 cisgender women were included with a median age of 22. 56 women (57%) had symptoms that could indicate an acute STI. None reported rectal symptoms 19 patients tested positive for CT at any site (19% prevalence). Genital only (2) rectal only (7) pharynx only (1) genital + rectal (6) triple site (3). Pooled sampling detected CT RNA in 18/19 patients (95%) and was equivocal in 1/19 patients (sensitivity 95% specificity 100%).

Conclusion We demonstrated high prevalence of extra-genital CT infection in women. 2/19 had genital infection alone; genital sampling would miss 8/19 (42%) of CT infection. In this small evaluation, pooled sampling has been shown to be sensitive and specific for detection of CT. 16/19 women (84%)

had rectal CT. Our study is limited by size and inconsistent documentation of receptive anal sex, however evidence shows this to be a poor predictor of rectal CT infection. We limited our sample to a high prevalence population so our results may not be generalizable to lower prevalence groups.

Disclosure No significant relationships.

P467 FACTORS ASSOCIATED WITH ANORECTAL CHLAMYDIA OR GONORRHOEA TEST POSITIVITY IN WOMEN – A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background There has been considerable discussion about anorectal *Chlamydia trachomatis* (CT) in women, but little about anorectal *Neisseria gonorrhoeae* (NG). This systematic review and meta-analysis investigates whether anorectal CT in women is associated with detection at other sites (urogenital, oropharyngeal) or anal intercourse and compares this with anorectal NG in the same populations.

Methods Electronic databases EMBASE, MEDLINE and PUBMED were searched for English-language studies published to October 2018 using the search terms: (“Chlamydia” OR “*Chlamydia trachomatis*”) AND (“anal” OR “rect*” OR “anorect*”) OR (“extra-genital” OR “multi-site”). Studies were included if anorectal NG data were available. The primary outcomes, CT and NG positivity, were measured as the proportion of those tested who were test positive. Prevalence ratios (PR) were calculated for the association of anorectal CT or NG with detection at other sites or anal intercourse. Random effects meta-analyses were used to calculate summary estimates; heterogeneity was investigated using meta-regression.

Results 25 studies were eligible. Anorectal CT positivity ranged from 0% to 17.5% with a summary estimate of 8.2% (95% CI: 7.2, 9.2; $I^2=86.4\%$). Anorectal NG positivity ranged from 0% to 17.0% with a summary estimate of 2.2% (95% CI: 1.6, 2.8; $I^2=92.6\%$). The association between urogenital and anorectal positivity was stronger for NG than CT (PR=82.2 [95% CI: 50.0, 140.9; $I^2=80.4\%$], PR=29.7 [95% CI 23.8, 37.1; $I^2=64.6\%$], respectively). Anal intercourse was associated with anorectal NG (PR=4.3; 95% CI: 2.18, 8.55; $I^2=0.0\%$) but not anorectal CT (PR=1.0; 95% CI: 0.71, 1.4; $I^2=0.0\%$).

Conclusion Discussion in the literature has focused on anorectal CT in women. This review found that although anorectal CT is more common, anorectal NG is more strongly associated with anal intercourse, urogenital, and oropharyngeal detection. Longitudinal data are required to further understanding of the etiology of anorectal STIs and to inform whether anorectal screening is needed in women.

Disclosure No significant relationships.

P468 THE ASSOCIATION OF SYMPTOMS WITH VIABLE VAGINAL OR RECTAL CHLAMYDIA TRACHOMATIS LOAD: MULTICENTER COHORT STUDY (FEMCURE)

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Background Symptoms have been associated with *Chlamydia trachomatis* (CT) infections in culture-based studies, in contrast to studies based on nucleic acid amplification tests (NAAT). This may be because NAAT also detect non-viable bacteria. As culturing techniques are insensitive, we developed a sensitive polymerase chain reaction (V-PCR) technique to measure the viable bacterial load. We here assess the association between symptoms and viable load in 524 women with vaginal or rectal CT.

Methods Prior to treatment at three STI clinics, we included NAAT-CT-positive adult women (n=411 vaginal and rectal CT; n=88 only vaginal CT; n=25 only rectal CT), who were negative for HIV, syphilis and *Neisseria gonorrhoeae* (Netherlands, 2016–2017; FemCure). We assessed the viable rectal and vaginal load (\log_{10} CT/ml) using V-PCR. We present the mean viable load (range 0 [non-viable] to 6.5) and tested associations with vaginal symptoms (coital lower abdominal pain, coital blood loss, intermenstrual bleeding, altered discharge, painful or frequent micturition) and rectal symptoms (discharge, pain, blood loss), using multivariable regression techniques adjusting for age and educational level.

Results Of 499 vaginal CT NAAT-positive women, mean viable load was 3.5 \log_{10} CT/ml (SD: 1.6). Vaginal symptoms were reported by 50.3% (n=251) of women; women reporting any vaginal symptoms had higher vaginal viable load (mean 3.6 \log_{10} CT/ml) than women without symptoms (mean 3.3 \log_{10} CT/ml) (B=0.35, p=0.012) (mainly due to ‘altered discharge’). Of 436 rectal CT NAAT-positive women mean viable load was 2.2 \log_{10} CT/ml (SD: 2.0); rectal symptoms were reported by 4.8% (n=21) and not associated with rectal viable load.

Conclusion In an outpatient clinical setting, women diagnosed with vaginal CT have a higher viable load when they have symptoms. Yet, the difference is quite small (0.3 \log_{10} CT/ml) and is therefore unlikely to have a major impact on clinical patient management in women.

Disclosure No significant relationships.

P469 **SPONTANEOUS RESOLUTION TO NEGATIVE AND NON-VIABLE STATUS OF VAGINAL AND RECTAL *CHLAMYDIA TRACHOMATIS* INFECTION (FEMCURE)**

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Background Spontaneous resolution (clearance) of *Chlamydia trachomatis* (CT) infections can occur between diagnosis by nucleic acid amplification assays (NAAT) and treatment. Moreover, viability polymerase chain reaction (V-PCR) techniques showed that part of non-resolved NAAT positives represent non-viable CT. This may impact clinic policies aiming to restrict antibiotic treatment (i.e. to viable CT only). We followed 560 CT diagnosed women to assess the proportion without viable CT at follow-up, and associated risk factors.

Methods Vaginal (vCT) or rectal (rCT) NAAT positive adult women, negative for HIV, syphilis and *Neisseria gonorrhoeae*, who not recently used antibiotics, were included at three STI outpatient-clinics (Netherlands, 2016–2017; FemCure). At clinic-diagnosis women were (a) vCT positive, rCT untested (n=351), (b) vCT, rCT positive (n=155), (c) vCT positive, rCT negative (n=25), (d) vCT negative, rCT positive (n=29). After a median of 8 [IQR:7–12] days, before treatment, samples were tested using NAAT and V-PCR. We present percentages of women without viable CT at follow-up, and tested which factors (group [a-d], age, education, non-western-background, symptoms, anal/vaginal sex, sexpartners) were associated, using logistic regression.

Results At follow-up, percentages of women NAAT negative at both anatomic sites were 5.4% (a), 0.6% (b), 32.0% (c), and 27.6% (d). Percentages of women without viable CT (i.e. NAAT negative or NAAT positive and V-PCR undetectable) at both anatomic sites were 9.4% (33/351, a), 3.9% (6/155, b), 52.0% (13/25, c), and 41.4% (12/29, d). Alongside group (p<0.001), older age was independently associated (odds ratio: 1.07 per year (95%CI: 1.01–1.13; p=0.029) with lack of viable CT.

Conclusion Less than ten percent of STI-clinic women diagnosed with vaginal and rectal CT (or were rectally untested) did not have viable CT one week after diagnosis (when they return for treatment). Yet, this percentage was higher in women with single vaginal or rectal infection and in older women; this may affect treatment-choices.

Disclosure No significant relationships.

P470 **SCREENING RATES AND FOLLOW-UP OF *CHLAMYDIA TRACHOMATIS* AND *NEISSERIA GONORRHOEAE* INFECTIONS DURING PREGNANCY**

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Background While the US Preventive Services Task Force recommends prophylactic ocular topical medication for all newborns to prevent gonococcal ophthalmia neonatorum, the Canadian pediatric society no longer recommends its use. Systematic prenatal screening for *C. trachomatis* (CT) and *N. gonorrhoeae* (NG), as well as treatment and test of cure (TOC) are considered the most effective ways of preventing vertical transmission and neonatal conjunctivitis. The aim of this study was to assess compliance with Quebec pregnancy screening guidelines.

Methods The list of all women who delivered at a tertiary care hospital in Montreal, between April 2015 and March 2016, was cross-referenced with the list of samples tested for CT/NG. Maternal medical records were reviewed for demographic, prenatal and diagnostic information.

Results Amongst 2688 women, 2256 were sampled at least once but only 2218 (82.5%) had at least one valid result available before the day of delivery. Screening rates leading to a valid result were higher among nulliparous women (86%; 1071/1243 vs 79%; 1138/1432; p<0.001) as well as in women <25 years old (yo) (86%; 298/347 vs 82%; 1920/2341; p=0.08). Infection was detected in 45/2218 (2%) women: CT (43; 1.9%) and NG (4; 0.2%); two were co-infected. CT infection was more frequent in women aged <25 yo (9.4%; 28/298) than among those aged ≥25 yo (0.8%; 15/1920; p<0.001). Amongst the 43 CT-infected women, 39 (91%) were treated and 31 (72%) had a TOC which was positive in four (13%) women. All NG-positive women were treated and had a negative TOC.

Conclusion Compliance with CT/NG screening and follow-up guidelines is insufficient to stop current universal ocular prophylaxis. Repeating universal screening in pregnancy should be considered: in addition to identifying women who become infected later in pregnancy, such strategy could decrease the number of women who are not screened at all during pregnancy.

Disclosure No significant relationships.

P471 LYMPHOGRANULOMA VENERUM IN QUEBEC, CANADA: FIVE YEARS OF EPIDEMIOLOGICAL SURVEY, 2013–2017

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Background Reported cases of lymphogranuloma venereum (LGV) were unusual in Quebec before 2005, when a first epidemic occurred (25 cases in 2005, 44 cases in 2006). This was followed by a low-endemicity period between 2007 and 2012 (2 to 13 cases/year). Since 2013, the number of reported LGV cases strongly increased with a peak in 2016 (2013: 49, 2014: 61, 2015: 105, 2016: 124 and 2017: 105). We hereby report on enhanced LGV surveillance between January 1st 2013 and December 31st 2017.

Methods We used data from the notifiable diseases records, epidemiological investigation questionnaires and genotyping to describe the evolution of this resurgence. Since June 2016, all Chlamydia-positive anorectal samples are sent to the *Laboratoire de santé publique du Québec* for genotyping. Collected information includes demographics, risk factors (for the past year unless otherwise indicated), clinical manifestations, laboratory tests and treatments.

Results All male reported cases (442, 97% confirmed) were analyzed (399 with available questionnaire). Most cases were L2b genotype (98%) and lived in Montreal (81%). Mean age was 40 years. Almost all (97%) were men who have sex with men (MSM), 94% reported past sexually transmitted infection (STI) and 78% were HIV-infected (243/311). LGV-specific symptoms were reported by 69% of cases, 11% mentioned non LGV-specific symptoms and 21% were asymptomatic. Sex partners outside Quebec were reported by 37% of cases, 51% have had more than 10 sex partners and 58% have used recreational drug. LGV reinfection occurred among 45 persons (11%): 36 had 2 episodes, 9 had 3 episodes and 1 had 4 episodes. In 2017 (first complete year of routine genotyping on Chlamydia-positive anorectal samples), 100/1591 (6.3%) were LGV genotypes.

Conclusion The LGV epidemic is still ongoing. Cases are mostly from urban regions, are almost exclusively MSM and frequently report past STIs, a high number of sex partners and drugs use.

Disclosure No significant relationships.

P472 DO CHLAMYDIA TESTING PATTERNS IN NEW ZEALAND EXPLAIN THE HIGH DIAGNOSIS RATES?

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Background Diagnosis rates of *Chlamydia trachomatis* (CT) are high in New Zealand (NZ), affecting 4.1% of women and

1.5% of men aged 15–29 from national laboratory surveillance in 2014. National data also shows high rates of testing in women. We sought to understand CT testing by demographic and behavioural characteristics, information not available in routine surveillance.

Methods CT testing in the past year, sexual behaviour and demographic characteristics were self-reported by participants in the nationally representative 2014/15 NZ Health Survey (N= 10,198 adults aged 16–74). Those aged 16–44 who had an opposite or same-sex sexual partner in the past year were included in this analysis. The prevalence of testing was calculated and Poisson regression used to investigate associations.

Results Of 3,917 eligible participants, 5.5% (95% CI 4.2–7.2%) of men and 16.6% (14.7–18.8%) of women had tested in the past year, higher among 16–29 year-olds (11.2% [7.8–15.7%] of men and 29.5% [24.5–35.1%] of women). Having multiple partners (adjusted relative risk 3.79, 95% CI 1.50–9.54) and condomless sex (2.98, 1.49–5.96) were associated with more testing in men. For women, testing was positively associated with multiple partners (2.46, 1.71–3.53) and pregnancy (1.67, 1.22–2.27) and negatively associated with lower income and Asian ethnicity. Men and women reporting a same-sex partner had elevated, but not statistically significantly, testing rates. A general check-up was the most common reason for testing; however, 18.1% of men tested because their partner was diagnosed (versus 2.2% of women, $p < 0.001$).

Conclusion The study confirms men are much less likely to be routinely tested than women in NZ, and more likely to test due to risk factors. A lack of routine CT testing among NZ men is one potential reason for ongoing high incidence and diagnosis rates among both sexes.

Disclosure No significant relationships.

P473 EPIDEMIOLOGY OF CHLAMYDIA TRACHOMATIS IN ONTARIO AND IMPLICATIONS FOR CHANGES TO PRACTICE GUIDELINES

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Background Similar to other regions, CT remains the most common reportable infection among teenagers and young adults in Niagara. Females, in general, have higher reported incidence than males; however, this may be at least partially due to their higher health seeking behavior. Most guidelines recommend annual screening of young women. Data supporting routine screening of men is limited. The objective of this study is to analyze and summarize the epidemiological data of chlamydial infections in Niagara Region and to provide support for routine testing of young men.

Methods We extracted CT data and the number of CT tests from the provincial databases. Using SaTScan, we examined spatiotemporal clusters of CT within Niagara Region. We examined how the rates of CT differed by deprivation index using ON-MARG.

Results The incidence of chlamydia in Niagara Region was higher in females with rates of 2535 and 2772 per 100,000 in 15–19 and 20–24 years old, respectively, in 2018. Likewise, rates of 811 and 1691 per 100,000 were seen in males aged 15–19 and 20–24, respectively. We also saw 12% and 9% of CT test positivity in females in these age groups during 2018.

For males, 12% and 12% of tests were positive that year. We estimated that screening uptake was 12% and 14% among females, and 4% and 8% among males aged 15–19 and 20–24 in 2018. There was also a gradient of CT rates by ON-MARG quintile, indicating that those with lower SES had higher rates of CT. We also observed a large cluster of CT infection in the vicinity of a local post-secondary institution.

Conclusion There is a need for gender-neutral screening guidelines and changes to the primary care practices to increase routine screening of CT among young males, along with targeted interventions based on the local epidemiology, to curb the epidemic of CT.

Disclosure No significant relationships.

P474 CASES OF LYMPHOGRANULOMA VENEREUM IN CHICAGO, IL, JULY 2016 – APRIL 2017

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Background Lymphogranuloma venereum (LGV) is caused by *Chlamydia trachomatis* (CT) serovars L1–L3. The most recent US outbreak of LGV was in 2016 in Michigan in men who have sex with men (MSM) living with HIV.

Methods To better understand LGV epidemiology in Chicago and increase provider awareness, in 2016, the Chicago Department of Public Health (CDPH) introduced a case-based reporting system for MSM with suspected LGV proctitis. Providers were asked to complete standard forms for adult MSM demonstrating symptoms of proctitis. Demographic/clinical and behavioral risk factors data were abstracted from 7/21/16 - 4/30/17. Rectal specimens found to be positive for CT on nucleic acid amplification testing were submitted for LGV laboratory confirmation.

Results A total of 50 suspect LGV cases were reported to CDPH; 47 specimens were submitted to for further molecular testing: 19 were confirmed to be LGV, 10 were non-LGV/CT positive, 2 had indeterminate results and 16 were CT-negative. All confirmed cases were from rectal swabs: 21% (4/19) were non-Hispanic Black, 42% (8/19) were non-Hispanic white, 32% (6/19) were Hispanic, and 5% (1/19) were non-Hispanic Asian. The median age was 35 years (range = 21–46 years). Of 19 confirmed cases, 84% (N=16) were HIV (+), and in two cases, HIV was diagnosed at the time of LGV infection. The median CD4 count was 613 cells/ml (range = 311–1170 cells/ml, IQR=238); HIV RNA was <40 copies/ml in 58% (11/19) of cases. Amongst the confirmed cases for which treatment information was available (N=17), all had been empirically treated with doxycycline for 21 days.

Conclusion LGV may be suspected in MSM presenting with proctitis symptoms. These data likely underestimate the true local prevalence of LGV in Chicago since reporting was restricted to symptomatic MSM. Improvements in chlamydia case-based surveillance in key populations are critical given the association with LGV and HIV.

Disclosure No significant relationships.

P475 CHLAMYDIA TRACHOMATIS AND NEISSERIA GONORRHOEA: PREVALENCE AND FACTORS ASSOCIATED AMONG WOMEN WITH HIV IN SÃO PAULO, BRAZIL

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Background Our goal was to estimate the prevalences of and risk factors for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) among women with HIV.

Methods Cross-sectional study of women with HIV, who were receiving care from sixteen public health services in São Paulo (October/2013 to March/2014). Participants answered a questionnaire including demographic, behavioral, and clinical data. An urine sample was tested for CT and NG, using a polymerase chain reaction. The chi-square test and a logistic regression model were used to test the associations with CT or NG infections.

Results 836 women were included. The mean age was 40.5 ±0.34 years, and the prevalences of CT and NG infections were 1.8% and 0.5%, respectively. The highest prevalences of CT infection were among who were 18–25 years old (15.9%), had black skin color (2.6%), had ≥2 sexual partners during the last year (7.3%), had a partner who had been imprisoned (3.3%), and not used condoms during the last 6 months (4%). According to clinical characteristics, the highest prevalences were among who had a spontaneous abortion (3.5%), prior STD (3.7%), had been diagnosed with HIV infection during the last year (4.8%), had a CD4+ <350 cells/mm³ (4.8%), had atypical squamous cells/glandular cells of undetermined significance in their last Pap smear (11.1%), and had positive NG test results (25%). CT infection was associated with CD4+ <350 cells/mm³ [adjusted odds ratio (ORadj): 24.5], age of 18–25 years (ORadj: 23.2), the non-use of condoms during the last 6 months (ORadj: 10.2), prior STI (ORadj: 9.4), and having ≥2 sexual partners during last year (ORadj: 6.1).

Conclusion Although we observed a low prevalence of CT infection among women with HIV, younger age was associated with a strong risk of infection. Therefore, it may be appropriate to include screening for CT as part of the routine care for this population.

Disclosure No significant relationships.

P476 PREVALENCE OF CHLAMYDIA AND GONORRHEA AMONG YOUTH IN LOS ANGELES AND NEW ORLEANS RECEIVING FREQUENT TESTING

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Background *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) disproportionately affect adolescents, however,

many adolescents receive infrequent sexually transmitted infection (STI) testing. Gay, bisexual, transgender, and homeless youth are at increased risk for STIs. Currently, the Centers for Disease Control and Prevention recommend only annual screening of CT/NG for all sexually active gay, bisexual, and other men who have sex with men (MSM).

Methods We recruited adolescents aged 12–24 years from homeless shelters, lesbian, gay, bisexual, transgender, and queer (LGBTQ) organizations, and community health centers in Los Angeles, California and New Orleans, Louisiana from May 2017–January 2019. All participants received point-of-care pharyngeal, rectal, and urethral/vaginal CT/NG testing using the Cepheid GeneXpert (Sunnyvale, CA). We measured the proportion of participants with CT/NG infections every 4 months for 12 months. We compared the proportion of STI positivity at each time point to the baseline visit using a McNemar's test.

Results Overall, 156 participants received testing (53 MSM/transgender women, 56 heterosexual men, 47 heterosexual women). Baseline prevalence of CT/NG among MSM and transgender women was 18.9%. At the 4 month visit, prevalence was 5.7% ($\Delta = 13.2\%$, P -value = 0.04). At the 8 month visit, prevalence was 15.1% ($\Delta = 3.8\%$, P -value = 0.99). At the 12 month visit, prevalence of CT/NG was 3.8%, a 15.1% decrease from baseline (P -value = 0.02). There was no significant difference in prevalence among heterosexual men between their baseline visit (5.4%) and their 12-month visit (8.9%) ($\Delta = 3.5\%$, P -value = 0.82). There was no significant difference in prevalence among heterosexual women between their baseline visit (10.6%) and their 12-month visit (8.5%) ($\Delta = 2.1\%$, P -value = 0.99).

Conclusion Providing regular testing among adolescent MSM and transgender women may be beneficial in reducing the prevalence of CT/NG infections. Reasons for failure to reduce prevalence among heterosexual men and women require further study.

Disclosure No significant relationships.

P477 PRENATAL SCREENING AND TREATMENT OF CHLAMYDIA TRACHOMATIS INFECTION TO PREVENT ADVERSE PREGNANCY OUTCOMES – A PILOT STUDY

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Background Chlamydia trachomatis (CT) infection is considered to be related to adverse pregnancy outcomes, but we are still not sure whether prenatal screening and treatment of CT infection can prevent these. We conducted a pilot study to investigate the feasibility and acceptability of prenatal CT screening and treatment in China, in order to collect preliminary data for a RCT.

Methods We recruited pregnant women at a gestational age between 12–14 weeks in a hospital in Guangzhou, China in April and May of 2018. All participants were screened for CT using Nucleic Acid Amplification Testing at the registry. Chlamydia-positive patients were provided one dose of azithromycin for treatment, and they were re-tested one-month after the treatment. We followed up every participant until delivery or end of pregnancy. We included nine adverse pregnancy outcomes

(preterm birth (PTB), smaller than gestational age (SGA), birth defect, infant death, etc.).

Results Of 453 women reached, 306 agreed for the screening and provided urine samples for testing. 302 (98.7%) of the collected samples were valid for testing, and 283 (92.5%) of questionnaires were obtained, but one was withdrew before delivery. Finally, we included 282 participants in this analysis whose mean age was 30.46 year (SD: 3.88). 14(5%) women were CT-positive at the registry. Eleven cases received treatment and three refused. All treated women was re-tested as negative after treatment. In treatment group (N=11), neither adverse pregnancy outcomes nor side effect of treatment was observed. In the non-treatment group (N=3), one still birth was found. Among 268CT-negative pregnant women, we observed 13 PTBs, 20 SGAs and 1 heart birth defect.

Conclusion It is feasible and acceptable to conduct CT screening study among pregnant women. Although the sample size is limited, the study provided useful information for planning a RCT aimed to evaluate the efficacy of the testing and treatment strategy.

Disclosure No significant relationships.

P478 IS CHLAMYDIA AND GONORRHOEA TESTING ASSOCIATED WITH PREGNANCY OUTCOMES? A RETROSPECTIVE DATA-LINKAGE COHORT STUDY

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Background Adverse reproductive health outcomes have been associated with *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoea* (NG) infections. Risk of adverse outcomes have been measured by following progression to Pelvic Inflammatory Disease (PID), ectopic pregnancy and tubal factor infertility. We propose that these measures are complemented by assessing long-term pregnancy outcomes. We compare long-term pregnancy outcomes including use of Assisted Reproductive Technologies (ART) to examine the association with sexually transmitted infections.

Methods We used a retrospective data-linkage cohort study design to link women aged 15–35 years based in Queensland, Australia, with a record of testing for CT and NG or a full blood test in a public health facility between Jan 1, 2000 and Dec 31, 2005. Records were probabilistically and deterministically linked to the Queensland Perinatal Registry until Dec 31, 2013. Multiple regression models were used to estimate the odds of a woman ever being pregnant based on her history of testing and exposure to an infection.

Results Complete data from 132,951 women were analysed. Of those tested for an STI, 592 recorded multiple positive results, 3,243 single positives and 20,870 negative results. Those who had not tested for an STI comprised 108,246 women. The adjusted odds ratio for having a successful pregnancy was 0.66 (95% CI 0.64–0.68) for women who had ever been tested. The adjusted odds ratio for usage of ART was 1.24 (1.02–1.50). Women with CT had an adjusted odds ratio of 0.70 (0.65–0.76), whereas women with NG had an adjusted odds ratio of 0.78 (0.66–0.92).

Conclusion Women with a history of testing for an STI are at significantly higher risk of not having a pregnancy and reporting a higher use of ART, suggesting that STI testing and a positive CT or NG test result is associated with adverse reproductive health outcomes.

Disclosure No significant relationships.

P479 IMMUNOPROFILING OF *CHLAMYDIA TRACHOMATIS* COMBINING WHOLE-PROTEOME MICROARRAYS AND HIGH-THROUGHPUT MULTIPLEX SEROLOGY

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Background Chronic infections with *Chlamydia trachomatis* (Ct) can give rise to sequelae that include pelvic inflammatory disease (PID), chronic pelvic pain (CPP), ectopic pregnancy (EP) and tubal factor infertility (TFI), and may contribute to cervical and ovarian cancer development in women. The humoral immune system of an infected individual recognizes and responds to different Ct antigens by eliciting a variety of antibodies. Based on differential protein expression, antibody patterns may represent infection-specific phases of the chlamydial life cycle or disease-specific stages. The selection of potential antigens for the development of serological assays is usually based on prior knowledge about antigenic properties and thus restricted to few selected proteins.

Methods To overcome this bias, we have developed a novel method to generate Ct whole-proteome microarrays directly from bacterial genomic DNA using a combination of multiple spotting technique and cell-free, on-chip protein expression based on expression constructs generated by two successive PCRs. Based on e.g. case-control comparisons, informative antigens are identified and validated in sero-epidemiological studies using low-density, high-throughput Luminex-based multiplex suspension array technology.

Results Establishment of the method for Ct serovar D with 895 open reading frames (ORFs) yielded several novel infection markers, and revealed an association between specific Ct antibodies and the development of cervical carcinoma (adjusted odds ratio (OR) 3.9, 95% confidence interval (CI) 1.8–8.3 for CT₁₁₇, and OR 3.1, 95% CI 1.3–7.1 for CT₂₂₃).

Conclusion Following this initial screening we aim to identify Ct antigens associated with PID, EP, TFI and ovarian cancer as well as antibody responses associated with protection from Ct re-infection. The newly developed technique for generation of fast and efficient proteome immunoassays can easily be adapted to other complex microorganisms, not only in the field of sexually transmitted infections but in all areas of infection research.

Disclosure No significant relationships.

P480 ENHANCED PREVALENCE OF *CHLAMYDIA TRACHOMATIS* DNA IN CLINICAL SAMPLES OF PATIENTS WITH STIS CO-INFECTION

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Background *Chlamydia trachomatis* (CT) is one of the most commonly diagnosed asymptomatic bacterial cause among sexually transmitted infection (STI) worldwide. We assessed the prevalence of CT in random STI patients to evaluate the presence of CT as either a single infection or in co-infection with other STI.

Methods A total of 422 urogenital samples were collected from patients who attended the Diagnostic Centre in Saratov Region to be tested for specific DNA of CT and other STIs (*Neisseria gonorrhoeae*/*Trichomonas vaginalis*/*Mycoplasma hominis*/*Mycoplasma genitalium*/*Human papillomavirus* (HPV 16/18)/*Cytomegalovirus*/*Herpes simplex virus* (HSV 1/2)/*Candida albicans*/*Gardnerella vaginalis*/*Ureaplasma species*). Each clinical sample was carefully screened with the use of commercial kits, either as conventional PCR targeting CT plasmid, or real-time multiplex set (Vector-Best, Russia) validated further by additional confirmatory PCR for the CT-positive samples.

Results CT was detected in 17/194 (4,02%) patients who were screened only for the presence of CT DNA (194/422, 45,97%). However, when all 422 patients were systematically screened for CT, along with all other STIs, CT infections were significantly higher (about 4-fold larger) in the patients with other STIs (70/422, 16,58%). Moreover, 56/70 (80%) CT DNA samples were successfully genotyped as CT genovars: E (50%), G (21,42%), D (17,85%), J (5,35%) and K (3,57%).

Conclusion Chlamydial asymptomatic infection cases can be frequently masked by clinical symptoms of other STIs. Diagnostic testing for multiple STIs should provide a broader diagnostic coverage for asymptomatic CT patients in order to improve significantly CT early detection, prevention of transmission, and treatment strategies.

Disclosure No significant relationships.

P481 PATIENTS WITH REPEAT *CHLAMYDIA TRACHOMATIS* AND *NEISSERIA GONORRHOEAE* ARE DIFFERENT COMPARED TO THOSE WITH SINGLE INFECTIONS

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Background Recently it was proposed that patients repeatedly infected with *Chlamydia trachomatis*(CT) or *Neisseria gonorrhoeae*(NG), so called core groups, likely have high impact on

circulating STIs within the population. To substantiate such proposition, more information is needed on (1) whether the characteristics of those single infected patients differ from the repeat infected patients and (2) the proportion of patients who were not retested.

Methods Laboratory data from all CT/NG tests by the STI clinic, general practitioners or hospital physicians between 2011–2016 of patients aged 15–64 years were obtained (24,051 tests: 2,317 CT positive, 405 NG positive). The outcome ‘repeatedly infected’ was defined as patients with ≥ 2 CT or ≥ 2 NG infections. Chi-square tests were used to compare characteristics of repeatedly infected versus single infected patients, for CT and NG separately.

Results Patients with repeat CT-infections 12%(215/1,845) were more often women, HIV positive, NG positive, diagnosed at the STI clinic or hospital compared to the GP, had ≥ 1 sex partner, reported urogenital symptoms, proctitis and oropharyngeal symptoms ($p < 0.05$). Of the patients with a single CT infection, 50%(814/1,630) was not retested. Patients with repeat NG-infections 13%(38/296) were more often men, older (≥ 25 years), living in non- and modest urban areas, HIV positive, diagnosed at the STI clinic or hospital and reporting oropharyngeal symptoms ($P < 0.05$). Of the patients with a single NG infection, 27%(69/258) was not retested.

Conclusion Patients with repeat CT/NG infections differed from patients with a single infection. Also, characteristics of repeatedly infected patients differed between CT and NG. Indeed, patients with repeat CT or NG infections have impact on STI transmission. However, 27–50% of CT/NG positive patients were not retested. Probably those patients also have impact on circulating STIs, as reinfections are common. Focus should be on infected patients who do not retest or even not test at all as they enable ongoing transmission.

Disclosure No significant relationships.

P482 WOMEN VISITING GENERAL PRACTITIONERS HAVE HIGHER *CHLAMYDIA TRACHOMATIS* BACTERIAL LOADS THAN WOMEN VISITING THE STI CLINIC

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Background The bacterial load of *Chlamydia trachomatis* (CT) infected individuals may indicate the likelihood of further transmission and development of sequelae. For the first time, we compared the urogenital CT-load of men and women diagnosed by general practitioners (GPs), hospital physicians and the STI clinic.

Methods All urogenital nucleic acid amplification tests (NAAT) CT-positive samples ($n=3,588$) from the Maastricht Medical Microbiology Laboratory were included in the analyses (2012–2016). The cycle quantification (Cq)-value of the NAAT was used as an inversely proportional measure for CT-load (Cq-values and CT/ml values were highly correlated, Pearson’s $r:-0.8$). Multivariable linear regression analyses

were used to compare urogenital Cq-values between STI care providers (GPs, hospital physicians, STI clinic) and assess potential associated demographic- and coinfection determinants, stratified by sex. Adjusted mean differences of Cq-values are presented using betas (B) and 95% confidence intervals (95%CI).

Results Urogenital Cq-values were similar in men visiting the GPs (B:0.2;95%CI: -0.3 to 0.7) and hospital physicians (B:0.4;95%CI: -0.8 to 1.6) compared to the STI clinic. Women visiting the GP had significantly lower urogenital Cq-values (B:-1.0;95%CI: -1.6 to -0.3) compared to the STI clinic. Women visiting the hospital had higher urogenital Cq-values (B:1.1;95%CI: $0.2-2.0$) compared to the STI clinic. Among women visiting the STI clinic, urogenital Cq-values were lower in women with concurrent anorectal CT (B: -3.1 ;95%CI: -3.8 to -2.3) compared to anorectal CT-negative women.

Conclusion Male patients visiting different STI care providers had similar CT-loads. The higher CT load of women visiting the GP compared to STI clinic women could be indicative for higher transmission potential and sequelae. Women visiting hospital physicians had lower CT loads likely due to time of diagnosis. Notably, STI clinic women with concurrent anorectal CT had substantially higher urogenital CT-loads. This finding indicates a missed opportunity in GP and hospital physician patient management, as they rarely test anorectally, while anorectal CT is common among women.

Disclosure No significant relationships.

P483 A LOWER GENITAL *CHLAMYDIA TRACHOMATIS* BACTERIAL LOAD IS ASSOCIATED WITH COINFECTIONS WITH *NEISSERIA GONORRHOEAE* AND HIV

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Background The bacterial load of *Chlamydia trachomatis* (CT) infected individuals may indicate the likelihood of further transmission and development of sequelae. This is the first and largest study to date providing results of a complete overview of the bacterial CT-load of genital and extra-genital samples and its associations with *Neisseria gonorrhoeae* (NG) infection and HIV.

Methods All genital ($n=2,067$ vaginal swabs; $n=1,793$ urines), anorectal ($n=828$) and oropharyngeal ($n=61$) nucleic acid amplification test (NAAT) CT-positive samples from the Maastricht Medical Microbiology Laboratory were included in analyses (2012–2016). The NAAT cycle quantification (Cq)-value was used as an inversely proportional measure for CT-load (Cq-values and CT/ml values were highly correlated for vaginal swabs; Pearson’s $r:-0.9$, and moderately correlated for urine in men; Pearson’s $r:-0.6$; $p < 0.001$). Mean Cq-values were compared between anatomic locations and coinfections with HIV and NG. Mean Cq-values are presented and tested using ANOVA and independent T-tests stratified for sex. Only statistically significant associations ($p < 0.05$) are presented.

Results In men, Cq-values were higher in oropharyngeal swabs and anorectal swabs compared to urine (35.9 and 33.9 vs

32.7; $p < 0.01$). Men with urogenital NG had higher urine Cq values than men without urogenital NG (33.9 vs 32.6; $p < 0.01$). Cq values were higher in urines of HIV positive men compared to HIV negative men (33.9 vs 32.7; $p < 0.01$). In women, Cq-values were higher in oropharyngeal swabs and anorectal swabs compared to vaginal swabs (36.7 and 33.9 vs 30.8; $p < 0.001$). Cq-values were higher in vaginal swabs of HIV positive women compared to HIV negative women (35.1 vs 31.0; $p < 0.01$).

Conclusion Vaginal swabs and urine samples had much lower Cq values, i.e. higher CT loads, compared to oropharyngeal swabs which could have impact on transmission potential and sequelae. We hypothesize that high risk populations, such as HIV and NG positive patients, likely have repeat CT infections leading to partial immunity and therefore lower CT loads.

Disclosure No significant relationships.

P484 THE IMPACT OF *CHLAMYDIA TRACHOMATIS* NAAT DETECTION PROBABILITY ON TEST-OF-CURE RESULTS

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Background In spite of excellent analytical sensitivity, NAAT assays for *Chlamydia trachomatis* (CT) do not have a 100% detection probability (DP), especially at low concentrations of CT. This might especially impact test results after treatment, when CT concentrations are expected to be very low. The aim of this study was to use repeat testing to investigate the CT DP after treatment.

Methods As part of the FemCure study, women with vaginal or rectal CT infection were followed for 12 weeks after treatment. Single NAAT testing (Cobas 4800 CT/NG) of vaginal and rectal swabs at 1, 2, 4, 6, 8, 10 and 12 weeks after treatment was performed. For this project after initial NAAT, a selection of 63 swabs (29 vaginal and 34 rectal) was tested 4 additional times using again the COBAS 4800 CT/NG assay. DP was defined as the percentage of positive detections/5 repeat tests.

Results A selection of 47 follow-up swabs which tested CT negative with initial NAAT were investigated. Overall, 70% of swabs remained negative in all repeat samples (DP=0%). However, $\geq 10\%$ of swabs showed a DP $\geq 60\%$ in spite of the initial negative NAAT. The results were independent of sampling site (vaginal or rectal) and follow-up time-point during the study and included 15 swabs taken at 4–8 weeks (time-points sometimes used for test-of-cure). Additionally, 16 positive swabs prior to subsequent negative testing were also investigated. Results showed a DP of 100% in $\sim 30\%$ of samples confirming initial NAAT, but showed also a DP $\leq 40\%$ in $\sim 25\%$ of samples.

Conclusion It is important to be aware of limitations in NAAT inherent DP, especially at low CT concentrations found after treatment. Further research will combine current data with CT viability testing which will potentially shed more light on the clinical relevance of NAAT testing below 100% DP.

Disclosure No significant relationships.

P485 PREDICTORS OF LOSS-TO-FOLLOW-UP AMONG HIV INFECTED MSM ON TREATMENT AT A (TRUSTED) COMMUNITY HEALTH CENTRE IN LAGOS, NIGERIA

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Background Antiretroviral Therapy (ART) has been shown to reduce transmission of HIV and HIV-related morbidity and mortality. Despite improved and highly successful coverage with ART, HIV programmes around the world have recorded appreciable rise in the numbers of clients who drop out of care at different points. The objective of this study was to determine the predictors of Lost-To-Follow-Up (LTFU) among HIV infected Men Who Have Sex with Men (MSM) on treatment at a (Trusted) Community Health Centre in Lagos, Nigeria.

Methods A descriptive cross-sectional study was conducted among clients who have been LTFU amongst MSM in HIV care at a (Trusted) Community Health Centre. Active clients on ART were separated from those LTFU, those transferred out and those who died using the PEPFAR software, Retention and Audit Determination Tool (RADET). The clinic folders of the LTFU clients was the source of sociodemographic information (age at start of ART, employment status, occupation etc) as well as clinical information such as staging, last clinic visit date. A semi-structured questionnaire adapted from literature was modified and administered via telephone or in person at any venue of participant's choice to all the selected participants. Data analysis was done using SPSS. Chi-square statistics was used to determine association between variables and binary logistic regression was used to determine the predictors of LTFU. The level of significance was placed at 5%.

Results The mean age of the cohort was 25 ± 5 years. Of 150 patients identified, 108 (72%) patients were genuinely defined as LTFU as they were not enrolled for treatment anywhere else. Patients with low income, no children, suffered stigma and discrimination among family were at higher risk of LTFU. Travelled out of town, medication side effects were the most common reasons for LTFU.

Conclusion Many MSM on treatment were LTFU. Effective control measures targeting high-risk population should be implemented to improve retention and reduce LTFU.

Disclosure No significant relationships.

P486 POPULATION STRUCTURE OF LYMPHOGRANULOMA VENEREUM IN BELGIUM: SURVEILLANCE DATA FROM 2010 UNTIL 2017

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Background The number of *Chlamydia trachomatis* (CT) L genotypes/serovars or Lymphogranuloma venereum (LGV) is on the rise in Belgium, however the genetic diversity of the CT L genotypes in Belgium remained unknown. Our aim was

to document the population structure of the LGV cases over the years.

Methods The complete outer membrane protein A gene (*ompA*) of remnant positive LGV samples (previously confirmed by an in-house qPCR; target: *pmpH* gene) was amplified and sequenced using automated DNA sequencing. The obtained aligned sequences were compared with all L-variants described in literature and with all CT *ompA* sequences using the BLAST search.

Results All samples were from men who have sex with men; mostly HIV positive (82.2%) and from anorectal origin (94.1%). Sequencing of *ompA* (n=118) revealed that, in total, L2 and L2b genotypes were equally found (42.4%) followed by variants of L2 genotypes: L2bV2(6.8%) and L2bV1 (3.4%). Curiously, one strain defined as L2a had one additional mutation (A515C – Lys172Thr) which is also found in L2bV2 (hereafter named L2aV2). Three L1 strains were identified over the years (one in 2016 and two in 2017) but no link between the three could be found. Two strains could not be characterized due to mixed infection with non-L genotypes. Most of infections were symptomatic (80.7%) with proctitis (71.1%) as predominant symptom. Re-infections were common in our population (9.3%) and sequencing showed that individuals could become infected by different strains in a short period of time. No significant association was found between HIV status, presence of symptoms and the L-genotypes.

Conclusion The LGV strains in Belgium are more genetically diverse than initially thought as a total of two L-variants and five L2-genotypes have been identified. No firm conclusions can be made concerning an association between clinical symptoms and specific L-genotypes as asymptomatic infections were found with all L2 variants.

Disclosure No significant relationships.

P487

A NOVEL RAPID REAL-TIME PCR TEST FOR THE DETECTION OF *CHLAMYDIA TRACHOMATIS* IN PATIENT SAMPLES

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Background Point of care (POC) testing for infectious diseases can provide actionable diagnostic information as soon as individuals present to healthcare systems. POC testing for sexually transmitted infections could have a significant impact on sexual health by enabling screening programs, reducing loss to follow-up and enabling immediate and targeted treatment. We have developed a novel rapid real-time PCR assay which can detect *Chlamydia trachomatis* in clinical samples.

Methods DNA was extracted from 122 residual genital swab and urine samples previously tested in the Roche cobas CT/NG assay using the Qiagen DNA mini kit and the DNA extracts were tested for *C. trachomatis* using the rapid real-time PCR assay.

Results Of the 122 samples, forty were negative in both the new rapid real-time PCR assay and the Roche cobas assay; 78 samples were positive in both assays and four samples were

positive in the cobas assay but negative in the new novel assay. The specificity of the new novel assay was 100% and its sensitivity was 95.1% respectively. The four samples which were negative in the new assay had high Ct values in the cobas test indicating low levels of chlamydia organisms were present in the samples.

Conclusion The rapid real-time PCR system is rapid, sensitive and specific for the detection of *C. trachomatis* in clinical samples from patients with chlamydia infection. The rapid real-time PCR assay for *C. trachomatis* forms the basis for a low cost, disposable sample to answer diagnostic assay cassette, which will run on the QuantuMDx Q-POC™ platform.

Disclosure No significant relationships.

P488

PUTTING THE U.S. ARMY'S RISING RATES OF CHLAMYDIA AND GONORRHEA IN PERSPECTIVE: A COMPARISON WITH U.S. TRENDS

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Background U.S. chlamydia and gonorrhea rates have increased for four consecutive years, reaching record highs in 2017. Similar trends were reported for the U.S. Army, with Army rates being elevated relative to the general population, due in part to demographic differences. A comparison of standardized rates was needed to put these differences in perspective.

Methods Incidence rates of chlamydia and gonorrhea reported during 2013–2017 among Army active members and U.S. citizens age 15–64 were standardized using the 2015 Army age and sex distribution. The CDC's National Electronic Disease Surveillance System and the Army's Disease Reporting System Internet were used for the analysis.

Results Crude and adjusted chlamydia rates (per 100,000) were over 2-fold higher among Army members (adjusted 2017 rates: 2,160 and 1,005 in the Army and U.S., respectively). Army chlamydia rates were elevated for all age and sex strata. The Army's crude gonorrhea rates (per 100,000) were elevated (annual rate range: 275–373 versus 156 to 266 in the U.S.); however, adjusted U.S. rates surpassed Army rates (2017 rates: 438 in the U.S. versus 360 in the Army). Elevations for chlamydia and gonorrhea were observed in Army women under 25 relative to U.S. women 15–24 (2017 crude rates: 11,132 versus 3,635, respectively, for chlamydia and 1,117 vs 623, respectively, for gonorrhea). Crude gonorrhea rates were higher in U.S. men 25–44 relative to Army peers (2017 rates: 542 vs 269 for men 25–34, and 238 vs 106 for men 35–44, respectively).

Conclusion The Army's incidence of chlamydia was elevated relative to the general population even when demographic differences were taken into account. This may reflect higher individual or sexual network risks or better access to care. The Army's lower adjusted gonorrhea rates may reflect differences in high-risk sub groups such as MSM, differing sexual network risks, or unmeasured confounders.

Disclosure No significant relationships.

P489 CHLAMYDIA TRACHOMATIS -SPECIFIC GENE TRANSCRIPTS AS A MORE ACCURATE MARKER FOR INFECTION STATUS

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Background Current routine diagnostic methods for the detection of *Chlamydia trachomatis* (CT) do not provide information on CT viability. Previously, detection of messenger-RNA (mRNA) has been utilized as a marker for bacterial viability, as mRNA molecules are generally short-lived (half-life of minutes). However, only one study evaluated CT mRNA half-life times [$t_{1/2}$] of two clinical isolates (serovar L2b and E) which ranged from 1 to ≥ 5000 minutes. Here we assess and confirm mRNA half-life times of serovar D to further facilitate evaluation of CT viability.

Methods CT serovar D was propagated in HeLa cells until 30 h post infection and treated with rifampicin to arrest gene transcription. Total RNA was isolated at 0 min (before treatment), and 10 min, 30 min and 60 min after treatment. RNA was converted to cDNA using random hexamers. RT-qPCR was used to amplify fragments of the unprocessed 16S (intermediate molecules in 16S rRNA synthesis), 16S (early), *rpoD* (early), *omcB* (mid), and *hctA* (late) gene transcripts. Half-life time was based on the fit of an exponential decay between values obtained at before and after transcriptional arrest.

Results In this study showed that the obtained $t_{1/2}$ values for CT serovar D mRNA (median $t_{1/2}$ 18 min) were similar as previously reported for the CT serovars L2b and E (median $t_{1/2}$ 15 and 17 min, respectively). The observed half-lives of *rpoD* (9 min), *hctA* (12 min), *omcB* (18 min), and unprocessed 16S (18 min) transcripts were relatively short, while 16S gene transcripts were more stable over time ($t_{1/2}$ 54 min).

Conclusion The detection of *rpoD*, *hctA*, *omcB*, and unprocessed 16S gene transcripts showed the most promising results as a potential marker for an active CT infection. Currently we are evaluating the time to clearance of mRNA molecules in patients after being treated.

Disclosure No significant relationships.

P490 LGV IN PATIENTS ATTENDING AN STI OUTPATIENT CLINIC IN BERLIN: AN URBAN EMERGENCE WITH HIGH PROPORTION OF HIV-COINFECTIONS

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Background Lymphogranuloma venereum (LGV) is the infection of the lymphatic system caused by *Chlamydia trachomatis* (CT) serovars L1-L3. The first emergence of LGV in networks of men, who have sex with men (MSM) began in Europe (2003), followed by a series of outbreaks worldwide. In the

absence of national passive surveillance systems for LGV, we evaluated prevalence and characteristics of LGV in a high-risk population (MSM) attending a STI Outpatient Clinic in Berlin.

Methods We performed a retrospective analysis of all tested CT samples (pharyngeal, urethral, rectal) from 2012–2017. All positive rectal samples underwent additional testing for L1-L3 genotype. For this purpose a PCR was performed of a L-specific region (polymorphic H-gene).

Results A total of 12,390 samples (5,316 patients) were collected and resulted in 486 L+ swabs (191 patients). The number of tested swabs increased from 1,370 (2012) to 3,634 (2017). The proportion of CT+ swabs fluctuated between 10% and 15%. Among the CT+ patients, the proportion of L+ patients decreased continuously from 37% (2012) to 21% (2017). The majority of patients tested were male, between 26–35 years of age. We observed the highest rate of L-infections in older patients (maximum in the age-group 46–55 years, CT+/L+ 46%). The majority of patients infected with L+ came from central metropolitan districts. The HIV-coinfection rate among CT+ patients decreased continuously from 39% (2012) to 12% (2017). The proportion of HIV+ patients among L+ patients remained high and decreased from 80% (2012) to 50% (2017).

Conclusion Our data display the largest epidemiological development of LGV in Germany and demonstrate a high prevalence of genotype L1-L3, which require a prolonged antibiotic treatment compared to other CT serotypes. As the routine screening of anorectal swabs in high-risk population is still not recommended, our results strongly suggest a need for genotyping positive CT rectal specimens.

Disclosure No significant relationships.

P491 DETERMINING RECOMMENDED CHLAMYDIA AND GONORRHEA TREATMENT USING LINKED MEDICAL CLAIMS, PRESCRIPTION AND LABORATORY DATA

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Background The Centers for Disease Control and Prevention (CDC) recommends specific regimens for treatment of chlamydia and gonorrhea. Dual therapy is recommended for gonococcal infection to mitigate antimicrobial resistant gonorrhea (250 mg ceftriaxone plus 1g azithromycin). Previous studies examining adherence to these recommendations have had limited information on medical claims, prescription claims, and laboratory data in private practices in the United States.

Methods We used the OptumLabs® Data Warehouse (OLDW) a comprehensive, longitudinal, real-world data asset with de-identified lives with linked private insurance claims and clinical information to identify persons aged 15–60 years who had valid nucleic acid amplified testing results demonstrating gonorrhea or chlamydia in 2016–2017. We defined valid lab results as positive or negative, but did not include lab records with indeterminate or missing results in our analysis. We then assessed the time of their first positive test and the type of

treatment within 30 days to determine if there was evidence in the claims record that the CDC recommended treatment was provided.

Results 4,972 patients were identified as having gonorrhea only. Of this group, 77% were male, and 70% were 15–35 years of age. Additionally among this group, 35% had evidence of receiving the CDC recommended combination therapy for gonorrhea, 26% had evidence of receiving 250 mg ceftriaxone without evidence of receiving 1g azithromycin, and 16% had evidence of receiving 1g azithromycin without ceftriaxone. A separate group of 24,044 patients were identified as having chlamydia only. Among this group, 40% were male, and 88% were 15–35 years of age. Additionally among this group, 65% had evidence of receiving a CDC-recommended chlamydia treatment, and 11% also had evidence of receiving 250 mg ceftriaxone.

Conclusion There is variation in claims data regarding the treatment regimens administered for gonorrhea and chlamydia treatment. Further studies are needed to evaluate treatment claims data against medical record reviews.

Disclosure No significant relationships.

P492 PREDICTING CHLAMYDIA REINFECTION IN AFRICAN AMERICAN WOMEN USING IMMUNOGENETIC DETERMINANTS IN A BAYESIAN MODEL

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Background African Americans have the highest rates of *Chlamydia trachomatis* (CT) infection in the U.S., nearly six-fold higher than Caucasians. Even after controlling for sociodemographic factors, African American women have higher CT infection rates, suggesting immunogenetic factors could influence infection risk. The primary objective of this study is to develop a Bayesian model to predict CT reinfection in African American women.

Methods We are using data from a study cohort of CT-infected women who were enrolled when they returned to a STD clinic in Birmingham, AL, USA, for treatment of a positive screening urogenital CT nucleic acid amplification test. They had repeat urogenital CT NAAT performed at enrollment and 3- and 6-month follow-up visits. We modeled the probability of CT reinfection within 6 months after treatment using conditional logistic regression in a Bayesian framework and weakly informative priors. Primary predictors of interest were immunogenetic risk factors specified by the presence of at least one HLA-DQB1*06 allele and absence of a CT-specific CD4⁺ IFN- γ response. Additional predictors evaluated include the modifying effects of unprotected sex and concomitant bacterial vaginosis (BV).

Results To date, we have evaluated 75 participants for whom complete data were available. Modeling both HLA-DQB1*06 and a CT-specific CD4⁺ IFN- γ response performed best for expected predictive accuracy of CT reinfection within 6 months after treatment. Under this model, the probability of reinfection for those with a CT-specific CD4⁺ IFN- γ response

and no HLA-DQB1*06 alleles was 23.1% (95% CI: 7.6%–47.5%), whereas probability of reinfection for those without a CT-specific CD4⁺ IFN- γ response and at least one HLA-DQB1*06 allele was 75.0% (95% CI: 52.5%–89.1%).

Conclusion Our model evaluating immunogenetic factors predicting CT reinfection demonstrated that presence of an HLA-DQB1*06 allele and absence of a CT-specific CD4⁺ IFN- γ response may be a significant predictor in African American women.

Disclosure No significant relationships.

P493 DETERMINATION OF CHLAMYDIA TRACHOMATIS ORGANISM LOAD IN MEN WITH NON-GONOCOCCAL URETHRITIS (NGU)

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Background The ability to quantify the organism load of *Chlamydia trachomatis* (CT) using a commercial assay could expand insights from epidemiological studies. This approach can be applied to routine diagnostic testing, and multiple specimen types. Approximate CT organism load was determined in urine from men with NGU, with and without co-infections, by comparing the results from each positive sample to a set of CT standards using the Abbott Realtime m2000 (m2000) platform.

Methods Urine specimens, collected from men participating in the Idiopathic Urethritis Men's Project (IUMP), were tested on the m2000 for CT. Additional testing included *Neisseria gonorrhoeae*, *Mycoplasma genitalium*, *Trichomonas vaginalis*, and *Ureaplasma urealyticum*. Standards were prepared by diluting CT elementary bodies (EB) into the collection device at six concentrations. CT organism load was determined by comparing the instrument generated delta cycle (DC) value from each CT positive urine to the standard curve. Calculated means were compared by t-test ($p < 0.05$).

Results Two hundred and six men were tested for CT and 83 (40.3%) were positive. The DC values for 81/83 (97.3%) CT positive samples fell within the range of the standard curve. The mean DC value was 12.15 (range 0.19–16.96) which equated to a mean CT organism load of 1.4×10^6 EB/ml urine (range 2.22×10^2 – 9.97×10^6). There was no difference between the mean organism load in specimens from men who did and did not have co-infections with other STIs, 2.04×10^6 versus 1.38×10^6 EB/ml, ($p \geq 0.05$).

Conclusion CT load determination can be performed on urine specimens using the m2000. This could facilitate straightforward load determination in settings where routine testing is performed. In men with NGU, the CT organism load is high and no difference in CT load was observed in men with CT mono-infections and men co-infected with CT and other STIs.

Disclosure No significant relationships.

P494 **DIAGNOSIS AND MANAGEMENT OF LYMPHOGRANULOMA VENERERUM (LGV) IN A MUNICIPAL STD CLINIC, SAN FRANCISCO, 2016–18**

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10.1136/sextrans-2019-sti.576

Background Little is known about the prevalence of lymphogranuloma venereum (LGV) among men who have sex with men (MSM) with symptomatic rectal chlamydia (CT) in US settings.

Methods Clinicians at the San Francisco municipal STD clinic order an LGV PCR when evaluating rectal symptoms on a case by case basis. The LGV PCR is only run if the CT nucleic amplification test (NAAT) is positive. We compared characteristics of MSM found to have LGV with those who were infected with non-LGV CT.

Results Rectal LGV testing was ordered at 666 patient-visits during 2016–2018, with 197 visits (29.6%) having a positive CT NAAT (169 individuals), and 94 visits a positive LGV PCR (47.7% of CT NAAT+ visits, 14.1% of all visits). Compared to visits at which the patient was CT+/LGV-, MSM with LGV were significantly ($p < 0.05$) more likely to report rectal discharge (67% vs 40%), bleeding (39% vs 26%), have ≥ 10 white blood cells (WBCs) on rectal gram stain (54% vs 29%), or be diagnosed with proctitis (78% vs 63%). At over half (54%) of CT+/LGV- visits there were < 5 WBCs on rectal gram stain, compared with 29% of CT+/LGV+ visits. There was no significant difference in reported number of sex partners, history of gonorrhoea or chlamydia in the past year, or PrEP use between CT+/LGV+ and CT+/LGV- visits. MSM at CT+/LGV+ visits were more likely to be ≥ 40 years (42% vs 23%), Hispanic (40% vs 27%), and living with HIV (57% vs 30%).

Conclusion Almost 50% of MSM with rectal CT were positive for LGV in this clinic-based sample. In the absence of an LGV test, clinicians should have a low threshold for empiric LGV treatment in MSM with rectal symptoms and a positive rectal CT NAAT.

Disclosure No significant relationships.

P495 **HIV, STIS AND SEXUAL HEALTH SCREENING IN MEN WHO HAVE SEX WITH MEN IN LEBANON: A RETROSPECTIVE STUDY**

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Background The aim of this study was two-fold: first, to determine the prevalence of HIV and other sexually transmitted infections (STIs) in a large sample of men who have sex with men (MSM) attending a sexual health clinic in Beirut, Lebanon; and second, to identify the predictors of HIV/STI screening, in order to understand motivations for screening in a context where rates of sexual health screening are low.

Methods Data were obtained from the medical records of 1364 MSM who visited a sexual health clinic in Beirut between 2014 and 2018. Socio-demographic and diagnostic

information, and quantitative data concerning sexual risk behavior and HIV/STI screening behavior were collected.

Results The prevalence of HIV (5.95%) and other STIs (57.32%) in the participant sample was similar to that of other European countries. 58.22% of the sample reported used alcohol or drugs during/before sex; 69.59% reported having used cellphone applications for sex; 33.09% considered their HIV risk to be high while 21.34% did not know their level of risk. On the whole, there was a high prevalence of these risk behaviors in MSM who had been screened for HIV/STIs before than those never tested. A binary logistic regression model showed that condom use, and infection with HPV, Chlamydia, and Gonorrhoea were significant predictors of having had an HIV/STI screen.

Conclusion These findings demonstrate an urgent need to encourage sexual health promotion and HIV prevention awareness in Lebanese MSM and, most importantly, to promote STI/HIV screening in this high-risk population.

Disclosure No significant relationships.

P496 **SYPHILIS RISK PERCEPTIONS AMONG REPEATEDLY INFECTED MEN WHO HAVE SEX WITH MEN IN BEIRUT-LEBANON**

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10.1136/sextrans-2019-sti.578

Background The aim of this study is to gain a better understanding of the knowledge, attitudes, motivations and behaviors with regard to syphilis and syphilis risk among men who have sex with men (MSM) in Beirut who are repeatedly infected.

Methods Interviews were conducted with 17 MSM diagnosed with syphilis at least twice within the previous 5 years in a sexually transmitted infections (STI) clinic and checkpoint in Beirut. The focus of the interviews was on participants' general attitudes, personal concern, risk perceptions and self-reported sexual behaviors in relation to syphilis. Data were analyzed using Qualitative Thematic Analysis.

Results The number of early syphilis infections ranged from 2 to 3 and participants had a high level of knowledge about syphilis transmission, symptoms, health consequences if untreated. Most of the participants attributed their syphilis infections to their high number of sex partners and to a lack of consistent condom use with sexual partners. The majority attributed their infection to oral sex. The majority did not express concerns about getting syphilis again, and none appeared to be aware of the connection between syphilis and HIV risk. Conversely, almost all participants expressed concerns about infecting others. There was evidence of significant stigma in relation to syphilis in the Lebanese MSM community.

Conclusion The significant stigma associated with syphilis translates into decreased discussion and, thus, awareness of the infection. Syphilis risk was associated with multiple sexual partners and to periods of especially high-risk behavior. Knowledge about syphilis risk, and especially about the relationship between syphilis risk and HIV risk, was lacking. There appears to be little willingness to modify high-risk behaviors, suggesting that an awareness-raising campaign to change attitudes and behaviors in Lebanese MSM could be fruitful.

Disclosure No significant relationships.

P497 A META-SYNTHESIS OF MEN WHO HAVE SEX WITH MEN (MSM)'S EXPERIENCES AND PERCEPTIONS OF HUMAN PAPILLOMAVIRUS (HPV) VACCINATION

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10.1136/sextrans-2019-sti.579

Background Men who have Sex with Men (MSM) are disproportionately burdened by diseases attributed to the Human Papillomavirus (HPV) when compared to other male populations. High uptake of this vaccine is crucial for anal cancer and genital wart prevention. Although female-oriented vaccination programmes indirectly extend HPV vaccination to heterosexual males through herd immunity, these confer little to no benefit for MSM. Previous (predominantly quantitative) studies exploring HPV-MSM perceptions have reported MSM's a lack of awareness/understanding of HPV and its relation their health, not being offered the vaccine by a healthcare professional, and varied perceptions of vaccination may affect uptake. The complex nature of HPV vaccination decision-making is not reflected in these studies. We aimed to conduct a qualitative systematic review of studies exploring MSM experience, perceptions, and attitudes toward HPV infection and vaccination.

Methods Last updated in January 2019, 6 databases were searched for studies using qualitative methods and reporting experiences/perceptions of MSM regarding HPV infection and vaccination. MSM quotes and author's interpretations of data were extracted from primary studies. Thematic synthesis was used to develop analytical themes.

Results 9 papers (reporting 8 studies) were included. The thematic synthesis identified two analytical themes: (1) *Vaccination content and delivery* and (2) *Addressing patient-level stigma*. Theme 1 explores the varied experiences of how (and to what extent) healthcare provider's recommendation of the vaccine plays a role in the decision-making process. Theme 2 explores the influence and subsequent implications of MSM's perceptions and experiences of stigma and how these relate to vaccine initiation in broader health systems.

Conclusion MSM vaccination across many developed countries continues to be a new phenomenon. By understanding more about the unique mechanisms which underpin MSM's vaccination behaviour, in collaboration with an understanding of the particular health systems which vaccination is implemented in, we can better design and co-produce interventions to inform and enhance uptake.

Disclosure No significant relationships.

P499 HUMAN PAPILLOMAVIRUS DETECTION IN RESIDUAL SAMPLES FROM STI TESTS IN MEN WHO HAVE SEX WITH MEN

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Background Anorectal swab specimens, either alone, or pooled with first catch urine (FCU) and pharyngeal swab specimens, are used to test for STIs in MSM. The residual sample, after

routine testing, may be used to monitor human papillomavirus (HPV) prevalence in this population, but the sensitivity of HPV detection in such specimens is unknown.

Methods MSM attending a UK sexual health clinic were consented to collect additional specimens to compare the detection of HPV in a dedicated swab, with detection in a residual anorectal and/or pooled specimen. All subjects provided 3 specimens: (i) anorectal swab (for chlamydia(CT)/gonorrhoea (GC) testing); (ii) pooled anorectal/pharyngeal/FCU specimen (for GC/CT); (iii) dedicated anorectal swab for HPV. Specimen (iii) and residual material from specimens (i) and (ii) were tested for type-specific HPV DNA (19 confirmed/possible high-risk (HR) genotypes and genotypes 6/11). HPV detection was by in-house multiplex PCR and Luminex-based genotyping assay.

Results 129 MSM were recruited; mean age 38.1 years; 24% were HIV-positive. 92/129 (71%) had type-specific HPV DNA detected in ≥ 1 specimen; 80/129 (62%) had HR-HPV. 70/123 participants (56.9%) with sufficient residual pooled specimen, and a dedicated HPV specimen had detectable HPV on both and 40 (32.5%) were HPV-negative on both; overall concordance 89% (95%CI 83,94). Prevalence in pooled samples was 4.1% (-1.9,10.0) higher than dedicated samples. 74/125 participants (59.2%) with sufficient residual anorectal specimen, and dedicated anorectal HPV specimen had detectable HPV on both and 36 (28.8%) were HPV-negative on both; overall concordance 88% (81,93). Prevalence in residual samples was 5.6% (-0.6,11.8) higher than dedicated samples.

Conclusion Residual anorectal and pooled STI test specimens offer comparable sensitivity to anal HPV swab samples, which are typically used in prevalence studies. This supports use of residual samples to monitor HPV prevalence, as currently proposed in the UK to evaluate the impact of targeted MSM HPV vaccination.

Disclosure No significant relationships.

P500 BARRIERS AND OPPORTUNITIES FOR PARTNER SERVICES RELATED TO SYPHILIS AMONG MEN WHO HAVE SEX WITH MEN IN ANCHORAGE, ALASKA

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Background Early syphilis is highly infectious and can lead to life-threatening complications if left untreated. During 2017–2018, early syphilis cases in Alaska tripled from 24 to 76, with most 2018 cases occurring among Anchorage men who have sex with men (MSM). Partner services can mitigate transmission. We conducted an investigation to identify syphilis partner services barriers and opportunities among MSM in Anchorage.

Methods During October 19–November 13, 2018, we administered an anonymous survey to men and transgender women aged ≥ 18 years residing in Alaska who reported sex with a man during the previous 6 months. The self-administered survey, available online and as paper, asked about knowledge, risk behaviors, medical care-seeking practices, and attitudes

regarding syphilis. A convenience sample was recruited from digital platforms (e.g., Facebook[®]) and bars, clinics, and community-based organization events.

Results Of 119 survey respondents, 90 (76%) lived in the Anchorage/Mat-Su region. Of these, 10.0% (95% confidence interval [CI]: 5.3–17.9) reported a syphilis diagnosis during the previous 12 months and having a median of 3 (interquartile range: 1–6) sex partners during the previous 6 months. High-risk behaviors commonly associated with syphilis were reported, including condomless anal sex (36.7%; 95% CI: 27.4–47.0) during the previous month, ≥ 1 episode of group sex (26.7%; 95% CI: 18.6–36.6) during the previous 6 months, and meeting sex partners online or on a geospatial mobile app (66.7%; 95% CI: 56.4–75.5) during the previous 6 months. Additionally, 44.4% (95% CI: 34.6–54.7) reported a sex partner living outside Anchorage and 31.1% (95% CI: 22.5–41.3) outside Alaska.

Conclusion Large numbers of sex partners outside Alaska presents barriers to partner services among Anchorage MSM with syphilis. Opportunities include using innovative strategies (e.g., technology-based partner services and out-of-jurisdiction partnerships) to reach populations at risk for syphilis.

Disclosure No significant relationships.

P501

LOW PREVALENCE OF HIGH-RISK ANAL HPV IN YOUNG GAY AND BISEXUAL MALES AFTER THE UNIVERSAL HPV VACCINATION PROGRAM IN AUSTRALIA

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Background Australia introduced a school-based quadrivalent human papillomavirus (HPV) vaccination program for females in 2007. This was extended to include boys aged 12–13 from 2013, with a two-year catch-up for boys aged ≤ 15 . This study examined HPV prevalence among young gay and bisexual males (GBM) who were age-eligible for vaccination in the school-based program.

Methods Males aged 16–20 years were recruited from sexual health clinics and the community in Melbourne in 2017–2018, if they reported any form of male sexual contact, and were residents of Australia from 2013. A clinician-collected anal swab, self-collected penile swab and oral rinse were collected and analysed for detection and 37 HPV genotypes (Roche Linear Array). Preliminary results from 114 GBM were analysed and full results will be available for presentation.

Results The mean age of GBM was 18.6 years (SD 1.0). The majority (80%) were recruited from clinics and 20% from the community. The median number of lifetime male partners was 10 [IQR 5–25] for receptive oral sex, four [IQR 1–11] for receptive anal sex and one for insertive anal sex [IQR 0–6]. Overall, 64% received at least one dose of vaccine documented via the National HPV Vaccination Program Register. Prevalence of quadrivalent vaccine-preventable HPV genotypes was 4.9% (95% CI: 1.6–11%) for anal, 3.4% (95% CI: 0.7–9.5%) for penile and 0% (95% CI: 0–3.2%) for oral sites. Only two men, both unvaccinated, had high-risk vaccine-

preventable HPV genotypes: one with anal HPV16 (1%); the other penile HPV16 (1%).

Conclusion Statistical analysis comparing before and after the male vaccination program will be performed until recruitment is completed. The preliminary analysis shows the prevalence of anal HPV 16/18 among young GBM following the school-based male HPV vaccination was low. The addition of male HPV vaccination to female programs may reduce the incidence of anal cancer among GBM.

Disclosure No significant relationships.

P503

TRENDS IN AWARENESS AND USE OF PREP AMONG HIV-NEGATIVE MEN WHO HAVE SEX WITH MEN IN VANCOUVER, TORONTO, AND MONTREAL

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10.1136/sextrans-2019-sti.583

Background Awareness, availability, and public funding of pre-exposure prophylaxis (PrEP) has increased substantially since it was approved by Health Canada in 2016 but policies and guidelines vary by province. Given the dynamic nature of PrEP policy and promotion, we sought to determine awareness and use of PrEP among gay, bisexual, and other men who have sex with men (gbMSM) in Vancouver, Toronto, and Montreal.

Methods Beginning in 02/2017, sexually-active gbMSM ≥ 16 years and living in Vancouver, Toronto, or Montreal were recruited into a cohort study using respondent-driven sampling (RDS). Data are included up to 08/2018. At study visits every 6 months (Vancouver) or 12 months (Toronto, Montreal), participants completed a computer-assisted self-interview which included questions on PrEP awareness and use in the past 6 months (P6M). We used RDS-adjusted, general estimating equations accounting for two levels of clustering (RDS recruitment chain; participant) to evaluate temporal trends (monthly prevalence) of awareness and P6M usage of PrEP among HIV-negative participants.

Results 1619 HIV-negative gbMSM completed 2074 study visits (1205 Montreal, 285 Toronto, 584 Vancouver). Over the course of the study, PrEP awareness significantly increased among gbMSM in Montreal from 62.6% during the first 6-month period to 84.8% during the last 6-month period (OR:1.07, 95%CI:1.02–1.12, per month); awareness remained consistent in Toronto (89.8%–96.0%, ns) and Vancouver (84.5%–95.0%, ns). Use of PrEP increased significantly in all three sites: Montreal, 10.5% during the first 6-month period to 30.9% during the last 6-month period (OR:1.06, 95% CI:1.02–1.11); Toronto, 12.5% to 23.3% (OR:1.15, 95% CI:1.02–1.30); Vancouver, 11.4% to 35.2% (OR:1.16, 95% CI:1.06–1.27).

Conclusion Awareness of PrEP appears to be $\geq 85\%$ among HIV-negative gbMSM across all three cities. Even though

provincial policy and programs differ greatly in availability and cost of PrEP, use of PrEP increased in all sites during the course of the study.

Disclosure No significant relationships.

P504 REDUCTION OF THE SPREAD OF HIV AMONG MEN WHO HAVE SEX WITH MEN IN BAMENDA-CAMEROON

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10.1136/sextrans-2019-sti.584

Background In 2010, I conducted a study that aimed to produce information on the magnitude and characteristics of the HIV epidemic in the MSM population of 18 years or more, and sexual behavior in two prison and region of the country between these region is Bamenda, located in the north west of the country with an estimated population of 2.5 million. Alternative Cameroon and Vicony's Global Success World (VGSW) in Bamenda was responsible for the execution of the study and was responsible for the protocol provided.

Methods

Data collection was carried out by the method of sampling conducted by respondents (Respondent Driven Sampling - RDS) and the application of a serological survey anonymous - linked. The national sample consisted of 200 MSM in the region of Bamenda by 333.

Results HIV prevalence 8.1% in North West region (Ministry of public health 2010).

The 0% are considered bisexual, homosexual 75.2%, 1.8% heterosexual.

10.8% of MSM in the region do not know where to go if they want to get tested for HIV.

21.9% underwent a test for HIV in the last 12 months, and 50.3% received advice.

Only 10.6% knew that condoms can be achieved in health institutions.

28.1% had to fake his sexual orientation.

Conclusion The results show a flaw in the processes of prevention and education for HIV and STIs among MSM and experience has served the Civil Society Organizations and the Government of the region to find a way to solve the problems that are evident in the response.

Clearly the stigma and discrimination in the area of HIV associated with MSM.

Bamenda could not be completed sample was estimated that 350 people (only reached 333) due to homophobia's attack project site and where material were destroyed, and tracking documents.

This study encourages us to move forward despite the adversities and difficulties.

Disclosure No significant relationships.

P505 THE IMPACT OF GONORRHOEA VACCINATION IN MEN WHO HAVE SEX WITH MEN ON PREVALENCE AND RESISTANCE: MATHEMATICAL MODELLING STUDY

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Background Men who have sex with men (MSM) are disproportionately affected by *Neisseria gonorrhoeae* (gonorrhoea) and antimicrobial resistance (AMR) is common. Gonorrhoea vaccine development is challenging, but a *N. meningitidis* (group B) vaccine might have reduced gonorrhoea incidence by ≈30%. This study aims to investigate the impact of vaccination on gonorrhoea transmission and on AMR in MSM.

Methods We developed a deterministic compartmental model of gonorrhoea transmission among Dutch MSM. We included three sexual activity classes that differed in numbers of partners/year and unprotected sex acts/partnership. AMR to first-line treatment was assumed to be complete, occurring at a low probability after treatment. We modelled a partially protective prophylactic vaccine (reducing susceptibility) providing 2 years' protection. We estimated the prevalence of sensitive and resistant gonorrhoea strains after 10 and 50 years for vaccine efficacies (VE) of 30% (lower) and 60% (higher) and different uptake levels in high sexual activity MSM.

Results Gonorrhoea prevalence in the model was 0.45% overall, 8.3% in high sexual activity MSM, and 0.002% resistant strains (baseline). With lower VE, after 10 years, the prevalence of the sensitive strain was reduced by 75% (for 50% uptake). AMR prevalence increased (irrespective of uptake) although less than without vaccination. With lower VE, after 50 years, AMR prevalence decreased only with uptake ≥60%, levels at which the sensitive strain was already eliminated. With higher VE, AMR prevalence decreased after 10 years for uptake ≥30% and after 50 years for uptake of ≥20%.

Conclusion In this modelling study, a partially protective prophylactic vaccine for gonorrhoea decreased overall prevalence, even with lower VE. This study also shows how vaccination can reduce the spread of AMR. For gonorrhoea, vaccination can decrease the speed at which AMR is transmitted, and even reduce AMR prevalence, but only with higher levels of vaccine efficacy or uptake in high sexual activity MSM.

Disclosure No significant relationships.

P506 OPTIMIZING EPT FOR MSM AND TRANSGENDER WOMEN

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Background Despite increasing rates of HIV and other STIs among men who have sex with men (MSM) and transgender women (TW), expedited partner therapy (EPT) is not routinely offered to these priority populations. The goal of this study was to understand healthcare providers' (HCP) views and opinions regarding the use of EPT with MSM and TW.

Methods Between May and October 2018, 18 HCP in Michigan completed semi-structured interviews. The interviews covered questions about knowledge, attitudes, experiences with, and barriers and strategies for delivering EPT to MSM and TW.

Results HCP (Mean_{age} =47.4) included MDs (33%), NPs (61%), RNs (5%), and a Pharmacist (1%). The majority of HCP (94.5%) were willing to prescribe EPT for chlamydia and gonorrhoea to MSM and TW. Several HCP in community health clinics were currently prescribing EPT to MSM and TW, whereas others followed CDC guidelines. Some HCP expressed concerns about the provision of EPT for individuals

with multiple sexual partners, persistent/recurrent infection, and potential antimicrobial resistance; however, none of the HCP believed there was a difference in efficacy based on a client's sexual preferences or gender identity. HCP who provided EPT described strategies to overcome these barriers, such as capitalizing on pharmacies and phone calls or video-conference calls with patients' partners to discuss potential allergies, treatment regimens, and ensuring linkage to HIV testing. HCP described how telemedicine and the use of peer health navigators could help overcome systemic barriers to regular STI testing (e.g., transportation, delayed appointment times) and potentially overcome medical mistrust around HIV prevention and care.

Conclusion The provision of EPT represents an overlooked yet important strategy to curb increasing STI rates among MSM and TW. Changing EPT legislation and CDC guidelines to include MSM and TW represents a promising avenue to link these communities to HIV and other STI prevention services.

Disclosure No significant relationships.

P507 DISCLOSURE OF SAME-SEX BEHAVIOR AND EXTRAGENITAL STI TESTING AMONG MEN WHO HAVE SEX WITH MEN — AMERICAN MEN'S INTERNET SURVEY

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Background Current guidelines recommend that sexually active men who have sex with men (MSM) be screened at least annually for bacterial sexually transmitted infections (STI) at sites of sexual contact regardless of condom use. Extragenital (rectal and pharyngeal) STIs, common among MSM, are mostly asymptomatic and often missed with urethral-only screening. Disclosure of same-sex behaviors by MSM to healthcare providers (HCP) or HCP elicitation of same-sex behaviors through sexual behavioral assessments may facilitate appropriate extragenital STI testing. We describe self-reported prevalence of extragenital STI testing in the past 12 months (p12m) among MSM in the United States stratified by disclosure of same-sex behavior.

Methods Data were obtained from the 2017 American Men's Internet Survey (AMIS), an annual cross-sectional behavioral internet survey of MSM in the United States. We examined the prevalence of MSM who reported any STI test and an extragenital STI test in the p12m stratified by disclosure of same-sex behavior among HIV-positive and HIV-negative MSM.

Results Of 10, 049 sexually-active MSM, 42% reported any STI test and 16% reported an extragenital STI test in the p12m. Among HIV-negative MSM, 21% reported an extragenital STI test in p12m; among HIV-positive MSM, 32% reported an extragenital STI test in the p12m. Ever disclosing same-sex behavior was associated with a higher prevalence of

extragenital STI testing (PR = 1.68; 95% CI 1.53–1.86) among HIV-negative MSM, but not among HIV-positive MSM (PR = 1.01; 95% CI 0.81–1.25).

Conclusion The prevalence of any STI testing and extragenital STI testing in the p12m among MSM was low. To implement STI recommendations, HCPs must be aware of their patients' sexual behaviors. Disclosure of same-sex behaviors by MSM to their HCP or elicitation of these behaviors by HCPs through sexual behavioral assessments could increase STI testing, particularly at relevant anatomic sites of exposure.

Disclosure No significant relationships.

P508 HEPATITIS C REINFECTION RATES AFTER CURE OR CLEARANCE AMONG HIV-INFECTED AND UNINFECTED MEN WHO HAVE SEX WITH MEN

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10.1136/sextrans-2019-sti.588

Background Increasing rates hepatitis C virus (HCV) infection associated with ongoing risk activity have been reported after successful cure or viral clearance. We assessed factors associated with reinfection after treatment-induced or spontaneous clearance (SC) in both HIV-infected and uninfected men who have sex with men (MSM) in British Columbia.

Methods We followed HIV-infected and uninfected MSM who achieved sustained virologic response (SVR) to HCV treatment or had SC with ≥ 1 subsequent HCV RNA measurement in the British Columbia Hepatitis Testers Cohort. Crude reinfection rates per 100 person-years (PYs) were calculated. Cox regression was used to model adjusted hazard ratios (HRs) and 95% confidence intervals (CI) for reinfection.

Results We identified 1,349 HCV-infected MSM with SVR (n=856) or SC (n=493), of which 349 (26%) were HIV-positive. HIV-infected MSM were more likely to have histories of injection drug use (41% vs 21%), alcohol use (22% vs 14%) and mental health disorders (47% vs 28%), compared to HIV uninfected. A total of 98 reinfections were identified, yielding an overall reinfection rate of 1.9 per 100 PY (1.0 for SVR patients and 2.7 for SC). HIV-infected MSM had higher rates of reinfection (3.1 vs 1.6 per 100 PY) than HIV uninfected individuals. In multivariable analysis, age < 35 years (HR 3.1, 95% CI: 1.2, 8.1), cure through SVR (HR 0.2, 95% CI: 0.1, 0.4), HIV infection (HR 2.0, 95% CI: 1.3, 3.1), problematic alcohol use (HR 2.0, 95% CI: 1.2, 3.3), injection drug use (HR 2.7, 95% CI: 1.6, 4.3) and mental health counseling (HR 0.2, 95% CI: 0.1, 0.4) were independently associated with reinfection. Among HIV-infected, injection drug use (HR 1.9, 95% CI: 0.8, 4.2) was less strongly associated with reinfection.

Conclusion Rates of HCV reinfection remain elevated among HIV-infected and uninfected MSM. Substance use is driving reinfection among HIV-negative MSM, while sexual transmission may be more important among HIV-positive MSM.

Disclosure No significant relationships.

P509 USE OF INTERNET/MOBILE DATING APPS TO FIND SEX PARTNERS AMONG A NATIONALLY REPRESENTATIVE SAMPLE OF MEN WHO HAVE SEX WITH MEN

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10.1136/sextrans-2019-sti.589

Background Associations between online sex seeking and increased risk for STDs and HIV among men who have sex with men (MSM) typically rely on convenience samples. We examined the prevalence of internet and mobile app use for finding sex partners among a nationally representative sample of MSM.

Methods We analyzed 2011–2017 data from the National Survey of Family Growth, a nationally representative sample of the civilian, non-institutionalized US population (15–44 years). The analytic sample was comprised of males who reported one or more same-sex partners in the past year. We also assessed associations between online sex-seeking and STD risk, sexual health service use, and condom use.

Results Of 13,320 male respondents, 442 (3.0%) reported sex with a man in the past year, of whom 227 (53.7%) had met a partner online. Between MSM who met partners online and those who did not, we found no differences by age, education, race/ethnicity or socioeconomic status. MSM with online partners were more likely to identify as gay (69.5% vs 49.4%, $p < 0.02$). They also reported more sex partners overall ($M = 3.1$ versus 1.6, $p < 0.0001$), and more insertive (33.1% versus 15.4%, $p < 0.006$) and receptive (46.3% versus 8.5%, $p < 0.0001$) anal sex partners, in the past year. They were also more likely to receive sexual risk assessments (56.0% versus 40.4%, $p < 0.02$), STD testing (57.4% versus 35.3%, $p = 0.0002$) and STD treatment (17.8% versus 8.7%, $p < 0.02$) in the past year. We found no differences in condom use.

Conclusion MSM who report using online sources to find sex partners are more likely than other MSM to report behaviors that increase risk for STD/HIV, but are also more likely to engage in behaviors that may mitigate risk, such as STD testing.

Disclosure No significant relationships.

P510 CHEMSEX AMONG MEN WHO HAVE SEX WITH MEN IN A MIXED URBAN-NON-URBAN AREA AND ASSOCIATIONS WITH SEXUALLY TRANSMITTED INFECTIONS

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10.1136/sextrans-2019-sti.590

Background The intentional use of drugs to have sex – chemsex – among men who have sex with men might contribute to the high STI prevalence in this group. Limited data is available on chemsex outside major cities in Europe. The current study investigated the use of a wide variety of drugs

during sex in a mixed urban-non-urban area in the Netherlands and their associations with STI.

Methods At two Dutch STI clinics, 350 MSM were recruited and 250 MSM completed an online questionnaire in 2018. Questionnaire data were linked to clients' most recent STI laboratory test results. Chemsex was defined as using cocaine, crystal meth, designer drugs, GHB/GBL, ketamine, speed, or XTC/MDMA during sex in the preceding six months. The use of other drugs was also assessed. Determinants (any drug use, chemsex, specific drugs, number of drugs, combining, and frequency) potentially associated with STI were assessed using multivariable logistic regression analyses adjusting for sociodemographic characteristics and sexual history.

Results Chemsex was reported by 35% (95%CI: 29–41) of the 250 participants. XTC/MDMA (27%; 68/250) and GHB/GBL (26%; 64/250) were the most used drugs. STI positivity was 33% (29/87) in MSM engaging in chemsex and 12% (12/163) in MSM not engaging in chemsex ($p < 0.001$). Half of MSM engaging in chemsex (45/87) used three or more different chemsex drugs; STI positivity in this group was 44% (20/45). The only factor independently associated with STI was the use of three or more chemsex drugs (aOR: 4.13, 95% CI: 1.77–9.62).

Conclusion This study shows that chemsex is prevalent among MSM visiting the STI clinic outside major cities in the Netherlands, suggesting that health services in both urban and non-urban areas should be aware of and informed on chemsex. MSM who used multiple drugs are at particular risk for STI, indicating a special need for STI prevention and care in this group.

Disclosure No significant relationships.

P511 SURVEILLANCE OF LYMPHOGRANULOMA VENEREUM AMONG MEN WHO HAVE SEX WITH MEN ATTENDING STI CLINICS IN ALBERTA, CANADA, 2018

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10.1136/sextrans-2019-sti.591

Background Lymphogranuloma venereum (LGV) is a sexually transmitted infection (STI) caused by *Chlamydia trachomatis* (CT) biovars L1-3, which has been increasingly reported among men who have sex with men (MSM). Our study aimed to establish a surveillance system among MSM attending STI clinics in Alberta, Canada to determine prevalence and characteristics of cases.

Methods CT NAAT (Genprobe Aptima COMBO 2[®] Assay) positive specimens from all anatomical sites among MSM attending three STI clinics between May to November 2018 had real-time PCR and DNA sequencing for LGV. Demographic, clinical, and sexual behaviours of cases were extracted from the provincial reporting database. Clinic-stratified analysis was performed to identify differences in sample characteristics using Chi-square or Fisher's exact test.

Results A total of 340 specimens from 299 CT cases were tested for LGV. CT cases were reported from Calgary (52.8%; $n=158$), Edmonton (46.2%; $n=138$), and Fort McMurray (1.0%; $n=3$). There were no significant differences in

ethnicity, sexual partner type, anonymous partners, sex outside Alberta, or symptoms; however, cases from Calgary were significantly older than cases from Edmonton (median age: 34 years, IQR: 28–42 vs 29 years, IQR: 25–36, $p=0.001$) and more cases were co-infected with HIV (20.5% vs 10.0%; $p=0.008$). Anatomical site was similarly distributed between clinics with specimens from the rectum (61.2%; $n=208$), urine (26.2%; $n=96$) and pharynx (10.6%; $n=36$). LGV sequencing was feasible on 336 specimens. The LGV positivity rate was 1.2% ($n=4$; 95% CI 0.2–2.4); three rectal LGV cases (1 asymptomatic) and one asymptomatic pharyngeal LGV case were detected, of which two were HIV-positive.

Conclusion LGV was rare in our MSM population; however, one pharyngeal and one asymptomatic case were found. If untreated, these cases could serve as a reservoir and play an important role in transmission.

Disclosure No significant relationships.

P512

QUANTIFYING SEXUAL MIXING BY HIV STATUS AND PRE-EXPOSURE PROPHYLAXIS (PREP) USE AMONG MEN WHO HAVE SEX (MSM) WITH MEN

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10.1136/sextrans-2019-sti.592

Background Existing measures of preferential partner selection do not account for attribute-concordance by chance. We quantified network-level sexual mixing by HIV status and PrEP use using a balancing partnership approach.

Methods Data were from *Engage*, a cross-sectional survey of MSM ≥ 16 year-old in three Canadian cities (2017–2018). MSM with ≥ 1 anal/oral sex partners in the past six months (P6M) reported their own and partners' HIV status and PrEP use. After stratifying by respondents' HIV status (positive/negative/unknown) and P6M PrEP use (yes/no), we compared observed seroconcordance to that expected by chance among P6M-partnerships with known-status. Within HIV negative-concordant recent partnerships, we compared observed concordance in PrEP use at last sex to chance. Concordance by chance is calculated under proportionate-mixing assumption, which means the distribution of partnerships by partners' attributes equals that by respondents' attributes as a result of partnership balancing. We used chi-squared tests for all comparisons.

Results Of the 22,102 P6M-partnerships reported by 1881 respondents (17.0%, 74.5% and 8.5% HIV-positive, negative and unknown, respectively), 60.2% comprised partners' of known-status. 64.3% of HIV-positive respondents' partnerships were HIV-positive (vs chance 24.6%, $p<0.001$). HIV-negative or status-unknown respondents had higher proportions of

HIV-negative partners (87.0% and 87.5%, respectively, vs chance 75.4%, $p<0.001$). HIV-negative respondents on PrEP had a higher proportion of HIV-positive partners than those not on PrEP (20.6% vs 8.4%; $p<0.001$). HIV-negative respondents on PrEP had a higher proportion of HIV-negative partners on PrEP (55.8% vs 34.7%); those not on PrEP had a higher proportion of HIV-negative partners not on PrEP (78.6% vs 65.3%), than chance ($p<0.001$).

Conclusion Network-level serosorting and PrEP matching were evident after accounting for distribution of partnerships by chance. PrEP-mediated changes to mixing, such as less serosorting among MSM on PrEP, may indirectly influence the population-level HIV prevention impact of PrEP and should be included in the monitoring and evaluation of PrEP roll-out.

Disclosure No significant relationships.

P513

CONVECTION MIXING AND THE SOCIAL GEOGRAPHY OF PARTNER SELECTION AMONG SEXUAL MINORITY MEN IN TORONTO, CANADA

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Background The geographic distribution of sexually transmitted infections (STI) reflects the underlying social process of sexual partner selection. Our purpose was to explore the social geography of sexual partner selection among sexual minority men and use the results to develop a mid-level theory of urban-non-urban mixing patterns between sexual partners.

Methods This integrated mixed methods study involved in-depth interviews with 31 sexual minority men who lived, worked, or socialized in Toronto, Canada, during June and July 2016. We asked participants to describe how they found sexual partners and to reconstruct their egocentric sexual networks for the previous three months. Interviews were conducted iteratively and until theoretical saturation. A social constructionist approach to grounded theory was used to analyze the qualitative data. Egocentric maps were analyzed to determine and describe movement and mixing patterns between sexual partners.

Results Geography influenced the social process of partner selection in three important ways: (1) participants expressed a desire to travel the shortest distance possible to meet or hook up with partners (“geographic proximity”); (2) the density of sexual minority men in a participant’s community directly impacted participants social and sexual isolation, and thus how often they had sex (“degree of geosexual isolation”); and (3) geosexual isolation directly impacted the distance a participant was willing to search, and travel, to meet or hook up with partners, thus influencing the sexual mixing pattern (“convection mixing”). The geography of partner selection was also impacted by changes in sexual minority men use of space (“changing use of space”).

Conclusion Geosexually isolated participants demonstrated “convection mixing”, with repeated movement from peripheral, to downtown, back to peripheral areas. More attention should be paid to identifying STI reservoirs outside of core areas.

Disclosure No significant relationships.

P516 **LOW IMMUNITY TO HEPATITIS A AMONGST MEN WHO HAVE SEX WITH MEN ATTENDING A LARGE SEXUAL HEALTH CLINIC IN MELBOURNE, AUSTRALIA**

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Background Recent outbreaks of hepatitis A have been reported globally, and increasing numbers of cases and deaths are being reported in Australia, particularly among men who have sex with men (MSM). The critical vaccination threshold for hepatitis A has been estimated to be $\geq 70\%$ to prevent outbreaks in MSM. This study aimed to determine the level of immunity to hepatitis A among MSM since 2012.

Methods This was a retrospective audit of serological testing data from first-time MSM attendees at the Melbourne Sexual Health Centre (MSHC) from 2012–2018. We determined the proportion of MSM who were tested and who had serological detection of hepatitis A antibodies, stratified by age and year. We used logistic regression to investigate factors associated with detection of hepatitis A antibodies.

Results There were 16,615 new MSM attendees at MSHC over the 7-year period, of which 9,719 (58%, 95% CI:57,59%) were tested for hepatitis A antibodies. There was a 2% annual increase in the proportion of men tested over time (from 60% in 2012 to 69% in 2018; $p=0.025$). Of those tested, 44% ($n=4,304$, 95% CI:43,45%) of men had hepatitis A antibodies detected at their first visit, but there was no change over time ($p=0.201$). However, compared to our last audit that spanned 2002–2011, a higher proportion of young MSM (aged <20 years) were tested for hepatitis A at their first visit (73% vs 33% before 2012) and had antibodies detected (38% vs 19% before 2012). Detection of hepatitis A antibodies was associated with age ≥ 30 (Adjusted OR=1.89, 95% CI:1.77,2.02), being born overseas vs Australia/New Zealand (AOR=1.23, 95% CI:1.13,1.33), and consistent condom use in the last 12 months (AOR=1.19, 95% CI:1.12,1.28).

Conclusion Hepatitis A immunity amongst MSM remains far below the estimated 70% required to prevent outbreaks. Measures including increased testing and higher vaccination coverage are needed to limit the number of cases and deaths.

Disclosure No significant relationships.

P517 **DO SEXUAL PRACTICES DIFFER BY AGE AMONG GAY AND BISEXUAL MEN? A CROSS-SECTIONAL STUDY IN MELBOURNE, AUSTRALIA**

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Background Unlike chlamydia, gonorrhoea is considerably more common in young men who have sex with men (MSM). This may relate to differences in sexual practices although currently studies predominantly focus on anal sex with very limited data on fellatio and kissing. This study aimed to examine a range of different sexual practices among MSM.

Methods MSM who attended the Melbourne Sexual Health Clinic in 2017 were invited to participate in a survey on nine sexual practices engagement with their most recent regular and/or casual partner(s). This included: kissing, touching penises, mutual masturbation, giving/receiving fellatio, giving/receiving rimming as well as insertive/receptive anal sex. Chi-squared trend test was used to examine the age patterns of different sexual practice.

Results 1601 men were included with a median age of 30 (IQR 25–36). Kissing was the most common practice among casual partners (92.4%), followed by giving fellatio (85.8%) and receiving fellatio (83.9%). The least common activity was giving rimming (38.0%), followed by receiving rimming (45.8%). The proportion of kissing decreased with increasing age (95.0% among men aged <30 vs 79.1% among men aged ≥ 50 , $p_{\text{trend}} < 0.001$). Receiving rimming also decreased with increasing age ($p_{\text{trend}}=0.034$). Receptive anal sex was more common among younger men ($p_{\text{trend}} < 0.001$) but insertive anal sex was more common among older men than younger men ($p_{\text{trend}}=0.002$). Sexual activity had fewer correlations with age among regular partners. Younger men were more likely to masturbate mutually ($p_{\text{trend}}=0.031$) and receive anal sex from their regular partners ($p_{\text{trend}}=0.013$).

Conclusion Age is strongly associated with sexual practices among casual partners but less so among regular partners. Younger men more likely to engage in activities associated with gonorrhoea transmission such as kissing and receptive rimming.

Disclosure No significant relationships.

P518 **SEXUAL PRACTICES AND HEALTHCARE USE OF MEN WHO HAVE SEX WITH MEN ONLY AND MEN WHO HAVE SEX WITH MEN AND WOMEN**

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10.1136/sextrans-2019-sti.596

Background It is unclear why gonorrhoea and syphilis rates are increasing among women in Australia. One possible reason is transmission to women from men who have sex with men and women (MSMW). We aimed to explore sexual practices and healthcare use of MSMW and men who have sex with men only (MSMO).

Methods Semi-structured interviews were conducted. Participants were recruited from a public sexual health clinic and via community advertisements in Melbourne, Australia. Men were eligible if they were cisgender, aged 18+ years and had sex with either men or men and women in the last 12 months. Data were analysed thematically.

Results 28 interviews were conducted (15 MSMO, 13 MSMW). Half of MSMW reported predominantly male partners and half predominantly female. MSMO viewed STIs as “an annoying reality of life” and both groups had positive perceptions of STI testing; however, MSMW described more STI stigma and less frequent testing. MSMO and MSMW who were more involved with the queer community had better sexual health knowledge. Many MSMW noted it was easier to have sexual health discussions with male partners; however, many also described the pressure of condom use, “with men, [was] to not use a condom a fair bit of time and probably by women, [was] to use a condom.” There was significant fear in both groups about disclosing sexual practices to general practitioners and some MSMW preferred the anonymity of specialist sexual health clinics. Biphobia and bisexual erasure were frequently discussed by both groups.

Conclusion MSMW described less comprehensive sexual health knowledge and more barriers to accessing sexual health care. Service provision and health promotion messaging must be broadened to capture the reality of increasing sexual fluidity. Destigmatising MSM behaviour and sexual health discussions, particularly in primary care, is crucial to ensuring all people receive appropriate sexual health care.

Disclosure No significant relationships.

P519 IS CHEMSEX AMONG MEN WHO HAVE SEX WITH MEN PERCEIVED AS PROBLEMATIC? A CROSS-SECTIONAL STUDY IN THE NETHERLANDS

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Background Men who have sex with men (MSM) are increasingly using drugs during sex (‘chemsex’) and this has been associated with several health harms, including an increased risk for sexually transmitted infections (STI) and addiction. Little evidence exists on whether chemsex is perceived as problematic by MSM. This study assessed a wide range of social and behavioral aspects in MSM engaging in chemsex.

Methods In 2018, 785 MSM were recruited at eight Dutch STI clinics, of which 511 (65%) completed the online questionnaire. Chemsex was defined as using cocaine, crystal meth, designer drugs, GHB/GBL, ketamine, speed or XTC/MDMA during sex in the preceding six months. Characteristics of MSM intending to change chemsex behaviour and MSM with a need for professional counselling were described using χ^2 -tests.

Results Chemsex was reported by 41% (209/511). Among MSM engaging in chemsex, intention to change was reported by 19% (40/209); decreasing the frequency of drug use was mostly reported (70% (28/40)). Intention to change was highest among MSM who had no sex without drugs <3 months (44%(12/47) vs 15%, $p<0.001$), reported unwanted sexual experiences (36%(14/39) vs 15%, $p=0.01$), and used ≥ 5

drugs <6 months (31%(16/51) vs 16%, $p=0.03$). The need for professional counselling was reported by 23% (48/209). The majority wanted to be counselled on increasing self-control (52%(25/48)). The need for professional counselling was highest among MSM who had an intention to change (45% (18/40) vs 18%, $p<0.001$), had no sex without drugs <3 months (41%(11/27) vs 20%, $p=0.04$), and engaged in chemsex ≥ 2 times per month (30%(28/93) vs 17%, $p=0.03$).

Conclusion Our study shows that one in five MSM engaging in chemsex reported an intention to change or expressed a need for professional counselling. STI healthcare providers should discuss chemsex frequency, multiple drug use, sober sex and unwanted sexual experiences, and if necessary refer to professional addiction-or mental healthcare.

Disclosure No significant relationships.

P520 HPV INFECTIONS AND FLAT PENILE LESIONS OF THE PENIS IN MEN WHO HAVE SEX WITH MEN

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Background Flat penile lesions (FPL) in heterosexual men are thought to play a role in the transmission of HPV. We investigated the association between FPL and penile HPV, and explored determinants of FPL in men who have sex with men (MSM).

Methods In 2015–2016, MSM were recruited based on HIV and penile HPV status in a previous study. MSM self-completed a questionnaire. Peniscopy was performed after application of acetic acid to visualize FPL. Penile physician-collected samples were tested for HPV-DNA using the highly sensitive SPF10-PCR DEIA/LiPA25 system. If tested positive for HPV 6, 11, 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58 and/or 59, we determined the HPV viral load (VL), using type-specific L1-targeting quantitative (q)PCR. Presence of HPV and HIV, HPV VL and circumcision status were compared between MSM with and without FPL.

Results We included 116 MSM, of whom 59/116 (51%) were HIV-positive and 54/116 (47%) had FPL. A penile HPV infection was present in 31/54 (57%) MSM with FPL and in 34/62 (55%) MSM without FPL ($p=0.8$). Among MSM with FPL, 16/54 (30%) had an hrHPV infection and 23/54 (43%) had a lrHPV infection, which did not significantly differ from MSM without FPL ($p=0.5$ and $p=0.4$, respectively). A detectable HPV VL was found in 10/54 (19%) MSM with FPL and in 10/62 (16%) MSM without FPL ($p=0.6$). Among MSM with FPL, 27/54 (50%) were HIV-positive and 5/54 (9%) were circumcised, and among MSM without FPL, 32/62 (54%) were HIV-positive and 13/62 (21%) were circumcised ($p=0.9$ and $p=0.09$, respectively).

Conclusion Among MSM in Amsterdam, we found no association between FPL and penile HPV, HPV VL, HIV status or circumcision status, which is in contrast with findings among

heterosexual males. Our findings imply that FPL are not useful in identifying HPV infections with a high transmission potential in this population.

Disclosure No significant relationships.

P521 INCREASES IN THE ESTIMATED NUMBER OF REPORTED GONORRHEA CASES AMONG MEN WHO HAVE SEX WITH MEN (MSM): THE ROLE OF TESTING

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Background Interpreting trends in rates of reported cases of gonorrhoea is difficult because infections, particularly extra-genital infections, are often asymptomatic and increased screening coverage will result in increased case detection. In the absence of national data on screening coverage among men who have sex with men (MSM), we estimated trends in MSM testing in the United States given a range of positivity estimates.

Methods We estimated the number of tests that would have had to occur to identify the estimated number of reported gonorrhoea cases among MSM in a given year. The number of tests was calculated by dividing the annual number of estimated cases among MSM (based on sentinel surveillance) by estimated test positivity among MSM (based on published literature). We calculated the estimated number of tests under both low positivity (3.5%) and high positivity (10%), as well as the effect of stable and changing positivity during 2016–2017.

Results The estimated number of reported gonorrhoea cases among MSM increased by 17.9% during 2016–2017 (from 163,537 to 192,740). We estimated that 1.9 million (assuming 10% positivity) to 5.5 million (assuming 3.5% positivity) tests performed among MSM would be needed to detect the estimated number of gonorrhoea cases among MSM in 2017. This represents an increase of approximately 290,000 to 830,000 tests over the estimated number of tests conducted in 2016. Alternatively, if the number of tests was stable over time, a 0.6 to 1.8 percentage point increase in positivity from 2016 to 2017 would be consistent with the increase in observed cases.

Conclusion We provide a framework to inform trends in case rates by analyzing the impact of changes in positivity and testing over time. Our analysis implies that estimated increases in reported gonorrhoea cases among MSM likely resulted from both increased screening and increased incidence.

Disclosure No significant relationships.

P522 DISPARITIES IN HIV/STI TESTING AND DIAGNOSIS AMONG URBAN AND NON-URBAN US MEN WHO HAVE SEX WITH MEN FROM 2013 TO 2017

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10.1136/sextrans-2019-sti.600

Background Most data about HIV/STI testing and diagnosis among US men who have sex with men (MSM) comes from urban areas, though the majority of the population resides

outside of these areas. Since 2013, the American Men's Internet Survey (AMIS) has conducted annual nationwide online behavioral surveillance of $\geq 10,000$ US MSM.

Methods Participants age 15+ were recruited through online advertisements. County urban/rural categories were based on National Center for Health Statistics classification. Poisson models using generalized estimating equations tested associations between urban/rural category and HIV testing, STI (syphilis, gonorrhoea, chlamydia) testing and STI diagnoses in the past 12 months. All models controlled for survey year, age, race/ethnicity, insurance, HIV status (except model for HIV testing) and recruitment source.

Results From 2013 through 2017, 49,903 completed surveys were collected: 42.4% MSM from urban counties, 20.5% suburban, 28.3% small/medium metro, and 8.8% rural. STI testing was more prevalent in urban counties (50.2%) compared to suburban (37.8%, $p < 0.0001$), small/medium metro (35.6%, $p < 0.0001$) and rural (27.8%, $p < 0.0001$) counties. STI diagnoses were more prevalent in urban counties (13.4%) compared to suburban (8.1%, $p < 0.0001$), small/medium metro 7.5%, $p < 0.0001$) and rural (5.4%, $p < 0.0001$) counties. Among HIV-negative/unknown status MSM, HIV testing was more prevalent among MSM from urban counties (61.9%) compared to suburban (52.3%, $p < 0.0001$), small/medium metro (50.6%, $p < 0.0001$) and rural (43.6%, $p < 0.0001$) counties. Significant trends over time were observed in HIV testing for all counties, while STI testing only increased in urban and small/medium metro counties. STI diagnoses increased significantly in all but rural counties.

Conclusion Urban/rural disparities in HIV/STI testing and STI diagnoses were found in a multi-year national sample of US MSM. These findings likely reflect disparate geographical distribution of healthcare access and resources. If these disparities cannot be adequately addressed in programs that reach underserved areas, nationwide HIV/STI prevention goals for MSM will not likely be met.

Disclosure No significant relationships.

P523 URETHRAL MICROBIOTA IN IDIOPATHIC NON-GONOCOCCAL URETHRITIS (NGU) IN MEN WHO HAVE SEX WITH MEN AND MEN WHO HAVE SEX WITH WOMEN

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Background NGU is common with no known etiology in ~50% of cases. We evaluated the association of urethral bacteria with NGU among men who have sex with men (MSM) and men who have sex with women (MSW).

Methods Urine samples were collected from MSM and MSW attending a Seattle STD Clinic and enrolled in a cross-sectional study. *Chlamydia trachomatis* (CT) and *Mycoplasma genitalium* (MG) were detected by TMA (Aptima), and adenovirus, HSV-1 and HSV-2 by PCR. NGU was defined as having urethral

symptoms or visible discharge and ≥ 5 PMNs/high powered field (HPF). Absence of CT, MG, adenovirus, and HSV was considered as idiopathic NGU. Men without NGU had no urethral symptoms, no discharge, and < 5 PMNs/HPF. Broad-range 16S rRNA gene PCR with deep sequencing was used to characterize the urethral microbiota. Compositional lasso analysis of bacterial taxa was conducted to identify associations between bacteria and NGU; beta coefficients (β) giving change in probability of NGU per log₂ change in relative abundance are reported.

Results Of 434 (199 MSM, 235 MSW) urine samples, 330 yielded sequence data. NGU+ men were less likely to yield sequence data (70% vs 84%, Fisher's $p=0.001$). Of 328 men with ≥ 1000 sequence reads/sample, 95 MSM (44 NGU+) and 143 MSW (46 NGU+) were negative for CT, MG, adenovirus, and HSV. Higher relative abundances of *Haemophilus influenzae* ($\beta=0.0139$) and *Mycoplasma penetrans* ($\beta=0.0095$) were positively associated with idiopathic NGU in MSM, while *H. influenzae* was positively associated with idiopathic NGU in MSW ($\beta=0.0184$). The model also identified bacterial species that were negatively associated with NGU in MSM and MSW. Notably, *Lactobacillus iners* was negatively associated with idiopathic NGU in MSW ($\beta=-0.0006$) but not MSM.

Conclusion Different bacterial species are associated with NGU in MSM and MSW. We identified two bacterial species infrequently detected in the male urethra as positively associated with NGU.

Disclosure No significant relationships.

P524 GAYS, GOVERNMENT AND BIG DATA: SHOULD ROUTINE HEALTH RECORDS INCLUDE SEXUAL ORIENTATION?

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Background Sexual orientation minorities continue to experience poorer outcomes in sexual health, mental health and addictions. Despite clear information needs, routine data identifying gay, lesbian and bisexual (GLB) individuals are seldom collected by governments, rendering these populations invisible. In New Zealand (NZ), everyone is assigned a unique National Health Index (NHI) number used across all health systems to improve clinical and public health decision-making. In 2017 the NZ Ministry of Health proposed adding sexual orientation and other fields to NHI, however sexual orientation was rejected after consultation. We sought to better understand these viewpoints.

Methods We used the Official Information Act (OIA) to request the complete list of submitters, their support or opposition for adding sexual orientation and written comments. We allocated submitters to six groupings: Government (G); Health provider including District Health Boards (H); NGO or civil society (N); Academic (A); Data management firm (D) or Unspecified (U). Submitters did not necessarily represent the official views of their organisation. We present descriptive summaries and feedback themes.

Results 130 submissions were received. Overall 27 supported sexual orientation in NHI and 35 were opposed, the remainder being neutral or conditional. Support by grouping (high to low) was: Academic (100%); Government (56%); Unspecified (44%); NGO (40%); Health (36%) and Data firm (25%). Supportive reasons included: service planning; evidence-based policy; equity; GLB-specific health delivery (e.g. HPV vaccines, HIV and STI screening, pre-exposure prophylaxis); normalisation; health workforce development. Opposing reasons included: sexual orientation being irrelevant to clinical decision-making; classification challenges (e.g. sexual orientation fluidity); data quality; privacy; discrimination.

Conclusion Barriers to sexual orientation data collection include practical concerns but also well-meaning paternalism and heteronormative assumptions. Better information about NHI uses and protections, data governance, and healthcare service obligations to GLB communities, may improve support.

Disclosure No significant relationships.

P525 PREVALENCE OF MYCOPLASMA GENITALIUM BY ANATOMICAL SITE IN MEN WHO HAVE SEX WITH MEN: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background With the current debate over testing and screening for *Mycoplasma genitalium* (MG) in various populations, more information on the prevalence of MG is needed particularly in populations at high risk of sexually transmitted infections, such as men who have sex with men (MSM). We assessed the available data on the prevalence of MG in MSM across three anatomical sites: the urethra, pharynx and rectum.

Methods Ovid Medline, PubMed, Embase were searched for all peer-reviewed studies published until 1st June 2018 (in addition to conference proceedings from 2015), that reported prevalence of MG (using nucleic acid amplification testing) in the urethra, rectum and/or pharynx in at least 50 MSM. Data were extracted by anatomical site, symptom and HIV status. Pooled estimates (95% confidence intervals [CIs]) were calculated using random effects meta-analysis. Subgroup analyses were performed to assess heterogeneity between studies.

Results Forty-six studies met inclusion criteria. The overall prevalence of MG at any site was 5.8% (4.5–7.3%, $I^2=95.0\%$). MG prevalence was 4.6% (3.0–6.4%, $I^2=94.4\%$) in the urethra, 6.1% (4.5–7.9%, $I^2=89.0\%$) in the rectum, and 1.0% (0.0–5.1%, $I^2=96.0\%$) in the pharynx. Pooled estimates of MG prevalence were higher among HIV-positive compared with HIV-negative men (9.0% [5.2–13.4%, $I^2=90.7\%$] versus 5.7% [3.5–8.2%, $I^2=93.1\%$], $p=0.019$), and among symptomatic men compared to asymptomatic men (9.2% [6.2–12.7%, $I^2=87.3\%$] versus 4.0% [2.3–6.2%, $I^2=90.7$], $p=0.003$).

Conclusion MG is commonly detected in MSM, particularly in the urethra and rectum. Prevalence was highest in HIV

positive and symptomatic men. While a prevalence of 9% would prompt discussion of screening, more needs to be known about the natural history of MG in MSM, given the high levels of antimicrobial resistance and risk associated with quinolones. MG was uncommon in the pharynx of MSM (1%), suggesting this site is not a significant source of transmission and testing is not indicated.

Disclosure No significant relationships.

P526

HIGH PREVALENCE AND INCIDENCE RATE OF RECTAL CHLAMYDIA AND GONORRHOEA INFECTION AMONG MEN WHO HAVE SEX WITH MEN IN TOKYO

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Background Rectal *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) infection have been neglected and epidemiological data is not available in Japan. Thus, we evaluated prevalence and incidence of rectal CT and NG in non HIV-infected men who have sex with men (MSM) cohort, Sexual Health Clinic (SHC) established in National Center for Global Health and Medicine (NCGM), in Tokyo in January 2017.

Methods Non HIV-infected MSM with aged 16 years old and over were included in SHC. Prevalence of rectal CT/GC infection in SHC were compared with those of an existing HIV-infected MSM cohort in NCGM. The participants of SHC were examined HIV infection and rectal and pharyngeal CT/NG every 3 months. Urethral CT/NG infection were evaluated at physician's discretion. Incidence rate of HIV, CT and NG were evaluated at the time of December 2018.

Results 502 MSM had been included into SHC by December 2018 and 13 were diagnosed with HIV infection at the enrollment and excluded. 561 HIV-infected MSM were evaluated rectal CT/NG infection cross-sectionally. Between the two cohorts, mean age was 33.6 and 46.4 years old ($p < 0.001$). Prevalence of rectal CT or NG infection were 18.4% and 16.8% ($p = 0.483$). Prevalence of rectal CT was 16.4% and 15.5% ($p = 0.707$) and prevalence of NG was 4.1% and 2.3% ($p = 0.101$). Of the 489 subjects in SHC, 326 were followed at least twice, with 291.8 person-years during the study period. The incidence of HIV, rectal CT and NG infection were 3.8, 18.8, 4.9/100 person-year. The incidence of pharyngeal CT and NG infection were 1.5 and 8.3/100 person-year. 33.8% of the incidental cases were recurrent infection. In this study, HIV seroconversion was not associated with rectal CT or NG infection at the enrollment ($p = 0.438$).

Conclusion The prevalence and incidence of rectal CT and NG infection are high among MSM in Tokyo, which requires urgent countermeasures.

Disclosure No significant relationships.

P527

HIV TESTING UPTAKE AMONG YOUNG MEN WHO HAVE SEX WITH MEN IN MYANMAR: SELF-EFFICACY AND HIV TESTING BEHAVIOR

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10.1136/sextrans-2019-sti.605

Background Men who have sex with men (MSM) are disproportionately affected by the HIV epidemic. HIV testing coverage among MSM, particularly in low-resource settings, remains low. Self-efficacy is an important individual psychosocial factor associated with access to health care and health outcomes but the association between self-efficacy and HIV testing uptake among key populations is poorly understood.

Methods A cross sectional study was conducted with 585 MSM aged 18–24 years recruited by 33 seed respondents from six urban areas in Myanmar via respondent-driven sampling (RDS). RDS analyses were performed to provide population estimates of HIV testing coverage. Sensitivity analysis was performed to assess potential bias due to inclusion of seed and HIV positive respondents on final population estimates. Multinomial logistic regression was used to examine the relationship between self-efficacy and HIV testing uptake.

Results More than a third (34.5%) had never been tested for HIV (never tester), 27.5% and 38.0% had their most recent HIV test more than three months (non-recent tester) and within the past three months (recent tester), from the time of interview, respectively. Sensitivity analysis showed similar point estimates excluding seed or HIV positive respondents (Table 1). Results of multinomial logistic regression analyses show that YMSM who reported high self-efficacy (adjusted Relative Risk Ratio [ARR] = 7.35, 95% CI: 2.29–23.5) and moderate self-efficacy (ARR = 8.61, 95% CI: 3.09–24.0) are more likely to report having tested for HIV in the past three months compared to their counterparts who reported low self-efficacy after adjusting for potential confounders.

Conclusion HIV testing coverage among YMSM is suboptimal and there is a positive association between self-efficacy and HIV testing uptake among YMSM. Further research is needed to examine the direction of this association to inform future public health interventions targeting YMSM in Myanmar.

Disclosure No significant relationships.

P528

RATES OF PRIMARY AND SECONDARY SYPHILIS AMONG MEN WHO HAVE SEX WITH MEN BY HIV STATUS – 24 STATES, 2011–2015

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Background During 2011–2015, approximately half (48% to 53%) of reported primary and secondary (P&S) syphilis cases occurred among men who have sex with men (MSM) with diagnosed HIV. However, comparing rates of reported P&S syphilis by HIV status among MSM requires MSM population denominators stratified by HIV status.

Methods We used previously published state-level estimates of the MSM population and publicly available data on diagnosed HIV infection among MSM to determine population denominators of MSM living with or without diagnosed HIV infection. We then examined rates of reported P&S syphilis per 100,000 MSM by HIV status using national case-based surveillance data in 24 states with $\geq 70\%$ complete reporting of sex of sex partners and HIV status among syphilis cases during 2011–2015.

Results During 2011–2015, rates of reported P&S syphilis among MSM in the 24 states included in the analysis increased 45% (188.7 to 272.8 per 100,000). Concurrently,

rates among HIV-negative and HIV-unknown MSM, combined, increased 64% (83.0 to 136.5 per 100,000), while rates among MSM with diagnosed HIV increased 17% during 2011–2014 (1,061.5 to 1,237.3 per 100,000) before decreasing 6% to 1,229.5 in 2015. Rate ratios comparing reported P&S syphilis rates among MSM living with diagnosed HIV to HIV-negative and HIV-unknown MSM decreased annually during this period from 12.8 to 9.0.

Conclusion During the most recent five-year period for which data are available, rates of reported P&S syphilis increased among MSM diagnosed with HIV, as well as MSM not diagnosed with HIV. Although rates are higher among MSM diagnosed with HIV, larger relative increases in rates among MSM not diagnosed with HIV and subsequent declining rate ratios indicated that differences between MSM with diagnosed HIV and HIV-negative or HIV-unknown MSM diminished over time.

Disclosure No significant relationships.

P529

EARLY SEXUAL DEBUT AND NON-CONSENSUAL SEX AMONG CHINESE MEN WHO HAVE SEX WITH MEN: A MULTI-CITY CROSS-SECTIONAL STUDY

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Background Early sexual debut and non-consensual sex among men who have sex with men (MSM) may contribute to adult high-risk behaviors and STI transmission. Most knowledge about early MSM sex comes from high-income countries. This study examined the prevalence and factors associated with the early sexual debut and non-consensual sex at sexual debut among Chinese MSM.

Methods An online cross-sectional study was conducted among MSM who were born as a male, ≥ 16 years-old, and ever engaged in anal sex with a man in China in 2016. Participants answered questions regarding sociodemographics, condomless sex, and HIV testing history. Early sexual debut was defined as having anal sex before 18. Non-consensual sex was defined as “where a person do sexual things to you that you did not want them to do.” Multivariable logistic regression was used to identify factors associated with the early sexual debut and non-consensual sex.

Results Overall, 2105 men completed the survey. Among them, 85.9% were never married, and 35.4% had high school or less education. The mean age of sexual debut was 20.82 (SD=5.30) years. About one-fifth (20.1%, 424/2105) of men experienced early sexual debut, and 4.9% (104/2105) experience non-consensual sex at sexual debut. Results from multivariable logistic regression models showed that early sexual debut was associated with having more male partners in the last three months (adjusted OR 1.08 [95% CI 1.04–1.13]) and condomless sex in the last three months (1.49 [1.18–1.89]). MSM whose sexual debut was non-consensual were more

likely to have tested for HIV (1.56 [1.01–2.42]), have had recent condomless sex (1.70 [1.13–2.56]), and to experience early sexual debut (2.54 [1.65–3.89]).

Conclusion Many Chinese MSM experience early sexual debut and non-consensual sex at sexual debut. Given the limited coverage of sexual health education in China, this has implications for expanding education and research about sexuality among youth.

Disclosure No significant relationships.

P530

ADDRESSING UNDERSERVED MEN WHO HAVE SEX WITH MEN (MSM): ADVANCING THE SEXUAL HEALTH APPROACH FOR MSM IN VANCOUVER, CANADA

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Background Men who have sex with men (MSM) are disproportionately overrepresented in the resurgence of sexually transmitted and blood-borne infections (STBBI) indicating a need to understand how access to sexual health services can be adapted for the improvement of the health and well-being of MSM. Our objective was to contextualize the access to and provision of MSM sexual health care with a syndemic lens. Accordingly, this study employs qualitative understanding of access to sexual health care, with particular focus on pre-exposure prophylaxis, for MSM in Vancouver.

Methods We conducted five focus groups from 12/2016-07/2017 with sexual health service providers serving MSM and members from the MSM community who have accessed sexual health care. Focus groups were audio recorded and transcribed verbatim. We iteratively analyzed data through a constant comparative technique to identify the accessibility of sexual health care for MSM in Vancouver with inference to syndemic effect.

Results We identified service provider and MSM community attitudes and the structural concerns impacting access to sexual health care for MSM in Vancouver, Canada. Access to sexual health care assembled into three themes: (1) Perceptions and categorization of underserved; (2) Value of specialized MSM sexual health service; and (3) Capacity: reaching and referring. The first represents syndemics, reaching undiagnosed, representation and intersectionality, and specialized service providers as encouraging PrEP gatekeepers. The second combines MSM friendly environment, separation of sexual from other health care, and fear of association: community stigma and internalized shame. The third includes service promotion, capacity for HIV care, lack of counseling, and referral adequacy.

Conclusion MSM experience many biosocial interactions that negatively impact their access to sexual health care. Therefore, sexual health care would be more likely accessed if conditions were addressed together rather than separately. Findings offer social and structural-level interventions to address stigma and syndemic influence within MSM sexual health care delivery.

Disclosure No significant relationships.

P531 **CHEMSEX AND STI CLINIC USE AMONG MSM: RESULTS FROM A LARGE ONLINE SURVEY IN ENGLAND**

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Background Chemsex, the use of select psychoactive drugs to enhance sexual experience, typically among men who have sex with men (MSM), is associated with STI risk behaviours. Understanding characteristics of MSM who engage in chemsex and their use of STI clinics is important for developing interventions.

Methods Between 5/2016-5/2017, 3,358 MSM (aged ≥ 15 years; no known HIV infection) completed an online survey, largely via 4 gay social-networking apps. We described patterns of chemsex and differences in demographics, awareness of 8 common STIs, STI risk behaviour, and STI clinic attendance between those engaging in chemsex and those not. We used a composite measure 'high STI risk' comprising condomless anal sex (CAS) with ≥ 11 men/past 3m, of whom ≥ 1 had unknown HIV status. We used logistic regression to investigate the association between chemsex and clinic use/past 3m.

Results 8% of respondents reported chemsex/past year. Among them, 70% had used ≥ 2 different chemsex drugs, with mephedrone (68%) most popular. A greater proportion of MSM who reported chemsex, compared to those who did not, were university graduates (63% vs 52%), < 40 years (51% vs 43%), aware of all 8 asked-about STIs (34% vs 22%), reported CAS/past 3m (73% vs 47%), and were classified as 'high STI risk' (26% vs 8%). MSM who reported chemsex were more likely to have attended an STI clinic/past 3m vs those who did not (63% vs 34%), including after controlling for sociodemographics: adjusted odds ratio: 2.97, 95%CI: 2.26–3.90. Of those at 'high STI risk' (n=317), 75% of MSM reporting chemsex, vs 48% of those not, had been to clinic/past 3m.

Conclusion A minority of MSM engage in chemsex. Those that do appear to be at greater STI risk but engage more actively with STI clinics. More targeted STI prevention efforts are needed to improve access to clinical services for all MSM at high risk of STIs.

Disclosure No significant relationships.

P532 **THE SEXUAL BEHAVIOUR AND HEALTH OF HETEROSEXUAL-IDENTIFYING MEN WHO HAVE SEX WITH MEN: A SYSTEMATIC REVIEW**

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Background Sexual behavioural and health differences are known to exist between gay and bisexual men, but less is known about heterosexual-identifying men who have sex with men (MSM). We conducted a systematic review of articles reporting on this population to inform public health interventions.

Methods We searched six databases for articles reporting sexual behaviour and health outcomes in heterosexual-identifying MSM in Western Europe, Australia, New Zealand and North

America, from 2008 to January 2018. All were screened by a primary reviewer, 10% were screened by a second independent reviewer.

Results From 3126 articles identified, 42 were quantitative and included in a narrative synthesis (40 reported on studies conducted in the USA). The majority reported data from MSM-focused studies; five were general population studies. HIV prevalence for heterosexual-identifying MSM (range across studies: 4.6–11.4%) was lower than for gay (11.2–43.8%) or bisexual (12.4–29.8%) MSM, however, fewer heterosexual-identifying MSM reported recent testing for HIV (40–49% vs 64–68% of gay men, 56–62% of bisexual men) or STIs. There was no difference by sexual identity in MSM's reporting of recent condomless sex with casual male partners (42%–52% of those reporting recent sex with casual partners) or insertive condomless sex, however heterosexual-identifying MSM were less likely than gay MSM to report receptive condomless sex. They reported fewer recent male partners than gay or bisexual MSM, more recent female partners than gay MSM, and similar numbers of lifetime partners of either sex compared to gay or bisexual MSM.

Conclusion Heterosexual-identifying MSM report fewer male partners than gay or bisexual MSM, however similarities in risk behaviours indicate a group at risk of poorer sexual health than the general population. The data also suggest inadequate sexual health service use by these men such that additional targeted approaches to health promotion and infection control for this population may be warranted.

Disclosure No significant relationships.

P533 **HEPATITIS A VACCINE UPTAKE AMONG MEN WHO HAVE SEX WITH MEN FROM A TARGETED VACCINATION PROGRAM IN MELBOURNE IN 2018**

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Background In response to an outbreak of hepatitis A in men who have sex with men (MSM) in Victoria, Australia in 2017; the Victorian government funded a free hepatitis A vaccination program for all Victorian MSM in 2018. This study aimed to determine hepatitis A vaccine uptake among MSM in a sexual health clinic in Melbourne during the program, and assess the factors associated with vaccine uptake.

Methods All MSM attending the Melbourne Sexual Health Centre (MSHC) in 2018 were included in the analysis. Chart review was performed to determine why men did not receive the vaccine and the proportion of men vaccinated for hepatitis A was calculated. Multivariable logistic regression was then performed to examine the factors associated with vaccine uptake.

Results There were 9,582 MSM who attended MSHC in 2018, of whom 61.3% (n=5,869, 95%CI:60.3–62.2%) reported already being immune to hepatitis A, either from previous vaccination or infection. Of the 3,713 remaining eligible men, 62.7% (n=2,327, 95%CI:61.1–64.2%) received the hepatitis A vaccine. Compared with HIV-negative MSM not taking PrEP, MSM taking PrEP (aOR=1.28; 95%CI:1.01–1.62) were more likely to receive the vaccine. In addition, vaccine uptake was associated with being aged 16–25 years (aOR=2.49; 95%CI:2.06–3.02) and 26–35 years (aOR=2.10;

95%CI:1.76–2.50) compared to being aged ≥ 35 years. 1,386 men did not receive the vaccine. Of these men, the majority (55.4%; $n=768$) were not offered the vaccine by their treating clinician, and 21.6% ($n=300$) were identified as non-immune after serological testing but did not return for vaccination. By the end of 2018, a total of 85.5% of MSM (8,196/9,582) were immune to hepatitis A.

Conclusion The critical vaccination threshold for hepatitis A has been estimated at $\geq 70\%$. Continuation of the targeted hepatitis A vaccination program will improve immunity amongst the MSM population to prevent ongoing transmission and the likelihood of future outbreaks.

Disclosure No significant relationships.

P535

CHEMSEX & AMP; SEXUAL CONSENT: A QUANTITATIVE STUDY ON SEXUALIZED DRUG USE IN MEN WHO HAVE SEX WITH MEN AND NON-CONSENSUAL SEX

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Background Chemsex, the use of drugs (including crystal methamphetamine, mephedrone and/or GHB/GBL) to enhance sex, is practiced by men who have sex with men (MSM) and has risen in the last decade. Non-consensual sex is hypothesized to occur frequently under the influence of chemsex, however has not been investigated much. In this study we aimed to quantify chemsex use in the Amsterdam area and to establish whether non-consensual sex is associated with chemsex engagement.

Methods During the Amsterdam Pride in 2016 and 2018, Amsterdam-located users of a gay dating application were asked about chemsex behavior in the previous 6 months and non-consensual sexual experiences in the past 5 years (the latter in 2018). Non-consensual sex was defined as 'non-consensual sex or experience (e.g. filmed/photographed without consent)'. χ^2 test for independence was used for statistical analyses.

Results A total of 1833 (2016) and 756 (2018) participants were included of which 28.3% and 27.8% engaged in chemsex ($p=0.81$). In 2018 the occurrence of non-consensual sex was high, but not significantly different among the chemsex (20.4%) and non-chemsex (16.5%) group ($p=0.22$). Yet, among those with chemsex being filmed/photographed without consent, taking drugs against ones will and passing out, were reported more often than among those without chemsex ($p<0.05$). The intensity of emotional distress related to non-consensual sex was not significantly different between the chemsex and non-chemsex group ($p=0.63$).

Conclusion The proportion of MSM in Amsterdam who engage in chemsex is high but stable over 2016–2018. The proportion of MSM experiencing non-consensual sex is also

high, but not associated with chemsex engagement, nor is the intensity of emotional distress related to chemsex. Nonetheless, the type of non-consensual experience differs between the chemsex and the non-chemsex group. Sexual healthcare professionals need to address chemsex use and non-consensual sex during consultations involving MSM and refer men if deemed necessary.

Disclosure No significant relationships.

P538

HIGH HIV INCIDENCE AMONG MEN WHO HAVE SEX WITH MEN IN EIGHT CHINESE CITIES: RESULTS FROM A COHORT STUDY

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10.1136/sextrans-2019-sti.613

Background Knowing the HIV incidence is essential for providing timely intervention among key populations. However, HIV incidence data from men who have sex with men (MSM) in China are limited. In this study, we aim to measure HIV incidence among MSM in eight cities and investigate correlates with incidence.

Methods This study is a secondary analysis of a stepped-wedged randomized control trial focusing on promoting HIV testing among Chinese MSM. MSM from eight cities in Guangdong and Shandong Province were recruited and followed from July 2016 to August 2017. Sexual behaviors and HIV testing activity were measured at baseline and during follow-up survey every three months. Participants who reported to have tested HIV at least twice during different follow-up periods were included in this analysis. We defined the seroconversion as a negative HIV testing result followed by a positive result during any of the follow up. We used Cox regression to examine correlates with HIV seroconversion.

Results Of the 1381 participants recruited at baseline, 360 MSM had HIV tests at least twice. At baseline, 87.5% (315/360) were never married and 32.8% (118/360) never disclosed their sexual orientation to anyone other than their sexual partners. During the 12-month follow-up period, 56.67% (204/360) had multiple male partners, 15.3% (55/360) had female partners and 14.7% (53/360) had bisexual behaviors. Overall, 25 men had seroconversion, and the HIV incidence rate was 15.0/100 person-year. The Cox regression model showed higher seroconversion risk was associated with a higher number of female sexual partners (HR=3.59, 95%CI: 1.32–9.80). The association between seroconversion and bisexual behavior was marginally significant (HR=2.05, 95%CI: 0.98–4.29).

Conclusion HIV incidence is very high among MSM in our study based in China. It was associated with multiple sexual partners, as well as bisexual behaviors. Interventions to prevent HIV transmission, targeting on sexual behavior change are needed.

Disclosure No significant relationships.

P539 PREVALENCE OF *CHLAMYDIA TRACHOMATIS* AND *NEISSERIA GONORRHOEAE* AMONG MSM IN MOROCCO

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Background *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) are the most common pathogens causing genital tract infections. They cause a significant global morbidity and mortality and have been associated with increased risk of HIV transmission, mainly among key populations fueling STIs and HIV. Men who have sex with men (MSM) had been classified by the Moroccan National AIDS Program (NAP) as a vulnerable risky group with higher burden of STIs. The aim of the present study is to assess the prevalence of CT and NG among MSM in Marrakech.

Methods From October to December 2017, a total of 238 MSM were enrolled in the study using Respondent-Driven Sampling (RDS). Access to this population was facilitated by an NGO evolving in the field of HIV and STIs, with extensive experience with hard-to-reach population. Eligible recruits were aged of 18 years and older and having lived in Marrakech for the previous six months. Socio-demographic and behavioral factors were collected using a structured questionnaire. CT and NG investigations were performed using the molecular test the Xpert CT/NG tests (Cepheid, USA) on anal swab samples.

Results The findings showed a prevalence of CT and NG of 9.24% (22/238) and 8.40 (20/238) respectively. A CT/NG co-infection was found in 3.36% (8/238) of cases. Fifty percent of MSM reported having passive anal sex with a male partner in the past six months and 44.1% have used Condom at the last passive anal sex.

Conclusion The prevalence of CT and NG among MSM in Marrakech has increased significantly compared to the results obtained in the first study conducted in 2010, which was 6.3% for CT and 2.4% for NG. These findings confirmed the need for the establishment and the expansion of programs targeting MSM in Morocco to strengthen the prevention and control the STIs among risky groups.

Disclosure No significant relationships.

P540 HPV (SERO) PREVALENCE AMONG YOUNG MSM VISITING THE STI CLINIC: OPPORTUNITIES FOR TARGETED HPV VACCINATION

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10.1136/sextrans-2019-sti.615

Background Because men who have sex with men (MSM) are disproportionately affected by human papillomavirus (HPV) related cancers, countries might consider targeted HPV

vaccination for MSM. We assessed the prevalence of vaccine-preventable HPV types among young MSM visiting sexually transmitted infection (STI) clinics in the Netherlands.

Methods We used data from MSM included in the PASSYON study, a biennial cross-sectional study among STI clinic visitors aged 16–24 years that started in 2009 when girls-only HPV vaccination was introduced. MSM were asked to provide a penile and anal swab for HPV DNA testing (including the vaccine-preventable types HPV6/11/16/18/31/33/45/52/58) and blood for HPV antibody testing (HPV16/18/31/33/45/52/58).

Results We included 575 MSM with a median age of 22 years and a median of 15 lifetime partners. No trends in penile or anal HPV prevalence over time were seen. Of the 455 MSM with both swabs available, 79%, 62% and 53% were HPV DNA negative at both anatomic sites for HPV16/18, HPV6/11/16/18 and HPV6/11/16/18/31/33/45/52/58 respectively. Most of these MSM who were HPV DNA negative, were also seronegative (80% for HPV16/18 and 70% for HPV16/18/31/33/45/52/58).

Conclusion The HPV prevalence among MSM did not decline since girls-only vaccination was introduced indicating that MSM are unlikely to benefit from herd effects from girls-only vaccination. Because the majority of young MSM visiting the STI clinic were (sero)negative for HPV16/18, the most important oncogenic types in males, targeting this group for HPV vaccination could still be beneficial.

Disclosure No significant relationships.

P541 TO POOL OR NOT TO POOL STI SAMPLES IN MSM USING PREP? RESULTS OF THE COHMSM-PREP STUDY (ANRS 12369 – EXPERTISE FRANCE)

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10.1136/sextrans-2019-sti.616

Background Syndromic diagnosis of sexually transmitted infections (STIs) has shown its limits among MSM using PrEP due to the many asymptomatic infections. However, testing three biological sites (urethra, pharynx and anorectum) is expensive. Our objective was to implement and to evaluate a pooling method using the locally available GeneXpert instrument to test for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG) in the framework of the West-African CohMSM-PrEP study (Togo and Burkina Faso).

Methods Duplicate pharyngeal (P) and anorectal (A) e-swabs and first-void urine (U) samples were taken from every participant (n=192 in total). A specimen pool per participant (400 µL of each sample) was made and tested using the Xpert CT/NG kit. If positive, the individual samples were tested to confirm the site of infection. Duplicate individual samples were also tested for evaluation purposes using the Abbott CT/NG molecular technique and in-house qPCR.

Results A total of 32 CT infections (10U-20A-2P) and 34 NG infections (5U-19A-10P) were found. Twelve results obtained by testing of the pools were discordant from the individual

testing using Abbott CT/NG. When unpooling the samples, one discordant result was solved. Three CT infections (1 in each samplingsite) and four NG infections (2A and 2P) were missed; one CT (P) and three NG (A) infection were found to be false positive (one in each sampling site). This converts into a respective sensitivity and specificity of 91.2% (95%CI: 76.3–98.1%) and 99.8% (95%CI: 99.0–100.0%) for CT and 88.6% (95%CI: 73.3–96.8%) and 99.4% (95%: 98.3–99.9%) for NG of the pooling strategy. Cohen's Kappa agreement was 0.94 for CT and 0.89 for NG which is an almost perfect agreement.

Conclusion We showed that this pooling strategy performs well using the FDA approved point-of-care assay GeneXpert. This may be a very cost-effective strategy and also feasible, as the assay is widespread throughout the African continent for tuberculosis testing.

Disclosure No significant relationships.

P542 **PREVALENCE OF STIS AMONG MSM INITIATING PREP IN WEST-AFRICA (COHMSM-PREP ANRS 12369 – EXPERTISE FRANCE)**

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Background Men who have sex with men (MSM) coming forward for Pre-Exposure Prophylaxis (PrEP) are at high risk for HIV and other Sexually Transmitted Infections (STIs). However, little is known about the prevalence of STIs among MSM in West-Africa. Yet, understanding the STI epidemic among MSM will improve STI management. In the framework of a PrEP demonstration study in West-Africa (CohMSM-PrEP), we tested all participants for STIs at enrollment.

Methods The study was conducted in Abidjan-Côte d'Ivoire, Bamako-Mali, Lomé-Togo and Ouagadougou-Burkina Faso. Participants (n=507) were tested for the following STIs using the GeneXpert instrument: *Chlamydia trachomatis* (CT)/*Neisseria gonorrhoeae* (NG) in Anorectum (A), Urine (U) and Pharynx (P), and *Trichomonas vaginalis* (TV) in urine. *Mycoplasma genitalium* (MG) was tested using the S-DiagMGTV multiplex assay in A-U-P samples.

Results The overall prevalence of CT was 17.9% (19.4%, 22.0% 16.4%, and 13.6% in Lomé, Abidjan, Bamako and Ouagadougou, respectively). Most CT infections were anorectal (12.3%, followed by urethral (5.7%). In Bamako, the second most infected sample type was pharyngeal (6.0%) instead of urine (5.0%). Overall prevalence of NG was 15.8% (9.7%; 25.0%; 6.0%, 22.3% in Lomé, Abidjan, Bamako and Burkina, respectively). Most NG infections were found in the anorectum (10.7%), followed by the pharynx (5.7%). In Mali, no pharyngeal NG infections were detected. MG infection was 26.0% for Lomé and 27.6% for Ouagadougou (results for other sites not yet available). The majority of MG infections

were found in the anorectum (15.4%). Among all participants, only one urine sample with TV has been found in Bamako.

Conclusion We showed a very high prevalence of extra-genital STIs among PrEP users in West-Africa. We also detected infections which would not have been treated if a syndromic management approach would have been applied (87.9%). In order to limit transmission of infections we recommend to test also extra-genital sites for STIs in this population.

Disclosure No significant relationships.

P543 **COST-EFFECTIVENESS OF PRE-EXPOSURE PROPHYLAXIS IN MSM WITH EVENT-DRIVEN AND DAILY REGIMENS**

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Background Pre-exposure prophylaxis (PrEP) is highly effective in reducing HIV transmission among men who have sex with men (MSM). We investigated the impact of daily and event-driven PrEP on the transmission of HIV and *N. gonorrhoeae* (NG) and its cost-effectiveness in the Netherlands.

Methods We developed a stochastic agent-based transmission model of HIV and NG among MSM. We simulated three scenarios: (1) No PrEP; (2) Offering daily and event-driven PrEP; (3) Offering only daily PrEP. Three-monthly PrEP monitoring included testing for HIV, gonorrhoea, and other infections. From the Amsterdam PrEP Demonstration Project (AMPrEP) data, it was estimated that 27% of PrEP users prefer event-driven PrEP and they use half the amount of PrEP pills used by daily users. We assumed PrEP effectiveness was 86% regardless of regimen. Simulated outcomes of the transmission model were used in an economic model to calculate costs, quality-adjusted life-years (QALY), and incremental cost-effectiveness ratios (ICER), over 2018–2027, taking a health-care payer perspective. An ICER less than € 20,000 per QALY gained was considered cost-effective.

Results PrEP resulted in 3,486 HIV infections averted and 1,482 QALYs gained over 2018–2027. Gonorrhoea prevalence dropped from 0.782% in 2017 to 0.023% in 2027. When offering both daily and event-driven PrEP, the costs for PrEP medication were € 19 million over 2018–2027. This resulted in less total costs than when no PrEP is offered, making this programme cost-saving. With only daily PrEP, the costs for PrEP medication were € 22 million over 2018–2027, making this programme cost-effective with a mean ICER of € 217.40 per QALY gained.

Conclusion The PrEP programme (including STI monitoring) can be effective in reducing HIV incidence and gonorrhoea prevalence among MSM and can be cost-effective, even if all PrEP users prefer the daily regime. Monitoring of PrEP users can result in reductions in prevalence of STIs being monitored. Acknowledgements: AIDSfonds (2014037), ZonMw (522002003).

Disclosure No significant relationships.

P544 TRENDS IN RECREATIONAL DRUG USE AND ASSOCIATIONS WITH CAS, HIV AND STI AMONG HIV-NEGATIVE MSM IN AMSTERDAM BETWEEN 2008–2017

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10.1136/sextrans-2019-sti.619

Background Recreational drug use (RDU), particularly during sex, may contribute to human immunodeficiency virus (HIV) and sexually transmitted infections (STI) transmission by increasing sexual risk behaviour. We studied changes in RDU, including chemsex, and associations with condomless anal sex (CAS), HIV and STI among HIV-negative men who have sex with men (MSM).

Methods MSM enrolled in the Amsterdam Cohort Studies with ≥ 1 study visit between 2008–2017 ($n=887$) were asked questions on behaviors in the preceding 6 months and underwent HIV/STI testing (chlamydia, gonorrhoea, syphilis) biannually. Changes in RDU (overall/during sex) and chemsex (GHB/GBL, mephedrone, methamphetamine, ketamine, amphetamine, cocaine and/or XTC during sex), and their associations with CAS, HIV and any STI (<6 months), were tested across calendar years using logistic regression with generalized estimating equations, while adjusting for age, calendar year, country of birth and education level.

Results Of 884 included MSM, 83.5% were born in the Netherlands and 75.3% had a college degree. Median age on 1-January-2008 was 32.4 (IQR=24.9–38.9) years. Median number of visits with RDU data was 11 (IQR=5–18). RDU increased from 66.8% in 2008 to 70.0% in 2017 (2017 vs 2008: aOR=1.23, 95%CI=1.03–1.48). RDU during sex increased from 52.4% in 2008 to 58.7% in 2013 (2013 vs 2008: aOR=1.22, 95%CI=1.05–1.42) and remained stable afterwards. Chemsex increased from 19.3% in 2008 to 23.6% in 2017 (2017 vs 2008: aOR=1.52, 95%CI=1.21–1.90). Among those with a reported sex partner, RDU during sex was associated with CAS (aOR=1.33, 95%CI=1.17–1.52), HIV (aOR=7.92, 95%CI=2.75–22.8), and STI (aOR=2.31, 95%CI=1.92–2.77). Chemsex was associated with CAS (aOR=1.54, 95%CI=1.32–1.79), HIV (aOR=6.46, 95%CI=3.48–12.0), and STI (aOR=2.29, 95%CI=1.88–2.76).

Conclusion Slight increases in RDU and chemsex were found over time among HIV-negative MSM in Amsterdam and were strongly associated with CAS, HIV and STI. Effective interventions to reverse these trends in RDU are needed.

Disclosure No significant relationships.

P545 TRENDS IN HIV INFECTION AND AIDS IN MEN WHO HAVE SEX WITH MEN (MSM): ADULTS COMPARED TO YOUNG PEOPLE IN SAO PAULO, BRAZIL

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Background The objective was to analyze the trends of AIDS cases and HIV infection cases among man who have sex with man (MSM) adults versus young people (15–24 years old) in the period from 2007 and 2017.

Methods A trend study using polynomial regression models carried out with AIDS cases and HIV+ cases compared among MSM adults and young people (15–24 years old) in the period from 2007 to 2017. The annual number of AIDS cases and HIV+ cases was considered as the dependent variable (Y), regarding the studied categories, and time was the independent variable (X), represented by calendar years. The goodness of fit via r^2 and $p < 0.05$ were used to determine which models and data were most appropriate.

Results 88,025 AIDS cases were analyzed versus 70,753 HIV+ cases in adult men. For AIDS cases a decreasing trend was observed with first-order modeling [$Y = -205x + 9,235$; $r^2 = 0.83$; $p = 0.039$]; however for HIV+ the trend was increasing [$Y = 547x + 3,147$; $r^2 = 0.95$; $p < 0.001$]. Adult MSM with AIDS ($n = 20,837$) versus HIV+ ($N = 30,594$) were selected. For MSM-AIDS, a significant difference with increasing tendency was observed [$Y = 47x + 1,614$; $r^2 = 0.58$; $p = 0.050$] and for MSM-HIV+ the trend was increasing, but with higher growth rate [$391x + 430$; $r^2 = 0.97$; $p < 0.001$]. Young MSM (15–24yo) with AIDS ($N = 3,734$) versus HIV+ ($N = 10,185$) were selected. For young MSM-AIDS, there was an increasing tendency [$Y = 28x + 172$; $r^2 = 0.81$; $p = 0.036$] and for young MSM-HIV+ the tendency was increasing and with a higher rate [$155x - 8$; $r^2 = 0.96$; $p < 0.001$].

Conclusion The total number of cases of HIV+ men exceeded AIDS cases in 2014. However, among MSM-HIV+, the overcoming point was earlier in 2010, and among young people the overcoming point was earlier, before 2007. Among the MSM the trends of HIV and AIDS infection are markedly increasing among young people, highlighting the greater vulnerability of young MSM in Brazil in need of early HIV testing and timely treatment.

Disclosure No significant relationships.

P546 "STIS ARE EVERYONE'S RESPONSIBILITY": A NEW CONCEPTUAL MODEL OF SEXUAL HEALTH AMONG GAY AND BISEXUAL MEN

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Background Around the world, rates of sexually transmissible infections (STIs) continue to rise among gay and bisexual men. To respond to these increases, information is needed on the sociocultural realities underpinning prevention and management among at-risk populations, including gay and bisexual men.

Methods In mid-2018, qualitative data were collected from an Australian sample of gay men via a moderated online discussion forum ($n = 35$) and in-depth interviews with forum participants ($n = 5$) and sexual health physicians ($n = 4$). An inductive thematic analysis was undertaken.

Results First, gay men and sexual health physicians mostly agreed that STIs should be a **normalised**, de-stigmatised aspect of sexuality. Second, many participants felt that STI prevention and management should be **individualised**, tailored to individual need and preference. Third, participants desired a **holistic**

approach to sexual health that encompassed multiple, complementary strategies for managing sexual health. Participants characterised this conceptual model as the 'ideal', acknowledging that in reality and within each domain this vision is not always realised. For example, participants described stigmatising reactions to partner notification and condom use (or non-use). Physicians, on the other hand, reflected on the real-life limitations of providing individualised patient care, particularly the strain frequent testing and treatment places on resource-limited health settings. Finally, many participants felt that some strategies (notably HIV pre-exposure prophylaxis) were disproportionately valued by individuals and health organisations, undermining a holistic approach by focusing on one dominant strategy.

Conclusion The conceptual model defined by this research provides a framework for future efforts to promote sexual health while acknowledging enduring challenges to normalised, individualised and holistic approaches. Gay and bisexual men and sexual health physicians value a multifaceted and choice-driven approach to sexual health, reinforcing the need for a menu of prevention options that reflect the realities of STI transmission balanced against the resources required to deliver sexual health care.

Disclosure No significant relationships.

P547 RELATIONSHIP LENGTH OF GAY MALE COUPLES AND SEXUALLY TRANSMITTED INFECTIONS

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Background Bacterial sexually transmitted infections (STIs) are preventable, treatable, and have been increasing among men who have sex with men due to limited STIs/HIV screening and high-risk sexual behaviors, including partner concurrency and condomless anal sex. Within stable relationships, sexual behavior patterns may change over time. This analysis was conducted to estimate if relationship length is associated with STIs prevalence among gay men couples.

Methods Gay men who reported having a primary relationship answered a survey and were tested for bacterial STIs (syphilis, chlamydia or gonorrhoea) during 2015 in Lima, Peru. Among couples, discordant STI status (only one partner had an STI) and concordant status (both partners had the STI) were compared by STI. Generalized linear models, controlling for correlation between couple members, were used to estimate adjusted prevalence ratios (aPRs).

Results Overall, 254 individuals were included (98 couples and 58 one partner only). Median age was 26 years (IQR: 22–30), 62 individuals (24.4%) reported sex outside their relationship and 76 (29.9%) were diagnosed with at least one bacterial STI. Regarding relationship length, 86 (33.9%) had been in their current relationship <6 months, 86 (33.9%) between 6–18 months, and 78 (30.7%) for 18+ months. Among the 98 couples, more couples had discordant STI status than concordant status for syphilis (12.8% vs 4.3%,

$p=0.001$), chlamydia (25.0% vs 7.6%, $p<0.001$) and gonorrhoea (20.7% vs 2.2%, $p<0.001$). Having a relationship for 18+ months was negatively associated with STI prevalence (aPR: 0.55, 95% CI: 0.30–0.98) after adjusting for age, HIV status, use of condom, and anal intercourse outside primary relationship.

Conclusion Our data suggest STIs prevalence is lower among gay men in longer term relationships. Future studies on gay male couples should consider the effect of relationship length on sexual behavior patterns to implement interventions for reducing STIs occurrence based on findings in a gay couple context.

Disclosure No significant relationships.

P548 ACUTE GASTROENTERITIS IN MEN-WHO-HAVE-SEX-WITH-MEN IN SEATTLE, WASHINGTON, 2017–2018

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Background Men-who-have-sex-with-men (MSM) are at increased risk for infection with enteric pathogens such as *Shigella* through sexual transmission. The etiology of acute gastroenteritis in this population has not been examined since the advent of molecular diagnostics. This study describes the causes of acute gastroenteritis in MSM in Seattle, Washington.

Methods Clinical and laboratory data were obtained for 226 MSM individuals seen in University of Washington-affiliated hospitals and clinics who underwent multiplex stool PCR testing (FilmArray GI Panel, BioFire Diagnostics, Salt Lake City, UT) from January 1, 2017 to June 1, 2018. Student's t-test and chi-square were used to determine significant differences between HIV-positive and HIV-negative men.

Results Of 226 individuals tested, 130 (57.5%) had at least one positive stool test. Of individuals with a positive test result, 70% were HIV-positive. Sixty-one percent of HIV-negative patients were using PrEP. Of the positive samples, 88.7% detected a bacterial etiology, 26% detected a virus, and 40% a protozoal pathogen. *Shigella*, *Campylobacter* and diarrheagenic *E. coli* were the most commonly-detected bacteria (30.5%, 17.2% and 33.1% of positive samples, respectively), while norovirus was the most commonly-detected virus (15.2%), and *Giardia* was the most common parasite (20.5%). The etiologies of gastroenteritis were similar between HIV-positive and HIV-negative men. Cultured *Shigella* and *Campylobacter* isolates were frequently resistant to multiple antibiotics.

Conclusion MSM present with acute gastroenteritis caused by a range of pathogens, including some not detected by conventional stool culture, as well as sexually-transmitted pathogens such as *Shigella*, *Campylobacter* and *Giardia*. PrEP may be a risk factor for sexually-transmitted enteric infections as well as other STIs due to risk compensation. High levels of resistance to antibiotics used to treat gastroenteritis is consistent with a high rate of antibiotic exposure in this population and/or transmission of multi-resistant strains. New approaches may be needed to detect, treat and prevent enteric infections in MSM.

Disclosure No significant relationships.

P549 WHAT IS THE OPTIMAL TESTING STRATEGY FOR OROPHARYNGEAL *NEISSERIA GONORRHOEAE* IN MSM VISITING STI CLINICS?

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Background The majority of oropharyngeal *Neisseria gonorrhoeae* (*N. gonorrhoeae*) infections are asymptomatic, and many oropharyngeal *N. gonorrhoeae* infections could remain undetected, creating a reservoir for ongoing transmission and drug resistance. It is yet unknown what the optimal testing policy is for oropharyngeal *N. gonorrhoeae* infections in men who have sex with men (MSM), as data on routine universal screening are missing.

Methods Surveillance data from all Dutch STI clinics between 2008–2017 were used (n=271,242 consultations). Oropharyngeal testing policy was defined as routine universal screening, that is $\geq 85\%$ of MSM consultations included oropharyngeal testing per clinic per year, or as selective testing ($< 85\%$ tested). The proportion infections missed using selective testing was calculated by extrapolating positivity found by routine universal screening. Independent risk factors for oropharyngeal *N. gonorrhoeae* were assessed among MSM routinely universally screened between 2016–2017 using backward multivariable logistic regression analyses.

Results Routine universal screening was performed in 90% (n=238,619) of consultations. Oropharyngeal *N. gonorrhoeae* positivity was higher using routine universal screening (5.5%, 95%CI 5.4–5.6, n=12,769) compared to selective testing (4.7%, 95% CI 4.4–5.0, n=799, $P < 0.001$). When extrapolating, selective testing missed 45.2% of infections (95%CI 42.6%–47.8%, n=659). The proportion oropharyngeal-only among tested was 55% for routine universal screening and 47% for selective testing. Independent risk factors for oropharyngeal *N. gonorrhoeae* were age < 31 years (OR2.1, 95%CI 1.9–2.3) age 31–43 years (OR1.7, 95%CI 1.6–1.9, compared to ≥ 43 years), being notified for any STI (OR2.0, 95%CI 1.9–2.1), concurrent urogenital *N. gonorrhoeae* (OR2.4, 95%CI 2.1–2.7), and concurrent anorectal *N. gonorrhoeae* (OR11.4, 95%CI 10.6–12.3). When using any of the risk factors age, notified or oral sex as testing indicators, 98.4% of MSM would be tested, finding 99.5% of infections.

Conclusion Selective testing missed two fifth of oropharyngeal *N. gonorrhoeae* infections in MSM, of which more than half would be oropharyngeal-only. Using independent risk factors as testing indicator is not specific. Therefore, routine universal oropharyngeal screening in MSM is feasible and warranted, as is currently advised in the Dutch guidelines.

Disclosure No significant relationships.

P550 HIGH AWARENESS BUT LOW UPTAKE OF HPV VACCINE AMONG GBMSM IN ONTARIO, CANADA: RESULTS FROM THE #ICRUISE STUDY

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Background Gay, bisexual, and other men who have sex with men (gbMSM) are at higher risk for human papillomavirus (HPV) infection and HPV-associated anogenital warts and cancers. In the province of Ontario, a publicly-funded program was introduced in 09/2016 to provide the HPV vaccine at no cost to young gbMSM (≤ 26 years). We examined men's experiences with the HPV vaccine.

Methods #iCruise was an Ontario-wide study of gbMSM seeking sexual health information online. Men were recruited through websites and socio-sexual apps from 07/2017–01/2018. Men self-completed online questionnaires including items on HPV awareness and vaccination. We compared younger (≤ 26) to older (≥ 26) men using Pearson's chi-square tests and identified correlates of vaccination and willingness to get vaccinated using Poisson regression; results are reported as age-adjusted prevalence ratios (PR) with 95% confidence intervals (CI).

Results 975 participants were aged 14–89 years (34.7% aged ≤ 26); most had heard of HPV (94.0%) and the vaccine (79.2%). More younger men (25.5%) versus older men (14.3%; $p < 0.001$) had received 1+ doses. Vaccine initiation was associated with age (≤ 26 : PR=1.79; CI: 1.02–1.14; $p < 0.001$), being out to a doctor (PR=2.65; CI: 1.88–3.75; $p < 0.001$), living in Toronto (PR=1.53; CI: 1.18–2.00; $p < 0.001$ compared to elsewhere), identifying as gay (PR=2.46; CI: 1.45–4.16; $p = 0.001$) and having more than a high school education (PR=1.74; CI: 1.09–2.78; $p = 0.019$). Vaccine initiation was not associated with ethnicity, income, or having an HIV/STI test in the past year. Most men were willing to get the vaccine if it were free (79.6%) but fewer (9.4%) were willing if they had to pay out-of-pocket costs.

Conclusion Approximately one year since launching the publicly-funded program, more younger than older men had received it, reflecting vaccine availability at no cost. Nevertheless, 75% of younger men were not yet vaccinated, suggesting a need for improved awareness of the public program among patients and providers alike, and ensuring accessibility in non-stigmatizing and welcoming healthcare environments.

Disclosure No significant relationships.

P551 **EXTRAGENITAL GONORRHEA POSITIVITY AMONG MEN WHO HAVE SEX WITH MEN – STD SURVEILLANCE NETWORK, 2015–2017**

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Background Extragenital gonorrhea (GC) is often asymptomatic, detected through screening of anatomic sites of exposure. Antimicrobial therapy with ceftriaxone plus azithromycin is the recommended GC treatment; monotherapy (azithromycin or doxycycline) is recommended for chlamydia (CT). In urethral CT-positive patients who are urethral GC-negative and not screened at extragenital sites, CT monotherapy may lead to GC undertreatment. We assessed urethral and extragenital GC positivity among MSM seeking care in STD clinics.

Methods Data were obtained from 30 STD clinics in 10 local health jurisdictions included in the STD Surveillance Network. Participants were adult MSM with ≥ 1 clinic visit between 1/1/2015–12/31/2017. Data were analyzed by clinic visit. Using an inverse-variance random effects model to account for heterogeneity between jurisdictions, weighted positivity estimates and 95% confidence intervals (CI) were calculated for overall, urethral, rectal, and pharyngeal GC among all MSM, and rectal and pharyngeal GC among MSM who were both urethral CT-positive and urethral GC-negative.

Results Of 100,613 GC and CT testing visits, overall GC positivity (positivity at any site) was 16.8% (95% CI=14.6–19.0). By anatomic site, urethral GC positivity was 7.7% (95% CI=5.9–9.5), rectal GC positivity was 12.5% (95% CI=11.1–13.9), and pharyngeal GC positivity was 9.2% (95% CI=8.0–10.4). Of 3,981 testing visits among urethral CT-positive and urethral GC-negative MSM who were tested at extragenital sites (rectum and/or pharynx), extragenital GC positivity was 10.1% (95% CI=8.7–11.5), rectal GC positivity was 5.3% (95% CI=4.3–6.3%), and pharyngeal GC positivity was 6.9% (95% CI=5.7–8.1).

Conclusion Extragenital GC was fairly common among MSM. Without extragenital screening, ~10% of extragenital gonococcal infections would have been missed and consequently undertreated in urethral CT-positive/urethral GC-negative MSM. In addition to potentially failing to cure GC and facilitating ongoing transmission, undertreatment with azithromycin 1g or doxycycline could potentially select for resistance. These findings underscore the importance of extragenital screening in MSM per CDC guidelines.

Disclosure No significant relationships.

P553 **INITIATING A SEXUAL NETWORK STUDY AMONG MEN WHO HAVE SEX WITH MEN: A MIXED-METHODS PILOT STUDY**

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Background In preparation for a prospective network study of men who have sex with men (MSM), we conducted a mixed-methods pilot study to examine feasibility and acceptability of several study components, including recruitment, data collection, and compensation.

Methods We conducted in-depth interviews (IDIs) with eight providers serving MSM and five focus group discussions (FGDs) with 34 MSM from four target MSM populations: young Black men, HIV-positive men, HIV-negative men on pre-exposure prophylaxis (PrEP), and men not engaged in medical care. We also conducted a 4-week pilot of a smartphone app for ecological momentary assessment (EMA) with 20 MSM (ongoing). EMA surveys were employed to capture daily data on anal and oral sex, consumption of alcohol and drugs, use of hook-up and social networking apps, and other behaviors. We used a brief exit survey to assess EMA app acceptability.

Results A major theme identified during IDIs and FGDs was the importance of developing trust and maintaining confidentiality during proposed respondent driven sampling (RDS) recruitment activities. A second FGD theme emphasized the importance of compensating participants appropriately for RDS and other study activities. All EMA participants reported being “completely comfortable” reporting their sexual behavior through the app. Most (67%) preferred the app to in-person interviews. Several participants identified technical issues with the app, including not receiving push notifications and spontaneous app closure.

Conclusion IDIs and FGDs confirmed that developing trust and protecting participant confidentiality are critical for successful RDS recruitment. FGDs showed that MSM value their contributions to research and desire commensurate compensation. The EMA app was acceptable, despite technological challenges. It is feasible to use EMA to capture sexual behavior in this population. This mixed-methods pilot allowed for adjustments to the planned network study, including changes in compensation type and amount, troubleshooting technical issues, and modifications to the EMA survey.

Disclosure No significant relationships.

P554 ADHERENCE AND SEXUALLY TRANSMITTED INFECTIONS AMONG MSM RECEIVING CARE IN A COMMUNITY-BASED HIV PREP CLINIC IN THE DEEP SOUTH

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Background We have previously identified PrEP adherence as a risk factor for STIs in an academically affiliated Deep South PrEP clinic. In this analysis of a community-based Deep South PrEP clinic, we hypothesized that PrEP adherence and high risk sexual behaviors would be associated with STI.

Methods This was a retrospective analysis of men who have sex with men (MSM) aged ≥ 18 years receiving PrEP at a community-based clinic in Birmingham, AL from 2016 to 2018. HIV negative patients were included if they completed ≥ 1 sexual behavior and PrEP adherence survey and were prescribed PrEP. Screening for gonorrhea, chlamydia, and syphilis and patient-reported outcomes (PROs) were performed at quarterly clinic visits. The outcome of interest was incident bacterial STI. We evaluated the association of sexual behavior and PrEP adherence PROs with STI using logistic regression.

Results Of 119 eligible participants, 48% were ≥ 35 years, 21% reported no condom use, and 75% reported ≥ 2 sexual partners. Over the study period, 29 cases of STI were detected including 18 chlamydia, 10 gonorrhea and 1 syphilis case. However, 14 participants declined STI testing. Of 85 patients who completed ≥ 1 PRO (initial visit plus follow-up), 74% reported excellent PrEP adherence. By univariate and multivariable analysis neither condom use, number of sexual partners, or PrEP adherence were significantly associated with STIs, though consistent condom use approached significance.

Conclusion In a community-based PrEP clinic in the Deep South, adherence was high and high-risk sexual behaviors were common. Neither adherence nor sexual behaviors were associated with STIs. Although it did not meet statistical significance, there was a trend toward STI for those reporting condomless anal sex. Surprisingly, many patients declined recommended STI testing, leaving missing data and suggesting an overall lack of awareness of STI risk in this community. These results highlight the need for vigorous STI screening and education

Disclosure No significant relationships.

P555 MONITORING HIV AND SYPHILIS CO-INFECTION AMONG MEN WHO HAVE SEX WITH MEN IN BRAZIL, 2009–2016

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Background HIV and Syphilis, including co-infection, are increasing among men who have sex with men (MSM) in several countries. The objective of this analysis is to compare the prevalence of HIV-syphilis co-infection, HIV only, or syphilis only among MSM in Brazil in 2009 and 2016 and associated factors for 2016.

Methods Two MSM Respondent Driven Sampling (RDS) cross-sectional studies were carried out in 2009 (10 cities) and 2016 (12 cities) in Brazil. HIV and syphilis serology were performed using standard rapid tests. Risk behavior and sociodemographic data were obtained. RDS weighted prevalence rates with 95% confidence intervals (95%CI) were estimated. Poisson regression was used to estimate the prevalence rate ratio (PRR) and 95%CI of each outcome, as compared to those with no infection.

Results The prevalence rates of syphilis only (80% increase) and HIV-syphilis co-infection (136% increase) were significantly different between 2009 and 2016 (Table 1). HIV only was relatively stable. For 2016 data, older age (25+ y.o.) and previous diagnosis of sexually transmitted infections were independently associated with co-infection, PRR=2.49 (95% CI=1.87–3.31) and 5.50 (95%CI=4.31–7.02), respectively. Other predictors were heterogeneous with regard to different outcomes.

Conclusion Although the prevalence rate of HIV infection alone did not increase so between 2009 and 2016, it is of extreme concern the increase in rates of syphilis, alone or as co-infection with HIV, among MSM in Brazil. Treatment and prevention efforts may not be reaching those at higher risk and may lack effectiveness. Syphilis may be an important driver of the persistence of the HIV epidemic among MSM in Brazil. Nationwide public health actions, including syphilis testing, treatment and reiterating consistent condom use, are urgently needed.

Disclosure No significant relationships.

P556 HISTORY OF STI THERAPY AND WILLINGNESS OF PREP AMONG HIV-NEGATIVE MSM COHORT IN JAPAN

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Background Pre-exposure prophylaxis (PrEP) is not yet approved and information of PrEP is still very limited in Japan. In such circumstances, we established an HIV-negative MSM cohort at National Center for Global Health and Medicine, Tokyo in 2017. This study aimed to explore correlation between histories of STI therapies and willingness of receiving PrEP in this cohort.

Methods Face-to-face interviews with a semi-structured standardized questionnaire was conducted. HIV incidence risk index for MSM was used to identify the risk of HIV acquisition and scores of 10 and over were defined as at the high risk. Willingness of PrEP was divided into 4 categories: “Yes definitely”, “Yes probably”, “No probably” and “No definitely”. Histories of STI therapies within 1 year against at least one of followings; syphilis, gonorrhea, chlamydia, hepatitis A, B,

and C virus infection, genital herpes, amoebiasis, giardiasis, and condyloma, were recorded.

Results A total of 230 MSM completed the interviews from November 2017 through October 2018. The median age was 35 years (range: 18–70). MSM at the high risk was found in 185 (80.4%). MSM who knew PrEP was only 61.3%. Positive willingness of PrEP was observed in 64.8%. MSM who answered “No definitely” were 21 among 185 high risk MSM. Their main negative reasons were “I think my HIV acquisition risk is low” in 12 MSM and “I don’t like to take medicine” in 8. Histories of STI therapy within 1 year were found in 81 MSM (35.2%). Among them, 27 (33.3%) had still the negative willingness. There was no correlation of the positive willingness and history of STIs ($p=0.66$).

Conclusion Still one third of MSM in our cohort lacked the proper knowledge of PrEP. Especially it is important to allow themselves to assess their own risk of HIV infection.

Disclosure No significant relationships.

P557 “FLUX NZ”: AN ONLINE NATIONAL COHORT INVESTIGATING HIV, STI AND DRUG-RELATED PRACTICES AMONG NEW ZEALAND GAY AND BISEXUAL MEN

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10.1136/sextrans-2019-sti.631

Background HIV pre-exposure prophylaxis (PrEP) and chemsex present both opportunities and challenges for sexual health improvement among gay and bisexual men (GBM). However, there is scant evidence to inform responses in New Zealand (NZ), notably prevalence, uptake and cessation of behaviours over time. We sought a better understanding by recruiting a diverse national cohort of GBM.

Methods Flux NZ is a national online prospective observational study investigating wellbeing among GBM in NZ. The protocol, questionnaire and data management system were based on a concurrent Australian study. Recruitment was predominantly via social media and community partners. Eligible participants were GBM living in NZ. We present baseline descriptions of PrEP, STI and illicit drug-related data among the cohort to date.

Results The 315 participants are broadly reflective of the target population (10.8% identified as indigenous Maori, 59% lived outside Auckland the largest city, mean age 33.6 years (SD 15.6), 8.3% diagnosed HIV-positive). Among HIV-negative participants, 50% had heard “a lot” and 44% “a little” about PrEP; 18.2% were currently using PrEP. 57% of all participants had tested for STIs in the past 6 months; 7%, 5.7% and 3.2% were diagnosed with gonorrhoea, chlamydia and syphilis respectively. Drug use in the past 6 months was 37.5% cannabis, 35.6% amyl, 17.5% MDMA, 5.1% methamphetamine, 4.8% LSD,

4.4% cocaine, 3.2% GHB, 2.5% amphetamine, 1.0% ketamine, 0.3% synthetic cannabis, 0% mephedrone, 0% heroin, and 1.9% other hallucinogens/psychedelics. “Any” drug use was 57.8% in the past 6 months and 78.7% ever. Of those using “party drugs” (MDMA, amphetamine, cocaine, methamphetamine, GHB, ketamine, LSD) recently, 29.2% had done so to enhance sex, the majority “once” (4.7%) or “a few times” (15.1%).

Conclusion The Flux online cohort design effectively recruits GBM in NZ. This will enable comparative research of the impact of HIV, STI and drug harm reduction policies in the two countries.

Disclosure No significant relationships.

P558 SEXUAL HEALTH, SYNDemics AND ASSETS AMONG MEN WHO HAVE SEX WITH MEN: SECONDARY ANALYSIS OF MULTI-NATIONAL SURVEYS

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Background Globally, gay, bisexual and other men who have sex with men (GBMSM) experience an increased burden of poor sexual, mental and physical health. Syndemics theory provides a framework to understand these interrelated health problems and how to intervene.

Methods Comparative quantitative secondary analysis of syndemic-related data are presented from two international, online, cross-sectional surveys: SMMASH2 in Scotland, Wales, Northern Ireland and the Republic of Ireland (N=3220); and Sex Now in Canada (N=7872).

Results In both studies negative sexual, mental and physical health outcomes were clustered, providing evidence of the syndemic (SMMASH2 O/E Ratio=1.32, 95% CI 1.25–1.40; Sex Now O/E Ratio=1.59, 95% CI 1.45–1.73). There were differences between the studies in the variables that were associated with experience of the syndemic. In Sex Now we found experience of the syndemic was associated with worries about sexuality-related stigma (AOR 1.87, 95% CI 1.23–1.54) and experience of discrimination (AOR=1.83, 95% CI 1.60–2.10). Equally, some community assets appeared to have a protective effect on the experience of syndemics. In Sex Now, aspirations were significant; e.g., being unlikely to achieve quality of life significantly associated with increased odds of experiencing the syndemic (AOR=1.89, 95% CI 1.63–2.19), while measures of community engagement were not significant. In SMMASH2, sense of coherence – a measure of resilience – was significant (AOR=0.98, 95% CI 0.96–0.99), indicating that higher sense of coherence was associated with decreased odds of experiencing the syndemic.

Conclusion These results present an important step forward in our understanding of syndemics. They provide new insights into how to intervene to reduce the interrelated burden of poor sexual, mental and physical health among GBMSM and point to a theoretical mechanism through which assets-based approaches to health improvement could function.

Disclosure No significant relationships.

P559 INCARCERATION, STRESS AND SEXUAL RISK-TAKING: AN INTERSECTIONAL ANALYSIS OF BLACK MEN WHO HAVE SEX WITH MEN IN THE DEEP SOUTH

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Background This study examined if the intersection of stress and experiences of incarceration was associated with sexual risk-taking among Black gay, bisexual and other men who have sex with men ('Black MSM') in the Deep South of the United States.

Methods Data for this analysis were collected during 2013–2015 as part of a study of sexual health among Black cisgender MSM in the states of Mississippi and Georgia. At baseline, participants responded to a 12-item scale of stressful experiences in the previous year with responses organized into tertiles (low, medium, high stress). Multivariate analyses assessed independent and interactional associations between stress/incarceration and several key sexual health risk practices. **Results** Among our overall sample of 355 Black MSM, compared to those reporting a relatively low level of stress, a high level of stress was associated with drug use in the context of sex (adjusted odds ratio [OR]=2.0, 95% confidence interval [CI]:1.1–3.6, $p=0.03$). While this association was observed for men without incarceration histories (aOR=2.6, 95%CI:1.2–5.8, $p=0.015$), among those who had been incarcerated the relationship was stronger (aOR=3.9, 95%CI:1.8–8.6, $p<0.001$) and for these men experiencing even a medium level of stress was associated with sexual drug use (aOR=3.4, 95%CI:1.6–9.1, $p<0.001$). High stress among previously incarcerated MSM was also associated with condomless casual sex (aOR=2.8, 95%CI:1.3–6.1, $p<0.001$) and having ≥ 6 partners in six months (aOR=2.8, 95%CI:2.8-1.1-7.1, $p=0.03$); similar associations were not observed among men who had not been incarcerated.

Conclusion While stress was associated with some sexual risk taking among Black MSM, its intersection with incarceration was consistently (and more strongly) associated with a greater number and diversity of sexual risk practices. Men who have been incarcerated may struggle to deal with life stressors. Post-release programs for this population should provide adaptive tools for dealing with stress, including specific attention to safer sex and sexual risk.

Disclosure No significant relationships.

P560 HIV PREVENTIVE BEHAVIOUR DURING LAST SEX WITH A NON-STEADY PARTNER – SELF-REPORTED DATA FROM 113,000 MSM FROM 66 COUNTRIES

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10.1136/sextrans-2019-sti.634

Background In Europe and the Americas, men-who-have-sex-with-men (MSM) are heavily affected by HIV. Having traditionally relied mainly on condoms and sero-adaptive behaviours to prevent HIV transmission, more recently biomedical prevention strategies such as pre-exposure prophylaxis (PrEP) among HIV-negative and viral suppression among HIV-diagnosed men have been adopted. We analysed the choice of HIV prevention behaviour (HIV-PB) and determinants of the lack of defined HIV-PB during sex among MSM across 66 countries.

Methods Between October 2017 and May 2018, self-reported data were collected online: EMIS-2017 in 48 European countries (including Lebanon and Israel), and LAMIS in 18 predominantly Latin American countries. Here we focus on men who reported on their last anal sex with a non-steady partner. We used a multilevel multivariate regression model (MMRM) to identify demographic and contextual factors associated with the lack of HIV-PB such as condom use, undetectable viral load, PrEP use or serostatus disclosure.

Results Our analysis included 71,123 MSM from EMIS-2017 and 41,834 MSM from LAMIS. Condom use remained the primary HIV-PB, followed by sero-adaptive behaviours. Using antiretrovirals as HIV-PB accounted for 14.9% (HIV-diagnosed men: 83.4%; other MSM: 3.1%). No HIV-PB as defined above was reported by 20.5%, ranging from 12.1 to 39.7% across countries. In the MMRM, increasing age, false assumptions about HIV recognisability, struggling financially, living in smaller settlements, having intercourse in a gay sex venue, a group-sex setting, and receiving money for sex were associated with increased odds for lack of HIV-PB. The strongest associations were observed among those who had never been tested for HIV (OR=1.86, 95%CI: 1.79–1.94) and those who had not bought or received condoms in the last 12 months (OR=2.75; 95%CI: 2.60–2.91).

Conclusion About 1-in-5 MSM did not use HIV-PB. While antiretrovirals for treatment and prophylaxis gain importance, HIV-testing and condom promotion remain essential to encourage HIV-PB.

Disclosure No significant relationships.

P561 DEVELOPING SURVEILLANCE TOOLS TO MEASURE MSM'S HIV INFECTION RISK IN THE ERA OF COMPLEX BIOBEHAVIOURAL PREVENTION STRATEGIES

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Background Behavioural surveillance enables monitoring of disease epidemics, assessment of health promotion, development of health policy and service planning. However, the emergence of multiple effective biobehavioural risk management strategies to prevent HIV transmission (including PrEP, treatment-as-prevention (TasP), negotiated safety (NS), serosorting, condom use), demands new surveillance tools able to reflect this complexity. Here, we critically discuss our new surveillance tool, developed to measure MSM's biobehavioural HIV risk-taking.

Methods Items were developed with surveillance experts in Scotland and Australia, piloted within Scotland, then delivered within the Scottish Gay Men's Bar Survey (n=972 MSM), across the commercial gay scenes of Scotland's two largest cities in 2017. Participants were asked about sex with regular and casual partners separately, condom use and condomless anal intercourse (CAI), their HIV status, PrEP use and their partners' HIV and undetectable viral load (UVL) status.

Results Overall, 5.6% of participants were HIV+. For our HIV-/untested participants, 67.7% were categorised as 'lower risk' since, in the last year, they reported; (i) PrEP use (4.5%) (ii) no CAI (37.1%) (iii) Negotiated safety; CAI with 1 regular HIV- partner (16%) (iv) TasP; CAI with 1 regular HIV+ UVL partner (0.4%) (v) Serosorting; CAI with casual and/or multiple regular HIV- partners (4.1%) (vi) Both serosorting and TasP CAI with multiple regular and casual partners (5.4%) The remaining 32.3% were categorised as 'higher risk'; HIV-/untested men not on PrEP who reported CAI with HIV status-unknown partners, or HIV+ partners with unknown/detectable viral load. Of these, 67.6% report 2+ CAI partners, making them potentially eligible for PrEP in Scotland.

Conclusion No CAI, NS and PrEP were the key biobehavioural risk strategies used. Two-thirds of our higher risk men could, but are yet to, benefit from PrEP. Although offering new insights, we invite critical engagement with these risk criteria which present different, yet related challenges for researchers and MSM alike.

Disclosure No significant relationships.

P562 HEALTH SEEKING BEHAVIOUR AND ACCEPTABILITY OF ONLINE OUTREACH EFFORTS AMONG MSM USING SEX-SEEKING APPS/WEBSITES

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10.1136/sextrans-2019-sti.636

Background Gay, bisexual, and other men who have sex with men (GBM) commonly use the Internet to find sexual partners and look for sexual health information. Little is known about online health information seeking behaviour and

whether GBM welcome this information on socio-sexual apps/websites.

Methods GBM aged 14+ from Ontario were recruited into the #iCruise study via socio-sexual websites/apps from 07/2017-01/2018. Participants reported online health seeking behaviours and acceptability of sexual health information appearing as a clickable link/pop-up on socio-sexual apps/websites. Stratified by HIV status, multivariable logistic regressions were used to determine associations between sociodemographic variables and online health-seeking behaviour.

Results There were 910 GBM who were eligible for this baseline cross-sectional analysis. The majority reported being White (62%), and gay-identified (65%). A minority of participants were HIV-positive (12%), university educated (44%), and lived in rural areas (12%). Over two-thirds (69.3%, n=631/910) reported looking up online health information in the previous 3 months. Among HIV-negative/unknown status participants, online health seeking behaviour was negatively associated with older age (50+ vs <29, OR:0.35, 95% CI:0.23-0.55) and unknown HIV status (vs HIV-negative) (OR:0.57, 95% CI:0.39-0.84) and positively associated with more education (University vs High School OR:2.49, 95% CI:1.55-4.01). There were no significant associations among HIV-positive GBM. Having health information integrated into sex-seeking apps/websites was endorsed by 79% (agreed/strongly agreed). Acceptability via clickable link of health topics within sex-seeking apps/websites was very high: closest HIV/STI testing (96%); ASO website (93%); mental health information/resources (91%); public health/government website (90%); substance use information/resources (89%). Acceptability of a pop-up/reminder/notification with sexual health information such as how HIV is spread/how to prevent HIV transmission and safer sex practices to reduce HIV/STI transmission was also very high (86% and 89%, respectively).

Conclusion Acceptability of HIV and sexual health education information being embedded within dating apps/websites was very high and is currently an underutilized educational platform.

Disclosure No significant relationships.

P563 MSM PREDICTIVE MODELING WITHIN A LARGE, LINKED DATABASE OF LABORATORY, SURVEILLANCE, AND ADMINISTRATIVE HEALTHCARE RECORDS

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Background Enumeration or measurement of populations of men who have sex with men (MSM) is critical to developing and evaluating sexually transmitted and bloodborne infection (STBBI) prevention and treatment programs. However, there is a lack of data sources in which sexual orientation or behaviour is measured. In this study, we present the development and validation of a novel model (i.e., 'computational phenotype') to predict MSM status using multiple data sources.

Methods Three disease case surveillance databases (HIV, hepatitis B and C, and syphilis), a public health laboratory database (which performs ≥95% of all HIV, hepatitis C and syphilis tests in British Columbia), and five administrative

health record databases were linked and aggregated, resulting in a retrospective cohort of 727,091 adult men from 1990 to 2013. Self-reported MSM status ('gold-standard') from the three disease case surveillance databases was used to develop a multivariable prediction model for identifying MSM in the larger cohort. Models were selected using 'elastic-net' (combination of lasso and ridge regression), implemented through the GLMNet package in R, and a final model optimized area under the receiver operating characteristics curve (AUC).

Results History of gonorrhea and syphilis diagnoses, HIV tests in the past year, history of visit to identified gay and bisexual men's clinics, and residence in MSM-dense neighborhoods (based on self-reported MSM) were all positively associated with being MSM. The selected model had a sensitivity of 72%, specificity of 94%, and AUC of 92%. Combining self-reported MSM (n=6,280) and predicted MSM (n=85,521), a total of 91,801 men (13% of the cohort) were classified as MSM.

Conclusion Applying a computational phenotyping method to administrative data yielded a cohort of 85,521 MSM, which may be used to monitor and evaluate health outcomes and healthcare utilization. Sensitivity and specificity of this model were comparable to interviewer-administered self-report measures of sexual orientation.

Disclosure No significant relationships.

P564

OUTCOMES OF ANAL HPV SCREENING IN HIV+ MEN WHO HAVE SEX WITH MEN ATTENDING HIGH RESOLUTION ANOSCOPY CLINIC IN CANADA

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10.1136/sextrans-2019-sti.638

Background Rates of anal cancer from HPV infections are significantly higher in HIV-positive men-who-have-sex-with-men (MSM) compared to the general population. Recent estimates in the US and Europe report the incidence of anal cancer amongst HIV-positive individuals to be 75–137 cases/100 000 person-years, a rate 30–100 times higher than the general population. Despite the restoration of immune function with modern antiretroviral therapy, the incidence of anal cancers is increasing amongst HIV-positive MSM. We report the results of an anal cancer screening program in HIV-positive MSM in Calgary, AB, Canada from October 2014 to December 2018.

Methods HIV-positive MSM attending the Southern Alberta Clinic and STI Clinic were offered an anal pap smear. Patients with abnormal cytology were examined with digital anorectal exam and High Resolution Anoscopy (HRA) to detect anal intraepithelial neoplasia (AIN). Dysplastic areas were biopsied and sent for histopathology. High-grade AIN II-III were treated using infrared coagulation.

Results A total of 214 patients were examined with HRA. 87 patients (40.7%) had biopsy-proven AIN I, II, or III. Asymptomatic internal anal warts (AIN I) were detected in 60 patients (28%). Twenty-five patients had AIN II-III (11.7%) and 2 patients had invasive squamous cell cancer. High-risk

oncogenic HPV was identified in 100% of the biopsy specimens.

Conclusion High rates of anal HPV infections causing AIN I, II, and III were identified in HIV-positive MSM, supporting ongoing use of HRA for anal cancer screening programs in this population. High rates of asymptomatic internal anal warts were incidentally found. These rates of anal HPV infections support consideration of offering HPV vaccination to HIV-positive MSM on clinic intake as a preventative tool.

Disclosure No significant relationships.

P565

PERSONALIZED COGNITIVE COUNSELING (PCC) TO REDUCE HIV RISK FOLLOWING RECTAL GONORRHEA/CHLAMYDIA DIAGNOSIS AMONG MSM IN PERU

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Background We piloted a bio-behavioral intervention for MSM in Peru based on rectal gonorrhea (GC)/chlamydia (CT) screening as an integrated HIV-STI prevention strategy.

Methods Between August-December 2018, we screened 605 MSM for rectal GC/CT using Aptima TMA and identified 101 cases among 469 HIV-uninfected men. Subjects were randomly assigned to traditional or Personalized Cognitive Counseling (PCC) at 3- and 6-Months. PCC session notes and Self-Justification Evaluation Instruments (SJEIs) were analyzed for thematic content. HIV/STI testing and behavioral risk assessments were repeated at 3- and 6-months. Statistical comparisons were conducted using Chi-square and Generalized Estimating Equations.

Results All participants reported reductions in condomless insertive (CIAI) and receptive anal intercourse (CRAI), with no significant differences between arms. In the Control arm, CRAI declined from a mean of 4.0 Partners (77% of recent sexual contacts) at Baseline to 1.3 (43%) at 3-Months and 0.7 (24%) at 6-Months. CRAI in the intervention arm decreased from 2.8 Partners (58% of contacts) to 1.1 (35%) to 0.8 (20%) (p≥0.05). At 3-Months, we identified 9 HIV infections and 24 new GC/CT cases across arms. At 6-Months, we diagnosed 2 HIV infections and 7 GC/CT cases (7/45; 15.6%) in the control arm (4.4%; 2/45), with 0 HIV infections (0%; 0/46) and 9 GC/CT recurrences (9/46; 19.6%) among PCC participants (p≥0.05). Thematic analysis demonstrated four common self-justifications: (1) Isolated events that don't reflect typical behavior; (2) Informal HIV status assessments based on partner appearance or behavior; (3) Fear of ruining the moment by discussing HIV; and (4) Structural barriers to condom availability during intercourse.

Conclusion Our pilot assessment supports the feasibility and acceptability of PCC for reducing HIV risk following rectal GC/CT diagnosis. Risk behavior reductions were similar between arms, though no new HIV infections were observed after PCC. Additional research is needed to apply PCC to problems of post-STI behavior change and PrEP uptake.

Disclosure No significant relationships.

P566 THE UPTAKE OF NON-OCCUPATIONAL HIV POSTEXPOSURE PROPHYLAXIS AMONG MSM: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background MSM are disproportionately affected by HIV, a joint strategy of behavioral interventions and chemoprophylaxis, e.g. HIV post-exposure prophylaxis (PEP), is promising to reduce HIV infection. Worldwide PEP is recommended, and it has been prescribed to MSM over the past decade in many countries since 1990s. In order to better understand the role PEP played in HIV prevention among MSM, we reviewed literature to describe the global utilization of PEP.

Methods We searched the following databases for publications in English through 19 May 2018: Pubmed, Scopus, Embase, the Cochrane Library and Web of Science. Eligible articles reported the following data on nPEP among MSM: reasons for and/or the uptake of nPEP, adherence to treatment guidelines, and HIV seroconversion among MSM prescribed PEP.

Results

Fifty-six studies were included Medical records showed nPEP prescriptions increased significantly among MSM, who accounted for the majority of nPEP users in most settings, ranging from 57% to 88.1%. Twenty-eight studies reported on the uptake of PEP among MSM, with an overall pooled proportion of 8.1% (95% CI 5.6% to 10.5%). One-fifth of MSM nPEP users obtained repeated prescription. With regard to reasons for nPEP use, unprotected receptive anal intercourse was more frequent than unprotected insertive anal intercourse (35–65.8% vs 20–28.8%). The pooled full completion (28-day course) was 91.6% (95%CI: 89.9–93.2%), with 100% adherence to the regimen ranging from 52% to 85%. Ten studies reported 498 HIV seroconversions among 18908 MSM, which resulted in a post use HIV incidence of 0.97 to 7.2 per 100 person-years. but there is no clear linkage between nPEP use and HIV seroconversions.

Conclusion Our review demonstrated that PEP is underutilized as a HIV prevention strategy. Efforts are needed to raise awareness and knowledge of nPEP and engage MSM in this chemoprophylaxis. Efforts are also needed to reinforce completion and adherence among nPEP users.

Disclosure No significant relationships.

P567 FACTORS INFLUENCING GAY AND QUEER MEN'S ACCEPTABILITY OF INTEGRATING SUBSTANCE USE CARE WITHIN SEXUAL HEALTHCARE SETTINGS

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Background Just as sexual health services do not always attend to the substance-related needs of individuals, substance use care tends to neglect sexuality and sexual health. The objective of this study was to identify factors influencing the

acceptability of integrating substance use care within sexual health services for young gay, bisexual and other men who have sex with men (gbMSM) – a population that experiences disproportionate drug- and sexual-related harms.

Methods We draw on data from in-depth, semi-structured interviews conducted with 50 young gbMSM (18–30) who use substances during sex in Vancouver, BC.

Results Participants reported infrequently receiving substance use-related care when accessing sexual health services resulting in many having unmet needs surrounding their use of substances during sex. More so, a majority felt unable to initiate discussions about substances with a sexual health provider. Participants described several features of clinical interactions that they felt would enhance their comfort and ability to discuss their substance use, including: (i) the provision of convenient spaces where they could discuss their sexual health and substance use concurrently; (ii) the knowledge that discussions about substance use would be non-judgemental and include a harm reduction approach; and (iii) be offered by knowledgeable, resourceful professionals familiar with the sexualized use of substances among gbMSM (i.e., chemsex; other sub-cultures where substance use occurs). Finally, participants emphasized that mental health interplays with sexual health and substance use and, therefore, represents a key co-occurring health condition that they wanted to feature within discussions about their sexual health and substance use.

Conclusion Findings indicate that young gbMSM who use substances would both benefit from and desire opportunities to discuss substance use within sexual health care settings. Future efforts to more fulsomely integrate the provision of substance use and mental health care for young gbMSM in sexual health care settings are needed.

Disclosure No significant relationships.

P568 POSITIVITY OF SYPHILIS, RECTAL GONORRHEA AND RECTAL CHLAMYDIA AMONG MSM PREP USERS IN BALTIMORE CITY, MARYLAND

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Background Bacterial STIs such as syphilis, rectal gonorrhoea (GC) and chlamydia (CT) are strongly associated with increased risk of HIV acquisition, and are a marker of ongoing sexual risk behavior among HIV pre-exposure prophylaxis (PrEP) users. STI positivity among men who have sex with men (MSM) PrEP-users in settings where PrEP has been implemented is understudied. Our objective was to determine syphilis and rectal GC/CT positivity among MSM PrEP-users

enrolled in a large PrEP demonstration project in Baltimore City, Maryland.

Methods The demonstration project was a collaboration between a city health department, an academic evaluation partner, six clinical sites and one CBO. STI results at PrEP initiation and routine 6- and 12-month PrEP-care visits were collected among MSM receiving PrEP at participating clinical sites between September 30, 2015-March 31, 2018. Syphilis and rectal GC/CT positivity was calculated among those screened at each visit.

Results During the study period, 290 MSM initiated PrEP, of whom 46.9%(136) were Black/African-American, and 51.4% (149) aged 25–34 years. At PrEP initiation, 79.2%(230) and 56.1%(165) were screened for syphilis and rectal GC/CT, respectively; the proportion screened at 6- and 12-month PrEP-care visits was slightly lower. Overall, including PrEP initiation and care visits, 11.6%(30/258) were ever syphilis positive, 17.9%(35/196) ever rectal GC positive, and 22.5%(44/196) ever rectal CT positive. Specifically, at PrEP initiation, 7.8%(18/230) were syphilis positive; 11.1%(18/162) rectal GC positive, and 11.7% (19/162) rectal CT positive. Positivity at 6- and 12-month PrEP-care visits was similar to positivity at PrEP initiation.

Conclusion Despite CDC recommendations for biannual STI screening among PrEP-users, the proportion of MSM PrEP-users screened was suboptimal. The overall and ongoing positivity of syphilis and rectal GC/CT suggest that a substantial proportion of MSM PrEP-users may be engaging in ongoing sexual risk behaviors. Strategies are needed to encourage providers to screen PrEP-users more frequently for STIs and promote safer sexual practices.

Disclosure No significant relationships.

P569

SEROADAPTIVE BEHAVIORS INFLUENCED BY PARTNER-LEVEL AND ENVIRONMENTAL-LEVEL FACTORS AMONG IPREX PARTICIPANTS

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Background Seroadaptive behaviors to decrease risk of HIV acquisition and transmission is based on the knowledge of one's own serostatus and that of one's sexual partners. Partner-level and environmental-level attributes may affect seroadaptation practices. We characterized seroadaptive behaviors among iPrEX participants.

Methods Men who have sex with men (MSM) and transgender women (TGW) were recruited from eleven study sites in the US, Peru, Brazil, Ecuador, Thailand and South Africa. Partnership-level data were collected at the screening visit for the 3 most recent sexual partners. Participants who reported knowing their partner was HIV-negative or did not have receptive anal intercourse were considered to be practicing seroadaptive behaviors.

Results Of the 2,095 iPrEX participants, 1,271 (61%) reported seroadaptive behaviors with all partners, 544 (26%) with some partners and 280 (13%) did not practice seroadaptation with any partners. Participants in steady relationships (aOR=1.45; p=0.005), who felt closer to their partner (aOR=1.08; p=0.013) and from US (aOR=3.33; p<0.001) or Andes region study sites (aOR=1.84; p<0.001) were more

likely to engage in seroadaptive behaviors. TGW were less likely to practice seroadaptive behaviors (aOR=0.44; p<0.001). STI history at screening did not differ between participants reporting seroadaptive behaviors and those who did not (20% vs 25%; p=0.317).

Conclusion Seroadaptive behaviors were more commonly observed among iPrEX participants with partners they felt closer and more committed to. Seroadaptive behaviors were also more common among participants from study sites in North and South America compared to Africa and Asia. These geographic differences may reflect greater access to HIV testing in these areas, thereby facilitating awareness of HIV status and enabling engagement in seroadaptation practices. TGW have fewer options than MSM to be classified as practicing seroadaptive behaviors since most engage in receptive sexual positioning. Our findings suggest that seroadaptive practices are influenced by the level of commitment to and emotional intimacy with partners.

Disclosure No significant relationships.

P570

DEMOGRAPHIC, HEALTHCARE, AND PSYCHOSOCIAL FACTORS RELATED TO STI DIAGNOSIS IN A SAMPLE OF YOUNG MSM: THE P18 COHORT STUDY

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Background Understanding the relationships between demographic, healthcare-related and psychosocial factors with STI vulnerability will provide information that can guide development of STI prevention efforts tailored to the lived realities of YMSM.

Methods Between 2009–2011, n=600 YMSM were enrolled at age 18 in a prospective cohort study examining psychosocial and physical health during semi-annual visits conducted over a 36-month period. Reports of recent STIs were collected by self-report and a composite outcome variable was created: self-report of any STI (CT, GC, and/or syphilis) in the prior 90 days (hereafter called STI diagnoses). Bivariate analysis was conducted to examine relationships between STI diagnoses and 3 domains of covariates: demographic factors, psychosocial factors, and healthcare system related factors. Generalized estimating equations (GEE) with link logit was used to model factors from each domain associated with STI diagnoses.

Results Over the course of the study period, these 597 participants contributed a total of 2,765 visits and self-reported n=205 STI diagnoses (composite variable detailed above). Increased age was associated with increased likelihood of STI diagnoses (aOR=1.22 per year, 95% CI 1.04–1.43) after adjustment for SES, race, #insertive/receptive anal intercourse acts, type of healthcare obtained (private clinic, public clinic, VA), and insurance status. Black/African YMSM were more likely to self-report an STI (aOR=2.90, 95% CI 1.50–5.61), compared to White (non-hispanic) peers (adjusted for age, SES, #sex acts, clinic type, and insurance). Participants receiving healthcare at public clinics (aOR= 1.89, 95% CI 1.30–2.77) and VA facilities (aOR= 4.13 95% CI 2.24–7.60) were more likely to report STI diagnoses than those attending private clinics (adjusted for age, race, SES, #sex acts, insurance).

Depression score, gay-related stigma, internalized homophobia were not associated with STI diagnoses.

Conclusion Older black/african YMSM were more likely to self-report an STI, perhaps because they participant in a different core mixing group of sexual contacts than other participants.

Disclosure No significant relationships.

P571 PREVALENCE OF EXTRAGENITAL GONORRHEA AND CHLAMYDIA AMONG VENUE-ATTENDING MEN WHO HAVE SEX WITH MEN – SAN FRANCISCO, 2017

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Background The US National HIV Behavioral Surveillance (NHBS) system conducts venue-based sampling of men who ever had a male sexual partner (MSM). In 2017, NHBS-MSM included testing extragenital specimens for chlamydia (CT) and gonorrhea (GC). These population-based prevalence data could inform differences in STD rates across jurisdictions.

Methods We limited the analysis to San Francisco (SF) participants who consented to STD and HIV testing, and reported oral or anal sex with a man in the past year. We calculated the prevalence of rectal and pharyngeal CT and GC, and examined demographics, self-reported STD testing history and positivity, HIV status, and use of PrEP and condoms. We compared SF STD prevalence and testing history to aggregate preliminary data from the 5 NHBS cities where extragenital testing was conducted (including SF), using a z-test for significance.

Results Over half of SF participants were ages 18–39 (54.8%) and non-Hispanic white (51.0%); 25.5% were Hispanic, 4.5% non-Hispanic black, and 18.6% other. PrEP use was common among SF participants (48.8%); condomless sex was high (88.8%). Compared to national NHBS data, SF participants were more likely to report an STD test (75.7% vs 65.7%, $p < 0.01$), or a positive test for CT (19.8% vs 11.2%, $p < 0.01$) or GC (22.6% vs 14.4%, $p < 0.01$), in the last year. Confirmed HIV-uninfected status was similar (79.0% SF vs 76.5% national). STD prevalence was lower in SF than nationally for any extragenital STD (8.2% vs 13.3%), rectal STD (6.2% vs 10.4%), and pharyngeal STD (4.1% vs 5.9%).

Conclusion NHBS-MSM prevalence of CT and GC was lower in SF than nationally. Higher reported STD testing in the past year and high self-reported PrEP use in SF point to high uptake of routine screening, which could help explain the low prevalence. Further examination of the consenting and positive national and SF NHBS participants might explain these striking differences.

Disclosure No significant relationships.

P572 HIGH PREVALENCE OF ANAL HUMAN PAPILLOMAVIRUS INFECTION IN HIV-INFECTED MALES HAVING SEX WITH MALES IN TURKEY

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Background Human papillomavirus (HPV) infection is a common sexually transmitted infection and it is associated with development of intraepithelial lesions and cancers. Among HIV patients, men who have sex with men (MSM) are at highest risk of anal intraepithelial neoplasia and cancer. In this study, we aimed to determine the prevalence of anogenital HPV infection in HIV-infected MSM patients.

Methods Totally 121 MSM, newly diagnosed HIV positive and treatment-naïve patients were enrolled. All of them were screened for HPV infection. For all the patients an anal swap sample was obtained and was studied for HPV by real-time PCR.

Results Anal swabs of the patients remained negative for HPV in 44 (36.4%), while were positive in 77 (63.6%). Age, education level, alcohol, and illicit drug use were not different between the HPV-positive and -negative groups. Among 77 patients with HPV infection, 33 were typed. Type 16 was the leading one (n=18) followed by type 18 (n=7), both type 16 and type 18 (n=4), and other types (n=4).

Conclusion HIV-infected MSM patients had considerably high rate of HPV infection with high-risk types. This represents a challenge for anal cancer development. These patients should be regularly checked for the early diagnosis of precancerous lesions.

Disclosure No significant relationships.

P573 GEOGRAPHIC EFFECTS OF INCARCERATION ON MULTIPLE PARTNERSHIPS AND STI AMONG BLACK MEN WHO HAVE SEX WITH MEN

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Background Racial/ethnic and sexual minorities face elevated risk of policing and detainment. Dual minority status is linked to disproportionate incarceration; among black men who have sex with men (BMSM) in the HIV Prevention Trials Network (HPTN) study, 60% had been incarcerated. Incarceration disrupts networks and increases partnership exchange and STI. We lack understanding of the impact of incarceration on STI risk among BMSM.

Methods We used data from HPTN 061 (N=1553) conducted in Atlanta, Boston, New York, Los Angeles, San Francisco, and Washington DC to measure longitudinal associations between incarceration within six months and twelve-month risk of multiple partnerships and biologically-confirmed STI

(gonorrhoea, chlamydia, syphilis). Using inverse probability of treatment weighted (IPTW) regression to account for pre-incarceration poverty, psychopathology, drug use, and STI risk, we estimated risk ratios (RRs) and 95% confidence intervals (CIs) for associations between incarceration and outcomes and assessed differences by city.

Results Approximately 14% had been incarcerated in the past six months. Controlling for site, incarceration predicted multiple partnerships (RR: 1.20, 95% CI: 1.06–1.36) and incident STI (RR: 1.08, 95% CI: 1.00–1.16). Associations with multiple partnerships and STI differed by city (joint test of interaction, p value <0.05). Incarceration was most strongly associated with multiple partnerships (RR: 1.69, 95% CI: 1.38–2.04) and STI (RR: 1.31, 95% CI: 1.04–1.64) in Washington DC. In other cities, STI RRs ranged from 0.95 to 1.08 and were not significant at the 0.05 level. Incarceration was associated with multiple partnerships in New York (RR: 1.25, 95% CI: 1.01–1.55) and Boston (RR: 1.31, 95% CI: 1.08–1.58), while RRs ranged from 0.87 to 1.08 and were not significant in other cities.

Conclusion Recent incarceration impacts STI risk among BMSM in Washington DC and the northeastern United States.

Disclosure No significant relationships.

P574 RECTAL AND PHARYNGEAL *M. GENITALIUM* AMONG MEN WHO HAVE SEX WITH MEN (MSM): RESULTS FROM A LONGITUDINAL COHORT STUDY

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Background Little is known about the natural history of rectal and pharyngeal *Mycoplasma genitalium* (MG).

Methods From March 2016 to December 2018, we enrolled 140 high-risk MSM in a 12-month cohort study. Eligibility criteria included: age ≥ 18 years, report of receptive anal intercourse, and ≥ 1 of the following in ≤ 12 months: (1) gonorrhoea, chlamydia or syphilis; (2) methamphetamine or popper use, or (3) ≥ 2 sex partners in ≤ 2 months or ≥ 5 in ≤ 12 months. Each week, men collected pharyngeal and rectal swabs and completed an electronic sex diary. We tested swabs for MG (Aptima, Hologic, Inc.) at study completion. Infection was defined as ≥ 2 consecutive positive tests; clearance was ≥ 2 consecutive negative tests. We calculated person-weeks-at-risk to estimate incidence and used Kaplan Meier curves to estimate duration of infection. We censored subjects who had a positive swab in the final study week, received doxycycline or azithromycin and obtained clearance in the following 3 weeks, or were lost-to-follow-up. None received moxifloxacin.

Results At week 1, the prevalence of rectal and pharyngeal MG was 8% (4/48) and 2% (1/48), respectively. Among 48 men with results from 3,579 specimens, 12 (25%) had ≥ 1 rectal, and 5 (10%) had ≥ 1 pharyngeal MG infection. In 1,504 person-weeks-at-risk, rectal MG incidence was 38 (95%

CI: 19–68) infections per 100 person-years. In 1,715 person-weeks-at-risk, pharyngeal MG incidence was 15 (95%CI: 5–35) per 100 person-years. Forty percent (6/15) of rectal and 50% (3/6) of pharyngeal infections were censored. Rectal and pharyngeal infections had estimated median durations of 30 (95%CI: 6 – undefined) and 16 (95%CI: 3 – undefined) weeks, respectively. Blips, single positive tests that did not meet criteria for infection, occurred in 8 (17%) men with 17 rectal and 4 (8%) men with 10 pharyngeal MG-positive tests.

Conclusion xtragenital, MG, including pharyngeal infection, is common and persistent among high-risk MSM.

Disclosure No significant relationships.

P575 PREVALENCE AND RISK FACTORS OF ANAL HUMAN PAPILLOMAVIRUS (HPV) INFECTIONS AMONG MSM IN BALI, INDONESIA

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Background It is estimated that the prevalence of anal HPV infection is 15%, 60% and 95% among heterosexual men, MSM who are HIV negative and HIV positive MSM, respectively. Such high prevalence of anal HPV infection among MSM is related to 44 times higher incidence of anal cancer. We conducted a study to measure the prevalence and determine risk factors associated with anal HPV among MSM in Bali, Indonesia using a GeneXpert® platform.

Methods Between July 2017 and July 2018, 253 MSM were recruited in 2 MSM clinics in Bali, Indonesia. Sociodemographic and sexual behavioral characteristics were collected anonymously via self-completed questionnaire using tablet. The anal swab specimen was then collected, and HPV was tested using GeneXpert®.

Results 174/242 (71.9%) participants have positive results for any types of anal HPV, of which 95 (54.60%) were among persons aged 20–29. The prevalence of high-risk HPV types (HPV 16 and HPV 18–45) was 109/242 (45%), while the low-risk HPV was 155/242 (64%). Age, relationship status, employment status, condom use, and sex position were factors associated with increased risks of contracting HPV, particularly high-risk HPV types. Young age between 20–29 accounted 5.05-fold (1.14–22.32, 95%CI) risks acquiring HPV type 16 compared to other age group. Those who were open to a relationship have 6 times (0.68–52.75, 95%CI) higher risks of anal HPV 16 as opposed to those who were married. MSM who were employee increased almost 5 times (0.65–38.43, 95% CI) risks of anal types of HPV 16.

Conclusion As the first study ever reported about the prevalence and risk factors of anal HPV infections among MSM in Indonesia, this study showed similar results and findings with other studies from other countries. Vaccination program can be considered to reduce the preponderant burden of anal HPV among MSM in Bali.

Disclosure No significant relationships.

P577 ASSOCIATIONS BETWEEN PENILE-ANAL INTERCOURSE AND ORAL SEX AND VIRAL STIS IN THE UNITED STATES, 2011–2015

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10.1136/sextrans-2019-sti.650

Background Anal and oral sex are related to the acquisition and transmission of STIs, and condom use remains low for these behaviors. Thus, we examined associations between these behaviors and STIs using 2011–2015 National Survey of Family Growth data.

Methods We examined associations between male-female penile anal intercourse (PAI) and oral sex with opposite-sex partners only (lifetime) and lifetime self-report of a viral STI (herpes or genital warts) by sex and race/Hispanic origin (White, Hispanic, Black, Other). The response rate was 71.0% and sensitive survey items were asked using audio computer-assisted self-interview. Analyses were restricted to individuals reporting one lifetime sex partner. Bivariate analyses were analyzed in SUDAAN-11.0 using chi-squares.

Results Overall, more women (12.5%, N=11,243) than men (2.1%, N=9,257) reported ever having a viral STI. Self-report of viral STI was slightly more common among White women compared to women of other racial/ethnic groups. Among women, ever engaging in PAI was strongly associated with a viral STI diagnosis (21.8%[SE 1.2] White, 20.7%[SE 2.0] Black, 19.7%[SE 3.2] Other, and 16.9%[SE 1.7] Hispanic, $p<0.0001$) as was giving/receiving oral sex (all 11.6%–17.3%). For men, the same associations differed by race/Hispanic origin. PAI was significantly associated with a viral STI in White men (5.7%[SE 0.7], $p<0.01$), Hispanic men (3.4%[SE 1.0], $p<0.05$), and men of other racial/ethnic groups (2.7%[SE 1.2], $p<0.05$). Oral sex was associated with a viral STI in White men and men of other racial/ethnic groups; however, for Black men only giving oral sex was significantly associated with a viral STI (4.1%[SE 1.0], $p<0.05$).

Conclusion For women, PAI and oral sex were related to having been diagnosed with a viral STI. Self-reported viral STIs were highest in women and Whites which may suggest disparities in health care seeking and access. Further exploration is needed to assess associations between multiple sex partners and condom use during these behaviors.

Disclosure No significant relationships.

P578 DRIVERS OF SEXUAL HEALTH KNOWLEDGE FOR TWO-SPIRIT, GAY, BI AND/OR NATIVE MEN WHO HAVE SEX WITH MEN (GBMSM)

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Background Rarely are Two-Spirit and/or Aboriginal (i.e., First Nations, Métis, and Inuit) gay, bi, or men who have sex with men (gbMSM) included in research projects that center their

experiences and ways. This study examines the main drivers of sexual health knowledge (SHK) among Aboriginal (N=365) and Two-Spirit respondents of *Sex Now* 2014-15 (SN15), a national periodic survey conducted by the Community Based Research Centre for Gay Men's Health in Vancouver.

Methods Associations were examined between SHK, using a combined score of 6 survey questions, and the following explanatory variables: Two-Spirit identity, living in urban settings, income, education and gay peer networks (GPN). Correlations between explanatory variables were examined using unadjusted odds ratios, and univariate and multivariable linear regression estimated associations between each of the explanatory variables and the SHK outcome.

Results Using the Lakota expression, Mitakuye Oyasin, “*all my relations*,” the drivers studied were interrelated: those living in urban environments had larger GPN; higher educational attainment had more income; and larger social support network had higher levels of educational attainment and larger GPN. Three main factors were positively associated as drivers of SHK: income, education, and size of GPN. Two-Spirit respondents had higher SHK than other Native men in urban settings but not in non-urban settings.

Conclusion To increase SHK with those with lower levels of education or income, or who are not connected to the “gay” community requires new ways of conducting outreach and engagement. Urban Two-Spirit folks are likely connected to one another and may get better information related to HIV prevention technologies, which may differ from those living in rural settings. Further research is needed with a larger sample and additional survey questions specific to experiences of Aboriginal gbMSM.

Disclosure No significant relationships.

P579 HIGH PREVALENCE AND CORRELATES OF SYPHILIS AND HIV INFECTION AMONG ADOLESCENTS OF THE COMARCA NGÄBE-BUGLÉ, PANAMA

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Background The Comarca Ngäbe-Buglé (CNB), situated in western Panama, is home to over 200,000 indigenous peoples; the region has the highest levels of multidimensional poverty in the country. The prevalence and correlates of syphilis and HIV have not been previously described among adolescents of CNB.

Methods A cross sectional study, using multistage cluster sampling design with equal probability of selection and random sampling of clusters, among male and female participants aged 14–19 years, was conducted in 10 high schools in CNB from July–November 2018. A questionnaire was self-administered, participants provided blood, as well as urine and self-administered cervical/vaginal swabs for STI testing (data not shown). Serum was tested for HIV using rapid test/viral load

confirmation; syphilis using TPPA/VDRL confirmation for active syphilis.

Results A total of 316 female adolescents and 384 males participated. A history of sexual activity was reported by 76.0% of females and 78.3% of males; forced sexual intercourse by 29.0%(86/297) of females and 15.1%(55/364) of males; transactional sex (being offered money, food, housing, transport in exchange for sex) by 14.6%(43/295) of females, 12.3%(45/365) of males. Of sexually experienced participants, 4.7%(25/535) had a confirmed HIV (1 female, 3 males) or active syphilis (3 females, 19 males) test. Correlates of either HIV/syphilis infection include: male gender (AOR=4.4, 95%CI: 1.5–13.1) and having been offered transactional sex (AOR=3.3, 95%CI: 1.3–8.0). Among males only, 4/26 (15.4%) of those who reported same-sex sexual intercourse (MSM) tested positive for syphilis. Correlates of HIV/syphilis among all male participants included transactional sex (AOR=2.7, 95%CI: 1.0–7.9), having been forced to have sex (OR=2.6, 95%CI: 1.0–6.9) and MSM (OR=2.7, 95%CI: 0.9–8.9).

Conclusion There is very high syphilis and HIV prevalence among high-school-going indigenous adolescents of CNB, particularly among males. Transactional sex and forced sex are driving factors. Targeted interventions should include prevention education, testing and treatment, especially for boys reporting homosexual sex.

Disclosure No significant relationships.

P580

PREDICTORS OF SEXUALLY TRANSMITTED INFECTION SCREENING AMONG BINGE ALCOHOL USING NATIVE AMERICAN ADULTS

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Background: Introduction Native American (Native) adults have higher rates of sexually transmitted infections (STIs) than other racial/ethnic groups in the United States. The Centers for Disease Control and Prevention (CDC) recommend annual STI screening for those with new or multiple sex partners. Scarce research has been conducted exploring what factors predict STI screening among high risk Native adults and the extent of compliance with CDC recommendations in this population. This analysis bridges this gap in the literature.

Methods Participants are N=252 Native adults ages 18 to 55 who recently engaged in binge alcohol use and enrolled in a trial evaluating a risk-reduction counseling program. Data were collected at baseline via self-report and assessed participant demographics, substance use, sexual risk behaviors and mental health symptoms. Bivariate analyses followed by final multivariate regression models explored which factors significantly predicted STI screening behavior in the 12 months prior to assessment.

Results Less than half of all participants completed STI screening in the past year (n=96, 38.1%). Among females, using a condom at last sex and having sex with more than one person in the same day was associated with lower odds of STI testing (p=0.03, p=0.02) while having sex with someone with an STI was associated with higher odds of testing (p=0.03). Among males, drug use and having more than 5 drinks in the

same day were associated with higher odds of STI testing (p=0.008, p=0.031).

Conclusion Regular STI screening is a key prevention strategy for reducing transmission of STIs, particularly among high risk Native American adults. Understanding what factors predict compliance with CDC recommendations can help inform programming development for Native adults who engage in binge alcohol use. Results inform intervention efforts for CDC, Indian Health Service and other tribal-serving organizations working to increase STI screening rates in Native communities.

Disclosure No significant relationships.

P583

THE ROLE OF PARENTS IN PREDICTING SEXUAL HEALTH AND SUBSTANCE USE RISK AMONG NATIVE AMERICAN YOUTH

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Background Native American youth suffer marked disparities in sexual health and substance use. High rates of sexually transmitted infections (STIs), unintended pregnancies and substance abuse are driven by early sexual and substance use initiation and limited access to culturally relevant health education. Parents and extended family members are central to youth decision making in Native communities. Despite this inherent strength, few health education programs are designed to be multigenerational and fail to engage parents and family members in intervention delivery.

Methods Data was collected with N=536 Native youth ages 11–19 participating in an evaluation of a comprehensive sexual health program designed for youth together with their parents or other trusted adult family members, called Respecting the Circle of Life. Baseline data was analyzed to determine how parental monitoring and parent-youth communication predicted sexual and substance use risk prior to intervention implementation. Bivariate and multivariate logistic regression models examined the role of parents in predicting substance use initiation, sexual initiation (vaginal/anal/oral), condom use at last sex, as well as intention to have sex and condom use intention.

Results Final multivariate models indicate parental monitoring significantly predicted: initiation of cigarettes (p=0.02), initiation of marijuana (p=0.001), initiation of vaginal sex (p=0.03), initiation of oral sex (p=0.04), intention to have sex in the next 6 months (p=0.000) and intention to use a condom in the next 6 months (p=0.002).

Conclusion Our findings underscore the powerful role of parents and family in Native American sexual and substance use decision making. Results show Native families can help delay youth's initiation of sex and substances and protect them from the consequences of sexual risk taking. Programs aiming to promote the sexual health of Native youth should incorporate parents and other families in lesson delivery and skill development to maximize impact.

Disclosure No significant relationships.

P584 FACTORS PREDICTING LIFETIME SEXUAL EXPERIENCE AMONG RURAL, RESERVATION-BASED NATIVE AMERICAN YOUTH

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Background Early sexual initiation is a risk factor for sexually transmitted infection and unintended pregnancy. Native American youth initiate sex earlier than other U.S. youth contributing to current inequalities in sexual health. Identifying factors that predict lifetime sexual experience among Native youth can inform the development of primary prevention programming to delay sexual initiation and improve sexual health outcomes in this population.

Methods We analyzed cross-sectional data from 558 Native youth ages 11–19 from a rural, reservation-based community. Multivariate logistic regression models were used to estimate associations between lifetime sexual experience (vaginal and/or anal sex) and independent variables across eight categories: sociodemographic, knowledge, attitudes/perceptions, beliefs, intentions, skills, behaviors, and theoretical constructs.

Results The sample was 51.6% female, mean age 13.4 years ($SD=1.9$); and 8.0% were sexually experienced. In our final model, older age ($OR=2.04$; $p<0.0001$) and identifying as transgender ($OR=35.3$; $p=0.019$) predicted lifetime sexual experience. The notion that sometimes sex just happens ($OR=0.56$; $p=0.01$), and having condom use self-efficacy ($OR=0.47$, $p=0.026$) were negatively associated with lifetime sexual experience. Youth who intended to have sex in the next 6 months were more likely to be sexually experienced ($OR=3.18$; $p<0.0001$). Recent substance use including having smoked cigarettes ($OR=4.38$, $p=0.048$), and having smoked marijuana in the past 3 months ($OR=6.48$, $p=0.002$) predicted lifetime sexual experience.

Conclusion Results provide direction for future programming. Programs focusing on intentions to have sex while cultivating skills to promote condom use, in addition to being delivered stratified by age, may have the greatest impact. Substance use was a driving factor in sexual initiation; thus, sexual health education programs should simultaneously target substance use prevention. That identifying as transgendered predicted sexual experience is notable: despite research indicating transgendered youth of other ethnicities have heightened risk for negative sexual health outcomes, little research has been conducted with transgendered Native youth.

Disclosure No significant relationships.

P585 INUIT COMMUNITY READINESS: ADAPTING THE COMMUNITY READINESS MODEL WITH INUIT COMMUNITIES FOR HIV PREVENTION

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Background With the highest rates of STIs in Canada, high mobility between North and South and a lack of adequate screening for STBIs, it is possible that Inuit communities could face an HIV epidemic. If no action is taken to scale up prevention efforts, an epidemic in Inuit communities in the North could soon be a reality. Therefore, gauging an Inuit community's level of readiness to develop and participate in community-based HIV prevention, education, screening, and ensuring approaches are culturally relevant is imperative.

Methods This current research project builds directly on priorities outlined by Inuit stakeholders, and is facilitated through strong partnerships between the three communities (Kugluktuk, Arviat, and Clyde River Nunavut), Pauktuutit Inuit Women of Canada, the Canadian Aboriginal AIDS Network, and Dalhousie University. The goal of this research project is to engage Inuit communities and organizations in adapting, piloting and using the Community Readiness Model (CRM) to improve readiness to engage in HIV-modalities at the community level. This presentation will outline the community engagement and integrated knowledge translation processes, progress to date, and next steps for this community-based research project.

Results This project has adopted *Inuit Qaujimaqatuqangit (IQ)* as a framework, which supports personal wellness through a collective cultural sense of health. Consultations with the project advisory committee (Canadian Inuit HIV/AIDS Network (CIHAN)), Community Health Representatives from three respective Nunavut communities and the research team were held November 2015. We are working collaboratively to: (1) adapt the CRM; (2) ensure it is Inuit-specific; (3) pilot the adapted tool; and (4) determine the applicability of this tool. Representatives from Nunatsiavut, Nunavik and Inuvialuit will also be mentored on how to use the adapted CRM.

Conclusion By engaging knowledge users and communities, this project will address HIV prevention in Inuit communities by identifying factors that impact readiness for HIV interventions.

Disclosure No significant relationships.

P586 IKAJURNIQ: AN INUIT CASCADE OF CARE FRAMEWORK FOR SEXUALLY TRANSMITTED AND BLOOD BORNE INFECTIONS

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Background Introduction: Inuit in Canada are experiencing high rates of sexually transmitted and blood-borne infections (STBIs). While there is limited Inuit-specific statistical information, we know that chlamydia, gonorrhoea and syphilis rates in Inuit regions are high. A central approach to reducing STBIs among Inuit communities is the development of effective methods to increase the number of Inuit being tested, diagnosed and treated before they spread infection to others.

Methods At its inaugural meeting in November 2017, the National Inuit Sexual Health Network, made up of sexual health experts and community representatives, developed an Inuit-specific STBI Cascade of Care framework called Ikaurniq – meaning “the act of helping”.

Results Ikajurniq builds on best practices in prevention and treatment of STBBIs in Canada, while recognizing both the particular challenges and the known enablers in reaching, testing and treating Inuit with STBBIs in northern communities.

Conclusions

Inuit experience high rates of STBBIs and face particular challenges in completing the testing and treatment journey. The enablers described in Ikajurniq can greatly increase the number of Inuit who successfully navigate the STBBI cascade of care.

Disclosure No significant relationships.

P587

ASSOCIATION BETWEEN VAGINAL BACTERIA AND HIV ACQUISITION RISK AMONG AFRICAN WOMEN PARTICIPATING IN THE VOICE STUDY

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Background We previously identified seven vaginal bacteria associated with increased HIV acquisition risk among African women using taxon-directed quantitative PCR (qPCR). We sought to extend the search for high-risk bacteria using a sequential PCR approach.

Methods African women participating in a randomized placebo-controlled trial of daily oral vs. vaginal tenofovir-based pre-exposure prophylaxis for HIV (VOICE study) provided vaginal samples. Cases (177 HIV pre-seroconversion visits from 150 women who acquired HIV) and controls (531 visits from 436 women who remained HIV uninfected) were matched by study arm and site. The vaginal microbiota was characterized using 16S rRNA gene PCR and sequencing to assess associations between relative abundances of bacteria and HIV risk; bacterial taxa were ranked in descending order by score statistic using logistic models run on each taxon until a p-value=0.1. Taxa prevalent at $\geq 5\%$ were selected for measurement of concentrations by qPCR. Relationship between bacterial concentrations and HIV risk was analyzed using Generalized Estimating Equation models, and adjusted for potential confounders.

Results Vaginal bacterial diversity among cases was higher than controls (p=0.0044). Analysis of relative abundance data identified 12 bacterial taxa associated with HIV risk that were not previously described. Six of these 12 taxa were selected for taxon-specific qPCR measurements. Concentrations of five of six taxa were significantly associated with increased risk for HIV acquisition. These include bacterial vaginosis-associated bacterium 2 (adjusted odds ratio (aOR)=1.57; 95% CI 0.97, 2.56), Candidate Division TM7 (aOR=2.04; 95% CI 1.14, 3.65), *Prevotella amnii* (aOR=1.53, 95% CI 0.95, 2.46),

Porphyromonas Type 1 (aOR=2.04, 95% CI 1.27, 3.28), and *Peptinophilus lacrimalis* (aOR=1.55, 95% CI 0.98, 2.44). *Dialister microaerophilus* was not associated with HIV risk.

Conclusion A sequential PCR approach facilitated the identification of new bacteria associated with increased HIV acquisition risk. Interventions to decrease high-risk bacteria could be explored as one approach to reduce HIV risk in women.

Disclosure No significant relationships.

P588

A MULTI-SITE COMPARATIVE STUDY TO UNDERSTAND SOURCES OF VARIABILITY IN STUDIES OF THE VAGINAL MICROBIOTA

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10.1136/sextrans-2019-sti.659

Background The most common approach for describing bacterial communities is amplification of a taxonomically informative gene (e.g. 16S rRNA) followed by amplicon sequencing and taxonomic assignment of the sequences. Variability can arise from numerous steps in this process including DNA extraction, PCR amplification, and bioinformatics approaches for taxonomic assignment. To better understand sources of variation in describing the vaginal microbiota, we conducted a comparative study across four laboratories.

Methods A central laboratory prepared and distributed a specimen set including vaginal swabs from four women with a range of Nugent scores (*in vivo* samples), three mock communities of vaginal bacteria, and positive and negative controls. For *in vivo* and mock communities, each laboratory was also provided specimens that underwent DNA extraction by the central laboratory. Laboratories followed their standard laboratory and bioinformatics processes. Results were analyzed by a central group blinded to laboratory.

Results For mock and *in vivo* communities dominated by a mix of *Lactobacillus* species, all laboratories successfully detected each of the taxa in the sample and reported similar relative abundances. For mock communities containing BV-associated taxa, most laboratories detected all taxa; however, some taxa, including *Prevotella amnii* and *Atopobium vaginae*, were not detected by all laboratories and there was more variation in relative abundances across the laboratories (*P. amnii* relative abundance range= $<1\%$ –17%; mock community proportion of colony forming units=11%). Variations were observed between the relative abundances within laboratories compared to samples that underwent DNA extraction by the central laboratory, highlighting impact of DNA extraction method.

Conclusion Despite differences in methods, in most cases laboratories would have come to the same conclusion regarding dominant taxa in a sample, especially for *Lactobacillus*-dominant samples. Samples with more diverse communities had

more variation in reports of minority taxa and relative abundances. Standardized use of mock communities may improve reproducibility across vaginal microbiota studies.

Disclosure No significant relationships.

P589 THE INFLUENCE OF PRECONCEPTION VAGINAL MICROBIOTA ON PRETERM BIRTH

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Background Preterm birth (PTB) is common worldwide and causes significant neonatal morbidity. Although ascending reproductive tract infection has been implicated in approximately half of spontaneous PTB cases, the microbiologic etiology remains poorly understood and no studies have examined the role of preconception vaginal microbiota in PTB.

Methods We conducted a pilot study comparing bacterial communities among 6 women who experienced a PTB < 34 weeks' gestation and 12 term delivery controls who participated in the Longitudinal Indian Family hEalth (LIFE) study in Telangana, India. Archived preconception vaginal samples were analyzed using broad-range 16S rRNA gene PCR with sequencing. Women with preeclampsia were excluded.

Results Cases had more sequence reads from *Sneathia* spp., *Megasphaera* spp., and *Atopobium vaginae* than controls. Overall, the vaginal microbiota of cases was more diverse than those from controls. Women who delivered at term generally had vaginal microbiota dominated by *Lactobacillus* spp.

Conclusion Our study suggests key differences in preconception vaginal bacterial communities between women who experience a PTB compared to women who deliver at term. Future large scale epidemiologic studies of preconception and prenatal vaginal microbiota and adverse pregnancy outcomes are warranted and may guide PTB interventions.

Disclosure No significant relationships.

P590 VAGINAL MICROBIOTA AND DOUCHING CESSATION: A CROSSOVER PILOT STUDY

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Background Observational studies have demonstrated a dose-dependent association between vaginal douching and bacterial vaginosis. We sought to estimate the effect of douching cessation on the vaginal microbiota in a pilot crossover study.

Methods Thirty-two women self-collected vaginal swabs twice-weekly (n=950) during a douching observational phase ("D", 4 weeks), followed by douching cessation ("DC", 12 weeks). Vaginal microbiota were characterized by 16S rRNA gene sequencing (V3-V4) and clustered into community state types (CSTs). A conditional logistic regression model, adjusted for menstruation and sexual behaviors, allowed each woman to

serve as her own control. Wilcoxon signed-rank tests were used to evaluate paired changes in microbiota between phases. Broad-range qPCR assays provided estimates of bacterial absolute abundance per swab. A piecewise linear mixed effects model was used to assess differences in rates of change in bacterial absolute abundance before and after douching.

Results There was not a statistically significant change in the odds of *Lactobacillus*-dominated CSTs comparing DC to D (aOR 0.54, 95% CI: 0.27–1.11). There were no significant changes for four individual *Lactobacillus* spp. and no meaningful changes in other taxa investigated. The rates of change in bacterial absolute abundance was not significantly different in samples collected 3 days before and after douching (p=0.46). Women who had a *Lactobacillus*-dominated CST at baseline experienced shifts to low-*Lactobacillus* CST in DC, and vice versa for women who had a low-*Lactobacillus* CST at baseline (interaction on entry CST, p-value <0.02), however, these findings were driven by changes occurring in the final weeks.

Conclusion In this pilot study, douching cessation was not associated with major changes in vaginal microbiota. Shifts in *Lactobacillus*-dominance may represent regression to the mean as the shifts occurred late in DC, giving ample time for fluctuations. Disparate findings between this study and prior analyses using Nugent score may be related to low-*Lactobacillus* CSTs receiving low/intermediate Nugent scores.

Disclosure No significant relationships.

P591 THE EFFECT OF HORMONAL CONTRACEPTION ON THE VAGINAL MICROBIOTA OVER 2 YEARS

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Background Despite widespread use, the effect of hormonal contraception (HC) on the vaginal microbiota (VMB) is understudied. We compared VMB in a longitudinal observational study of women during intervals on and off HC.

Methods Women stopping and starting any form of HC and women off HC (controls) collected vaginal swabs twice-weekly for 2 weeks prior to 7 study visits over 2 years. 16S rRNA gene sequencing was conducted, and the VMB was categorized into 7 community state types (CSTs): 4 dominated by *Lactobacillus* spp, and 3 by *Streptococcus* spp (CST VI), *Bifidobacterium* spp (CST VII), or a variety of anaerobes (CST IV). Mixed effects logistic regression models assessed differences in CST proportions. Bayesian double exponential random effects models estimated differences between stability indices within HC and control subjects (measured by median Jensen-Shannon distance [MJSD] from the subject's own centroid and from the centroid of CST I [*L. crispatus*-dominated]).

Results 4185 samples from 105 women (73 HC, 32 controls) were available for analysis. The VMB was more stable in women on HC as compared to controls (MJSD 0.16 vs 0.22, p<0.01) and in oral contraceptive pill users versus controls (MJSD 0.14 vs 0.22, p<0.01). Women had increased stability after being on HC for ≥3 months as compared to <3 months (MJSD difference -0.43, p<0.01). Women on HC for ≥3 months were more likely to be in CST I (51.3% vs 37.3%, p<0.01) and less likely to be in CST IV (11.4% vs 22.5%, p=0.01) than controls. Women on HC ≥3 months maintained

VMB closer to CST I than controls (MJSD 0.21 vs 0.42, $p < 0.01$).

Conclusion Women on HC have more stable, *Lactobacillus*-dominated VMB than controls. There is increased VMB stability after 3 months of HC use. Further assessment by HC type is currently being integrated into the analysis.

Disclosure No significant relationships.

P592

MICROBIOTA CONCORDANCE BETWEEN MID-VAGINAL SWABS AND BOTH CLEAN- AND RANDOM-CATCH URINE SAMPLES

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10.1136/sextrans-2019-sti.663

Background While urine has successfully been used for STI testing, it has not been routinely used in urogenital microbiota studies. This work explores whether random-catch and/or clean-catch urine could be a proxy for assessing the vaginal microbiota.

Methods In two studies, urinary and vaginal microbiota from women ages 17–45 were compared for (1) 91 participants with paired mid-vaginal swabs and random catch urine samples and (2) 99 participants with paired mid-vaginal swabs and clean catch urine samples. Microbiota composition was characterized by amplicon sequencing of the V3-V4 regions of the 16S rRNA gene. Taxonomic classification was assigned based on SILVA and SpeciateIt. Community State Types (CST) were assigned using an algorithm trained on 13,000 well-characterized samples. CST I, II, III, and V were dominated by: *Lactobacillus crispatus*, *L. gasseri*, *L. iners*, and *L. jensenii*, respectively. CST IV-A, IV-B, and IV-C represented low-*Lactobacillus* states. Similarity of paired urine and vaginal samples was measured at the CST-level by kappa statistics and the population-level with the Yue-Clayton theta indices.

Results We obtained 12 and 7.8 million sequences from urine and vaginal samples, respectively. At the CST-level, random-catch and clean-catch urines were 82.4% and 81.8% concordant with paired mid-vaginal swabs, respectively. Substantial agreement was observed between urine and paired vaginal specimen ($K_{\text{random-catch}} = 0.770$ and $K_{\text{clean-catch}} = 0.743$). At a population-level, average similarity of random- and clean-catch samples to paired vaginal samples indicated a high degree of similarity ($\theta = 0.7496$ and 0.7565 , respectively). Comparison of the distributions of random-catch and clean-catch θ similarity scores showed no differences ($p = 0.86$).

Conclusion Bacterial compositions of random catch and clean catch urine samples showed substantial agreement to paired mid-vaginal samples assessed by CST- and community-level analyses. Random and clean catch urine samples could

potentially be used as a proxy for vaginal microbiota in studies assessing the urogenital microbiota.

Disclosure No significant relationships.

P593

A CROSS-SECTIONAL STUDY OF BIRTH MODE AND VAGINAL MICROBIOTA IN REPRODUCTIVE-AGE WOMEN

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10.1136/sextrans-2019-sti.664

Background Recent data suggests that birth mode (Cesarean section [C-section] versus vaginal delivery) is an important seeding event in the initial colonization of the human microbiome and is associated with long-term health. We sought to determine the association between C-section delivery and vaginal microbiota in adulthood.

Methods We re-contacted 144 adult women from two concluded studies. In a phone survey, women reported their birth mode, obesity, breastfeeding, and age at menarche. Vaginal microbiota was characterized on a single baseline sample by amplicon sequencing of the V3-V4 hypervariable regions of the 16S rRNA gene and clustered into community state types (CSTs). We evaluated the association between birth mode and low versus high relative abundance of *Lactobacillus* spp. in logistic regression models controlling for body mass index, a significant confounder in this study.

Results 19% ($n = 27$) reported C-section delivery. Overall, C-section was non-significantly associated with increased odds of a low-*Lactobacillus* CST (aOR=1.22, 95% CI: 0.45, 3.32). Because the two archived studies had different participant characteristics and inclusion criteria (interaction $p = 0.048$), we stratified the analysis by study site. In the study with larger sample size ($n = 88$), women born via C-section had 3-fold higher odds of having low-*Lactobacillus* vaginal communities compared to vaginally-delivered women (aOR=3.55, $p = 0.06$, 95% CI: 0.97, 13.02). No association was found in the smaller study ($n = 56$, aOR=0.19, $p = 0.14$, 95% CI: 0.02, 1.71).

Conclusion This cross-sectional study suggests a possible association between C-section and increased odds of a low-*Lactobacillus* vaginal microbiota in adulthood. However, this analysis is limited by relatively small sample size and lack of comparability in participant age, personal hygiene behaviors, and other characteristics between the study sites. Future longitudinal studies could better account for expected fluctuations in CST and may also explore confounders including behavioral factors and socioeconomic status known to be associated with both delivery mode and vaginal microbiota.

Disclosure No significant relationships.

P595 VAGINAL MICROBIOTA AMONG ADOLESCENT AND YOUNG ADULT WOMEN WITH PELVIC INFLAMMATORY DISEASE

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Background Pelvic Inflammatory Disease (PID) is a polymicrobial infection currently treated using syndromic management with broad-spectrum antibiotics. There are limited data describing the vaginal microbiota among adolescent and young adult women with PID, and how the post-PID microbial state may predispose to subsequent infection due to ongoing infection and shifts in vaginal microbiota. The purpose of this pilot research is to examine the microbial environment among adolescent and young adult women with acute PID.

Methods This analysis utilizes stored samples from 13–25-year-old patients (n=26) diagnosed with acute PID and enrolled in the Technology Enhanced Community Health Nursing (TECHN) study, a large randomized controlled clinical trial designed to test a multi-faceted intervention for prevention of PID. Vaginal microbiota was characterized by 16S rRNA gene sequencing (V3-V4 regions) and clustered into community state types (CSTs).

Results At baseline, the majority of patients with acute PID were in a low-Lactobacillus or L.iners dominated state (CST I (*L. crispatus* dominated (N=3, 11.54%), CST III *L. iners*-dominated (N=7, 26.9%), CST IV Low-Lactobacillus (N=15, 57.69%), CST V *L. jensenii*-dominated (N=1, 3.85%)). The single CST V case had a relatively low abundance (55%) of *L. jensenii*.

Conclusion Preliminary vaginal microbiota testing among AYA with PID revealed over 1/2 of participants had a low abundance of *Lactobacillus* spp indicative of bacterial vaginosis and risk to STI. Over 1/4 had *L. iners*-dominated microbiotas, which are also often associated with BV. *Lactobacillus* spp and are thought to protect against pathogens; however, the level of protection may vary by strain. Additional research should examine these findings in larger samples, include PID-negative patients for comparison, and assess the changes in the vaginal microbiota associated with successful clearance of pathogens. Such work may improve understanding of the vaginal micro-environment during PID and elucidate a path to shift from syndromic management to precision treatment among affected patients.

Disclosure No significant relationships.

P597 COMPARISON OF ASSAYS AND SPECIMEN TYPES FOR THE DIAGNOSIS OF MYCOPLASMA GENITALIUM AND MACROLIDE RESISTANT MUTATIONS

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Background The Aptima MG assay (Hologic Inc.) detects *Mycoplasma genitalium* (MG). SpeeDx Resistance Plus MG (SpeeDx Pty Ltd) simultaneously determines whether the MG

detected is a wild-type (WT) or has any of 5 macrolide resistant mutations (MRM) in the 23S rRNA gene. The STD6 ACE assay (Seegene Canada Inc.) which is Health Canada approved and Aptima require further testing for MRM by 23S rRNA sequencing. The objectives were to enroll 300 women to self-collect 3 vaginal swabs (VS) and first-void urine (FVU) to be tested for MG in the 3 assays and for MRM.

Methods Aptima was performed on a Panther instrument. STD6 ACE used EasyMag extraction and gel electrophoresis. SpeeDx was extracted on an m2000sp and amplification was on an ABi 7500. Positives from Aptima and STD6 were tested for MRM by sequence typing. Extra positives by Aptima were blindly tested with negatives by alternate assays, detecting distinctly different 16S rRNA and 23S rRNA. Agreements and Kappa values were calculated for MG detection and MRM.

Results For 190 women, MG-positives by SpeeDX were 24 VS and 17 FVU, compared to 17 VS and 9 FVU by STD6. Aptima detected 34 VS and 29 FVU as positive. Overall agreements and Kappa values were very good K 0.82 (VS) to good K 0.69 (FVU) between Aptima and SpeeDx, but moderate to fair for Aptima or SpeeDx with STD6. Confirmatory testing of extra positives confirmed 79% (11/14) as positive for Aptima and 0% (0/6) for STD6. Patient MRM rates from each assay were 60% (15/25) SpeeDx, 63.6% (7/11) Aptima and 57.9% (11/19) STD6.

Conclusion Aptima was more sensitive on both VS and FVU. VS was a better sample than FVU for SpeeDx. STD6 lacked sensitivity and specificity for the identification of MG. MRM rates were similar for the three identification and typing systems.

Disclosure No significant relationships.

P598 DETECTION OF CHLAMYDIA, GONORRHOEA AND MYCOPLASMA GENITALIUM IN SEMEN AND IN ESWAB MEDIUM USING HOLOGIC APTIMA ASSAYS

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Background The objectives of this study were to determine the limits of detection (LODs) of *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG) and *Mycoplasma genitalium* (MG), using Aptima Combo 2 for CT/NG and Aptima *Mycoplasma genitalium* assays in presence of different volumes of semen and ESwab medium (bioMérieux, France) used for specimen collection. Furthermore, the preservation conditions of these bacteria in ESwab medium were assessed.

Methods Semen specimens were collected anonymously from patients consulting at the reproductive biology department of Bordeaux University Hospital. To determine LOD, quantified cultures of each bacterium were spiked in semen or ESwab medium. Different volumes added to APTIMA[®] Specimen transfer tubes were tested with Aptima Combo 2 CT/NG and Aptima *Mycoplasma genitalium* assays. Storage conditions (5 days at room temperature and 7 days at 4°C) of each bacterium in ESwab medium were evaluated. All the experiments were performed in triplicate on the Hologic[®] Panther system.

Results The semen was a slight source of amplification inhibition for CT and MG. However, using a volume of 50 µL of semen, the LOD of CT, NG and MG in semen remained low, at 10³ IFU/mL, 10 CFU/mL and 10² CCU/mL, respectively. A

volume of 50 µL of semen could be chosen for the diagnostic of these bacteria with Aptima assays. In ESwab medium, the LODs of CT, NG and MG were equivalent (between 1 and 10 IFU, CFU or CCU/mL) whatever the volume of ESwab added in the APTIMA^O specimen transfer tubes. A volume of 200 µl of ESwab allowed performing several different Aptima assays and the LOD of bacteria remained low whatever the storage conditions.

Conclusion Aptima Combo 2 for CT/NG and Aptima *Mycoplasma genitalium* assays can be used to detect these three sexually transmitted pathogens in semen and in clinical specimens preserved in ESwab medium.

Disclosure No significant relationships.

P600 MYCOPLASMA GENITALIUM POSITIVITY RATES IN THE US

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Background *Mycoplasma genitalium* (MG) has been associated with nongonococcal urethritis among men and cervicitis among women. Infection with MG has been linked to increase risk of HIV infection and potentially with adverse reproductive health outcomes. We currently have limited data regarding the positivity rates for this organism in different locations in the U.S. Typically, chlamydia, gonorrhoea and trichomonas rates are highest in the Deep South compared to other regions of the country, but we do not know if this is the case for MG. We took advantage of a multi-site, MG-focused clinical study being conducted in the US to assess the positivity rates, a reflection of prevalence from a convenience sample, at different collection sites.

Methods Symptomatic men and women were recruited from 8 sites in the US. Sites were located in the Deep South (Alabama, Louisiana, Mississippi, and Texas) and other regions (California, Connecticut, Indiana, and Maryland). Participants reporting dysuria, abnormal discharge, genital itching/pain, pelvic pain, or pain/bleeding during intercourse were considered symptomatic. MG status was determined by a combination of results from MG assays since.

Results 24/173 (13.9%) men and 21/219 (11.0%) women were MG-infected. The positivity rates were 13/129 (10.1%) and 11/44 (25.0%) for men recruited in the Deep South and other regions, respectively ($p=0.013$). Among women the rates were 21/184 (11.4%) and 3/35 (8.57%) ($p=0.624$).

Conclusion While the sample size is small since the study is ongoing, it is interesting to note that the majority of participants have been enrolled in Deep South and these positivity estimates are likely fairly robust. This is an important lesson given the disparity in described MG rates around the world. Rates have been reported to be high among symptomatic men in Western Europe and Australia, but lower in other settings. Investigation into the causes for differential distribution may be important to designing appropriate control strategies.

Disclosure No significant relationships.

P601 MACROLIDE AND FLUOROQUINOLONE RESISTANCE-ASSOCIATED MUTATIONS IN MYCOPLASMA GENITALIUM: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background Treatment for *Mycoplasma genitalium* is becoming increasingly complicated by antimicrobial resistance. We summarised published global data on the prevalence of macrolide and fluoroquinolone resistance-associated mutations in *M. genitalium* and examined trends over time.

Methods We searched PubMed, EMBASE and Medline until December 31, 2017. We included studies that reported the percentage of key mutations associated with macrolide resistance (23S rRNA gene: A2071C/G/T; A2072C/G/T) and/or fluoroquinolone failure (*parC* gene: S83R/I; D87N/Y) among *M. genitalium* positive specimens. Data were extracted by geographic region, collection year, sex, and risk group (men who have sex with men [MSM] or heterosexual). Summary estimates (95% confidence intervals [CI]) were calculated using random-effects meta-analyses. Subgroup and meta-regression analyses were conducted to assess heterogeneity.

Results 47 studies met the inclusion criteria reporting resistance-associated mutations for macrolides ($n=45$) and fluoroquinolones ($n=18$). Global prevalence of macrolide resistance mutations increased from 4.9% [95% CI 0.0–15.7%] before 2009, to 46.3% [30.7–62.2%] in 2016–17 (p -trend=0.001). This increase was greatest in the Western Pacific region (Australia in particular) where prevalence increased from 12.6% [2.6–26.9%] to 69.2% [60.7–77.1%] (p -trend<0.001). Prevalence of macrolide resistance-associated mutations was also higher among MSM (72.3% [58.6–84.5%]) than heterosexual men (37.3% [25.8–49.6%]) ($p<0.001$). Global prevalence of fluoroquinolone resistance mutations was 6.3% [4.2–8.9%] with no changes over time or by risk group, but regional variations were present with highest prevalence in the Western Pacific region (14.9% [9.7–20.9%]) and North America (11.2% [2.9–23.3%]), and lowest in Europe (2.8% [1.7–4.1%]). Dual class resistance mutation prevalence was 2.5% [1.1–4.2%] with no change over time or by risk group. Regional variations were similar to those for fluoroquinolone resistance mutations.

Conclusion Resistance to recommended first and second line treatments for *M. genitalium* is a growing public health problem. Global surveillance and antimicrobial resistance-guided therapies are needed to inform more effective regional strategies for the control and treatment of *M. genitalium*.

Disclosure No significant relationships.

P602 MOLECULAR SCREENING & AMP: QUANTIFICATION OF MYCOPLASMA GENITALIUM IN INFERTILITY PATIENTS

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Background *N. gonorrhoeae* and *C. trachomatis* are the predominant agents causing infertility. However, role of *M. genitalium* and *U. urealyticum* remain to be addressed. In addition, the association of load of these organisms with infertility is still not clear. The aim of the study was to screening and quantification of *M. genitalium*, *Ureaplasma* sp. *N. gonorrhoeae* and *C. trachomatis* in an infertile patients.

Methods A total of 248 women (98 infertile patients and 150 healthy control) who attended the infertility clinic and antenatal clinic of gynaecology department, were recruited in the study. Endocervical swabs (ECS) were collected from both group based on inclusion and exclusion criteria. For analytical sensitivity of uniplex real-time PCR (qPCR), targeted regions of reference strains were cloned in pGEMT Easy vector and transformed to JM109 *E. coli* cells. Cloned plasmid DNA were 10-fold diluted to determine the limit of detection for each organism and all clinical samples were tested and quantified.

Results Of 98 infertile patients, *M. genitalium* and *U. parvum*, *C. trachomatis*, *N. gonorrhoeae*, were detected in 7 (7.1%) and 42 (32.8%), 15 (15.3%), 8 (8.1%), respectively. Of 98 patients, 43.8% (43/98) had single infection and 19.3% (19/98) had mixed infection. *U. parvum* was the only detected organism in healthy control (30.7%). Our findings also suggest bacterial load of two classical agents (*C. trachomatis* and *N. gonorrhoeae*) and *M. genitalium* was not significantly associated with infertile patients. However, we observed *U. parvum* load was high in healthy control than in infertile patients but not was not statically significant.

Conclusion In addition to traditional agents which causes infertility (*C. trachomatis* and *N. gonorrhoeae*), *M. genitalium* is also important cause and should be looked for in infertility cases though organism load was not found to be significantly associated with infertility. More studies are needed particularly in developing countries to study such associations.

Disclosure No significant relationships.

P603 ESTIMATING POPULATION BURDEN OF PELVIC INFLAMMATORY DISEASE DUE TO MYCOPLASMA GENITALIUM IN ENGLAND: AN EVIDENCE SYNTHESIS

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Background Increasing evidence indicates that *Mycoplasma genitalium* (Mgen) is a sexually-transmitted infection that can lead to pelvic inflammatory disease (PID) and possibly infertility. Resistance to azithromycin, which has been the first-line treatment, has been widely reported. To develop optimal testing and treatment guidelines, it is necessary to understand the

natural history of Mgen and the burden of associated disease. Several observational studies have provided valuable data, but no study has synthesized the available evidence to estimate the population burden of Mgen-associated disease.

Methods The POPI study was a chlamydia screening trial recruiting sexually active female students aged ≤ 27 years in London, 2004–2006. Women provided vaginal samples at baseline and follow-up, and were assessed for one-year incidence of PID by genitourinary doctors using participant questionnaires and medical records. Mgen infections were identified retrospectively from stored samples, using NAATs. We used the published data on Mgen prevalence, persistence of infection over median 16 (range 12–21) months' follow-up, and one-year incidence of PID in women infected or not infected with Mgen at enrollment. We conducted a Bayesian evidence synthesis using a simple (Susceptible-Infected-Susceptible) mathematical model of infection, with uninformative priors on all parameters.

Results In the POPI trial, 6.26% (1.82, 15.11)% (posterior median; 95% credible interval) of Mgen infections led to PID. We estimate that there were 1.96 (0.16,6.27) new Mgen-related PID cases per 1000 women per year, and a total of 6728 (537,21547) cases per year in 16–27-year-old English women. 10.8% (0.9,33.0)% of the current burden of PID is caused by Mgen infection.

Conclusion Our model synthesises different types of data to understand the burden of Mgen infection and PID. Further data will be included to increase the precision of estimates, which are currently subject to wide uncertainty. We recommend studies in men, with urethritis as the disease outcome, which could be analysed with a similar model.

Disclosure No significant relationships.

P604 PLATFORM-AGNOSTIC REAGENTS FOR DETECTION OF MYCOPLASMA GENITALIUM

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Background *Mycoplasma genitalium* (MG), an STI of renewed interest, is associated with urethritis in men and cervicitis in women. Epidemiologic studies of MG infection outcomes have been limited by diagnostic capabilities. Recent molecular technologies have been applied to detection of MG-specific nucleic acid sequences. Use of commercially available assays leads to comparability across studies if the performance characteristics of these assays are known. The Aptima MG assay is available in some settings but requires access to assay-specific instrumentation. BioGX (Birmingham AL, USA) offers a custom lyophilized reagent for MG detection that is platform-agnostic and can be used in many clinical diagnostic settings. We compared the performance of the BioGX reagents to the Aptima MG (AMG) assay using specimens collected in support of a study of infertility in Cameroon.

Methods Vaginal samples were collected using Dacron swabs and stored in M4 transport medium. 200 μ L of M4 was loaded into an AMG transport tube or a BD MAX SBT

transport tube. Nucleic acid extraction and real-time PCR was performed on the BD MAX instrument using the BioGX Mycoplasma-Ureaplasma reagent. In this analysis we evaluated only the detection of MG.

Results Genital samples from 416 women were tested using both the AMG and BioGX reagents. The overall agreement was 99.3% ($\kappa=0.876$) with 402 negative and 11 positive samples in agreement. Two samples were positive only using the BioGX reagents and one specimen was only positive with AMG.

Conclusion In this MG detection study, we showed good performance of BioGX reagents on the BD MAX platform. The BioGX reagents can be used with any real-time PCR system, thus expanding diagnostic capacity to many laboratories. The performance in this study was very similar to that of AMG. Reagents capable of wider testing can facilitate epidemiologic studies designed to understand the impact of MG infection.

Disclosure No significant relationships.

P605 TESTING AND TREATMENT STRATEGIES FOR LIMITING DRUG RESISTANCE IN *MYCOPLASMA GENITALIUM*

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Background *Mycoplasma genitalium* (Mg) has rapidly increased its resistance to azithromycin, which has been first-line therapy for non-chlamydial-non-gonococcal urethritis (NCNGU), a proportion of which is due to Mg, and for treating Mg specifically. New commercial nucleic acid amplification tests (NAATs) are likely to greatly increase diagnosis and treatment of Mg, potentially promoting resistance. We previously developed the first transmission-dynamic model of Mg, which we now use to examine alternative approaches to NAAT testing and treatment.

Methods Our model synthesises evidence from surveillance data, and epidemiological and behavioural studies, and accounts for parameter uncertainty, including the fitness-costs and benefits of drug resistance. The model incorporates resistance due to de novo mutation and transmission. We examined scenarios regarding (i) targeting of NAAT (only testing symptomatic patients and partners vs testing all patients); (ii) using NAATs detecting resistance vs only detecting Mg; (iii) choice of first-line therapy (including continuing using azithromycin except where resistance has been detected vs alternative first-line regimen).

Results If azithromycin continues to be first-line therapy then resistance (and incidence of sequelae) will continue to rise, exacerbated by increased NAATs-based diagnoses. If asymptomatic screening occurs then resistance will increase 3.9 (95% CI: 2.1–5.7) times as rapidly as if only symptomatic patients and partners are tested. Pre-treatment resistance testing mitigates but does not prevent increases in resistance, due to resistance arising from frequent de novo mutation. Long-term outcomes of alternative regimens are highly uncertain.

Conclusion This work supports recommendations not to screen for Mg until a better treatment regimen has been determined. NAATs should include resistance-testing but this is not a

panacea. Improved understanding of Mg's natural history is urgently required, along with better surveillance of testing, diagnosis, and treatment, to monitor clinical adherence to guidelines, quantify drug-resistance fitness costs and benefits, and reduce uncertainty in decision-making. Internet-based testing and prescribing is a grave concern and needs to be controlled.

Disclosure No significant relationships.

P606 OH MG! THE SYMPTOMS OF *MYCOPLASMA GENITALIUM* IN WOMEN

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Background While the contribution of *Mycoplasma genitalium* (MG) to symptoms in men is well described, less is known about its clinical presentation in women. Data support an association with cervicitis, but an association with pelvic inflammatory disease is contentious. We undertook a study of 1200 symptomatic and asymptomatic women to determine the prevalence of MG and macrolide resistance, and to determine its association with common genital symptoms in women to inform indications for testing.

Methods Women attending Melbourne Sexual Health Centre from 18th April 2017 (in progress) were tested for MG and macrolide resistance (ResistancePlusMG SpeDx, Sydney), chlamydia and gonorrhoea (Aptima Combo 2, Hologic), trichomoniasis (microscopy and culture), bacterial vaginosis (BV) and candida (microscopy). Women underwent examination and completed a questionnaire on symptoms. The prevalence of MG, macrolide-resistance, STIs and coinfection, and association with genital symptoms and signs, was determined by univariate and multivariable analysis.

Results Of 1054 women enrolled to date (968 symptomatic and 86 asymptomatic), 62 women (6%, 95%CI 5–7%) tested positive for MG, with macrolide-resistance detected in 54% (95%CI 41–67%). Chlamydia and gonorrhoea were detected in 8% (95%CI 6–9%) and 1% (95%CI 1–2%) of the 1054 women respectively. Of the 62 women infected with MG, 42% (95%CI 30–55) also had BV, 26% (95%CI 16–38) candida, 6% (95%CI 2–16) chlamydia and 2% (95%CI 0–9) gonorrhoea. MG prevalence did not differ between symptomatic and asymptomatic women (6% vs 5%, $p=0.614$). No specific genital symptoms or signs were significantly associated with MG, in contrast to chlamydia, which was associated with post-coital bleeding (OR 1.7, $p=0.04$) and cervicitis (OR 2.3, $p=0.014$).

Conclusion MG was as common as chlamydia in our clinic population but in contrast to chlamydia was not associated with any specific clinical features that would inform testing practices. Macrolide resistance was detected in half of cases and coinfection with BV was particularly common.

Disclosure No significant relationships.

P607 DETECTION OF *MYCOPLASMA GENITALIUM* MACROLIDE RESISTANCE USING THE OPEN CHANNEL OF THE PANTHER FUSION® SYSTEM

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Background Current epidemiological studies demonstrate a high prevalence of *Mycoplasma genitalium* (MG) infections in high-risk groups, especially MSM. Owing to the widespread macrolide resistance the European Guideline on MG infections recommend complementing the molecular detection of MG with an assay capable of detecting macrolide resistance-associated mutations. Macrolide resistance is caused by a single nucleotide polymorphism (SNP) in region V of the 23S rRNA gene. Two nucleotide positions in the 23S rRNA gene have been associated with azithromycin resistance: A2058 and A2059.

Methods The Aptima *M. genitalium* Assay® was used for the initial detection on the Panther® system. A hydrolysis probe real-time PCR on the Open Channel of the PantherFusion® system for automated reflex testing after MG positive results was established and validated. The Open Channel of the instrument allows the use of custom primers and probes on the PantherFusion® system. Minor groove binder (MGB) hydrolysis probes were used for accurate and reliable SNP discrimination at position 2058/2059. The workflow enables an automated analysis process including DNA extraction, PCR setup, and results interpretation. Using the open channel 300 samples could be genotyped within an 8 h working day.

Results 60 MG positive clinical samples were tested. The laboratory developed test (LDT) was able to detect the wild type variant in 20 samples and the A2058G/A2059G mutations in 22 samples. All results were confirmed by amplicon sequencing and commercially available test system. 18 (30%) samples did not show any typing result either using different LDT or commercial test system.

Conclusion MG positive samples can be typed for macrolide resistance using our LDT on the same platform during one run. The combination of a MG high-throughput test followed by macrolide resistance testing improves the efficiency of large-scale epidemiological resistance surveillance. However, highly sensitive TMA assay might result in a significant number of non-typable samples. Further studies are needed to improve the sensitivity and explanatory power of MG resistance testing.

Disclosure No significant relationships.

P608 SIMPLEPROBE PCR ASSAY FOR DETECTION OF MUTATIONS ASSOCIATED WITH MACROLIDE RESISTANCE IN *MYCOPLASMA GENITALIUM* SAMPLES

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Background Macrolide-resistant strains of *Mycoplasma genitalium* are an increasing problem throughout the world, and the

implementation of a rapid and sensitive assay for mutation detection to guide treatment is needed. Macrolide-resistant strains have been shown to contain base substitutions in positions 2058 and 2059 (*Escherichia coli* numbering) in region V of the 23S rRNA gene. In this study, we present a SimpleProbe PCR followed by melting curve analysis to differentiate between macrolide-resistant mutants and wild types.

Methods The assay was performed on 159 *Mycoplasma genitalium*-positive samples, and the results were compared with DNA sequencing. We also looked at the prevalence of macrolide-resistant strains in a Norwegian population.

Results Of 139 samples characterized successfully by sequencing, 54 (39%) were wild types and 85 (61%) were mutants, consisting of 59 (42%) A2059G, 24 (17%) A2058G, 1 (1%) A2058T, and 1 (1%) A2059C mutation. The melting curve analysis correctly differentiated between wild-type and mutant strains in all cases, but it could not identify the different mutant types.

Conclusion The SimpleProbe PCR proved to be a simple, rapid, and reliable method for the detection of macrolide-resistant isolates of *Mycoplasma genitalium* in a clinical setting.

Disclosure No significant relationships.

P609 CLINICAL EVALUATION OF THREE COMMERCIAL PCR ASSAYS FOR THE DETECTION OF *MYCOPLASMA GENITALIUM* AND MACROLIDE RESISTANCE

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Background Because macrolide resistance is increasing worldwide in *Mycoplasma genitalium* (MG), it is recommended to detect macrolide resistance-associated mutations in MG-positive specimens. Some new commercial kits detect macrolide resistance at the same time as MG detection. The aim of the study was to prospectively evaluate the clinical performance of three commercial kits for the detection of MG and macrolide resistance.

Methods Two hundred MG-positive urogenital specimens detected using an in-house real-time PCR are prospectively collected at the Bacteriology Department of Bordeaux University Hospital (France). After DNA extraction of the specimens using the MagNa Pure 96 (Roche), the specimens are submitted to four assays: the SpeedX ResistancePlus MG assay, the Diagenode S-DiaMGRES assay, the PathoFinder Real accurate TVMG^{RES} and the in-house FRET qPCR assay and 23S rRNA sequencing used as reference. The internal controls of each kit were added in the specimen before extraction and the absence of amplification inhibition associated with the addition of the three internal controls was previously checked.

Results To date, 114 MG-positive specimens have been analyzed. The clinical sensitivity for MG detection was similar for the three commercial kits, ranging between 95.5 and 98.2%. To compare the macrolide resistance detection performance, 90 specimens that have been found MG-positive using the three kits and that could be amplified using the in-house FRET qPCR assay were retained. Therefore, compared

to the reference assay, clinical sensitivity of the three commercial kits for the detection of resistance was ranging between 89.1% and 100% and clinical specificity was ranging between 93.2 and 97.7%, with no statistical significant difference. Testing additional urogenital specimens will allow to specify these percentages.

Conclusion The launch of three sensitive and specific commercial kits for the detection of MG and macrolide resistance will be useful to guide the choice of therapy.

Disclosure No significant relationships.

P610 MYCOPLASMA GENITALIUM IN CLIENTS VISITING TWO DUTCH STI CLINICS: VERY HIGH PREVALENCE AND RESISTANCE TO AZITHROMYCIN

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Background Associations between *Mycoplasma genitalium* (MG) and male urethritis and pelvic inflammatory disease are reported frequently. The recent prevalence of MG among clients of Dutch STI clinics is unknown. Treatment is hampered by resistance to azithromycin.

Methods Urogenital samples from 939 men who have sex with women (MSW), 1025 men who have sex with men (MSM) and 1273 women were included at the STI clinics of Amsterdam and the Hague. Also anal samples from all MSM and from 984 women were included. TMA assays (Aptima, Hologic) were used to detect MG, *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (NG). Azithromycin resistance was tested using a new qPCR with LNA probes and confirmed by 23SrRNA gene sequencing.

Results The overall MG prevalence among STI clients was 19.9% in MSM, 8.4% in MSW and 12.5% in women. Prevalence for all risk groups was higher in STI clients in Amsterdam than in the Hague. MG-positivity was detected in 8.4% urines of MSW and 6.9% of MSM. In women, MG was found in 11.0% of vaginal samples. Of the anal samples of MSM 15.4% and of women 10.0% were MG positive. Among MG-positive MSM 67.5% and among MG-positive women 16.1% were MG-positive in the anal sample only. MG and NG were associated in men ($p < 0.001$), but not MG and CT. Detected azithromycin resistance was very high: 34/50 (68%) of urines, 48/81 (59%) of anal samples and 37/75 (49%) of vaginal samples.

Conclusion MG is highly prevalent in Dutch STI clinic clients and resistance frequency to azithromycin is very high. In MSM, isolated anal MG is common, but frequently missed if left untested. Anal MG in women is also common, but testing vaginal MG detects most cases. In men, NG and MG infections are associated. Information on clinical relevance of MG and azithromycin resistance is urgently needed.

Disclosure No significant relationships.

P611 HIGH SEROPREVALENCE OF MYCOPLASMA GENITALIUM IN THE GENERAL ADULT POPULATION OF GERMANY

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Background *Mycoplasma genitalium* (MG) is one of the most common bacterial sexually transmitted infections (STI). Nevertheless, knowledge about the immune response is scarce and seroprevalence has only been assessed in selected populations. In HIV-negative blood donors seroprevalence was 5.5%, in patients with pelvic inflammatory disease 17%. We estimated MG seroprevalence in the general adult population in Germany.

Methods We retrospectively analysed sera of the population-based German National Health Interview and Examination Survey 1998 for MG antibodies using a pre-validated, multiplex, fluorescent bead-based assay. To avoid cross-reactivity, two unconserved regions of adhesion proteins, MgPaN and rMgPa were chosen as antigens. The thresholds for seropositivity were set at 1000 median fluorescence intensity units by visual inspection of inflection points. Overall seropositivity for MG was defined as concomitant seropositivity for both antigens. To assure representativeness, survey weights were applied for calculation of prevalence and 95% confidence intervals (CI). Design-based F was computed as test of independence.

Results Sera of 6038 participants were analysed. Participants were aged 17–79 years (median 44y), 51% were female. Overall weighted seroprevalence was 6.5% (95%CI: 5.7–7.3%), and by age-group 17–19y 0.3% (0.1–1.5%), 20–24y 1.9% (0.9–3.8%), 25–29y 6.7% (4.6–9.8%), 30–39y 9.1% (7.4–11.1%), 40–49y 10.8% (8.9–13.0%), 50–59y 4.5% (3.4–5.9%), 60–69y 3.3% (2.2–5.1%), and 70–79y 4.6% (2.9–7.4%). In the age-group 20–29y, women had a higher seroprevalence (7.5%, 95%CI: 5.0–11.1%) than men (2.1%, 95%CI: 1.1–4.0%; $p = 0.001$).

Conclusion Compared to other studies, our results for MG seroprevalence in the general adult population in Germany are plausible.

The earlier increase in women is similar to the pattern in other STI such as *Chlamydia trachomatis* infection. Seroprevalence dropped in participants aged 50 or more but remained stable at a low level until old age, indicating long antibody persistence or continuous sexual interactions in parts of the population. However, longitudinal studies are necessary to clarify immunological processes.

Disclosure No significant relationships.

P612 ANTIMICROBIAL SUSCEPTIBILITY DATA OF MYCOPLASMA GENITALIUM STRAINS ISOLATED IN JAPAN

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Background The initial culturing of *Mycoplasma genitalium* from clinical specimens is still difficult and the antimicrobial susceptibility data of *M. genitalium* strains have not been

enough. Multidrug resistant *M. genitalium* strains including macrolide or fluoroquinolone-resistance are increasing and analysis of *M. genitalium* strains is important.

Methods *M. genitalium* strains were isolated from urinary sediment of *M. genitalium*-positive urine-specimens from Japanese man. The antimicrobial susceptibility testing was examined by the cell-culture method. The tested antimicrobials were azithromycin (AZM), clarithromycin (CLR), doxycycline (DOX), minocycline (MIN), ciprofloxacin (CIP), levofloxacin (LVX), moxifloxacin (MOX) and sitafloxacin (STFX).

Results Total 14 *M. genitalium* strains were isolated from Japanese patients. Four strains were isolated in 2003, and other 10 strains were isolated in 2017 and 2018. MIC₅₀ and MIC₉₀ were ≥ 16 mg/L and ≥ 16 mg/L for AZM, ≥ 16 mg/L and ≥ 16 mg/L for CLR, .5 mg/L and 1 mg/L for DOX, 0.25 mg/L and 0.5 mg/L for MIN, 8 mg/L and ≥ 16 mg/L for CIP, 4 mg/L and ≥ 16 mg/L for LVX, 1 mg/L and 4 mg/L for MOX and 0.125 mg/L and 0.5 mg/L for STFX, respectively. There was no macrolide-resistant strains in 2003, but 9 strains isolated in 2017 and 2018 were resistant to macrolide. Seven strains had high MICs more than 1 mg/L for MOX, but only one strain had high MIC 1 mg/L for STFX. Except for one strain which had MIC 2 mg/L for DOX, MICs of other strains for DOX or MIN were shown between 0.125 mg/L and 1 mg/L.

Conclusion Among 14 strain, 7 strains had high MICs for macrolide and MOX. In Japan, multidrug-resistant *M. genitalium* strains were increasing. Limitation of this study was that we tried to isolated *M. genitalium* strains from patients with treatment-failure cases by macrolide or fluoroquinolone in 2017 and 2018.

Disclosure No significant relationships.

P613 PREVALENCE AND CLINICAL FEATURES OF *MYCOPLASMA GENITALIUM* IN PATIENTS ATTENDING A STI OUTPATIENT CLINIC IN BERLIN: 2013–2017

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Background The *Mycoplasma genitalium* (MG) infection is a sexually transmitted infection (STI) with often asymptomatic course and increasing antibiotic resistance. One of the risk groups with a high prevalence are men, having sex with men (MSM). To our knowledge we are the first clinic in Germany to test routinely for MG.

Methods We performed a retrospective analysis of all data from MG-tested patients (rectal, pharyngeal and urethral swabs and urine samples) between 2013 and 2017. Due to an absence of consequent test of cure (TOC), an in-depth analysis was performed solely on the samples collected by the first visit of selected patient.

Results A total of 32,302 probes from 7,474 patients were systematically analyzed. Over 5 years we continuously increased testing rates from 3,362 probes (2013) to 11,845 probes (2017). The majority of patients were male (97.0%), with the mean age of 34.7 years. Most of the patients identified themselves as MSM. Due to patient discomfort, the tests for urethral infection were successively switched from urethral swab to urine probe (2013, 59.6% vs 2017, 88.2%). The mean prevalence appeared relatively stable and peaked in

2014 (5.2%). The majority of infections were rectal (6.7%) and urethral (4.8%). Pharyngeal infections were rarely identified (1.0%). The urethral swabs appeared as more sensitive when compared to urine probes (5.5% vs 4.1%). A total of 3,819 (51.1%) patients never received a TOC.

Conclusion The presented data represent the largest epidemiological surveillance of MG in Germany to date. The prevalence of MG appeared stable over 5 years. Probably due to many asymptomatic courses the majority of patients did not receive a TOC, making them possible vectors in case of treatment failure. Due to increased vulnerability for HIV-acquisition in persons with a MG-infection, we recommend routine rectal tests in MSM.

Disclosure No significant relationships.

P614 MACROLIDE RESISTANCE IN *MYCOPLASMA GENITALIUM* IS STRONGLY ASSOCIATED WITH STI CO-INFECTION

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Background Co-infections can compromise empirical therapy when treating genital discharge syndrome (GDS). In the UK, lack of testing for *Mycoplasma genitalium* (MG), a common cause of GDS, is particularly challenging because of increasing rates of macrolide antimicrobial resistance (AMR). We calculated prevalence of MG co-infections, macrolide resistance and associated risk factors in a diverse symptomatic sexual health clinic (SHC) population.

Methods SHC attendees in England aged ≥ 16 years, symptomatic of an STI provided: vulvovaginal swabs (females), first void urine (men-who-have-sex-with-women (MSW) and men-who-have-sex-with-men (MSM)), pharyngeal and rectal swabs (MSM). Routine clinic *Chlamydia trachomatis* (CT)/*Neisseria gonorrhoeae* (NG) results were obtained and PCR used for MG detection. Macrolide resistance was determined using Sanger sequencing. Unadjusted and risk factor adjusted odds ratios (ORs) for being MG resistant were derived using logistic regression models.

Results Prevalence of MG was 9.5% across all groups and 6.5%(95%CI:4.6–8.9), 12.8%(9.1–17.3) and 12.3%(8.5–17.1) in females, MSW and MSM, respectively ($p < 0.005$). Among patients infected with CT and/or NG, co-infection with MG was 18.7%(8.9–32.6), 9.5%(3.6–19.6) and 4.9%(1.4–12.2), respectively ($p < 0.05$). Among MG positives, macrolide resistance was 62.1%(42.3–79.3), 77.4%(58.9–90.4), and 90.9%(70.8–98.9), respectively. In univariate analysis, being MSM (OR:3.0[95%CI:1.60–5.88]), being of black (3.02[1.66–5.47]) compared to white ethnicity, reported more than one regular partner (3.19[1.25–8.13]), having an STI co-infection (10.13 [4.62–22.25]; $p < 0.001$) and a recent STI diagnosis (2.09[1.18–3.68]; $p < 0.005$) were associated with having macrolide resistant MG. In multivariable analysis, being MSM (aOR:3.31 [1.44–7.61]), being of black ethnicity (3.31[95%CI:1.58–6.94]; $p < 0.005$), more than one regular partner (3.32[1.21–9.08];

$p < 0.005$) and having a co-infection (10.35[4.32–25.30]; $p < 0.001$) remained significant.

Conclusion Having an STI co-infection with MG was the strongest indicator of likelihood of having macrolide resistance which was also associated with being in particular risk groups. These findings are suggestive that macrolide resistance may be maintained in discreet sexual networks that are themselves exposed to antibiotic selection pressures.

Disclosure No significant relationships.

P615

CLINICAL IMPROVEMENT AFTER STANDARD TREATMENT FOR URETHRITIS: THE ROLE OF *MYCOPLASMA GENITALIUM*

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Background *Mycoplasma genitalium* (MG) is a sexually transmitted organism associated with urethritis in men. We examined clinical improvement of symptoms in men treated syndromically for urethritis, and correlated the clinical outcome to MG positivity.

Methods At the STI clinic in Amsterdam, the Netherlands, urethritis is defined as the presence of ≥ 10 leucocytes per high power field in Gram stains of urethral discharge. The additional presence of intracellular gram-negative diplococci defines gonococcal urethritis. Point-of-care standard therapy for gonococcal urethritis is 1000 mg ceftriaxone and for non-gonococcal urethritis is azithromycin 1000 mg. From May 2018 onwards, urine samples of all men with urethritis were tested for presence of *N. gonorrhoeae* (NG), *C. trachomatis* (CT), and *M. genitalium* (MG) using TMA assays (Aptima, Hologic). These men were sent a text message two weeks after receiving standard therapy, with a questionnaire about improvement (including resolution) of their urethritis symptoms. We analyzed clinical improvement by MG status.

Results From May through December 2018, 1015 men presented with 1111 episodes of urethritis. Of 88 episodes, there were no results for MG. Of the remaining 1023 episodes, men responded to the text message in 379 cases (37%). Of 379 cases 87 (23%) were positive for NG, 119 (31%) for CT, and 81 (21%) for MG. Clinical improvement was reported in 312 episodes (82%); this was 89% in NG cases; 82% in CT cases, and 72% in MG cases. Clinical improvement was reported by 92%(55/60), 85%(83/98) and 70%(35/50) of those with single infection with NG, CT or MG respectively ($P=0.009$); and by 80%(110/134) of those with

none of these infections. Those with MG/CT co-infection had worse outcomes than those without MG ($P=0.015$).

Conclusion Among men with urethritis 82% improved after standard syndromic treatment. Those with MG/CT co-infection and those with MG single infection had significantly worse treatment results.

Disclosure No significant relationships.

P616

PREDICTIVE MACROLIDE AND FLUOROQUINOLONE RESISTANCE MARKERS IN *MYCOPLASMA GENITALIUM* FROM THE UK AND IRELAND

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Background This study sought to assess the prevalence of macrolide and fluoroquinolone resistance in *Mycoplasma genitalium*-positive specimens received in PHE's national reference laboratory.

Methods *M. genitalium*-positive clinical specimens submitted from 59 laboratories across the UK and Ireland were tested for molecular markers of macrolide and fluoroquinolone resistance. The 23S rRNA gene and the quinolone-resistance-determining region (QRDR) of *parC* were amplified by PCR and Sanger sequenced. Single nucleotide polymorphisms (SNPs) associated with clinical treatment failure were detected through sequence alignment in BioNumerics software (V.6.1, Applied Maths, USA).

Results Four hundred and fifty-eight *M. genitalium*-positive specimens were received between 01/09/17 and 28/11/2018. Sequencing results were available for both gene targets in 389/458 (84.9%) specimens. Seventy-one percent (275/389) were predicted to be resistant to macrolides. 23S rRNA SNPs detected were A2058G (136/275, 49.5%), A2059G (131/275, 47.6%), A2058T (5/275, 1.8%) and A2059C (3/275, 1.1%). Eight percent (31/389) were predicted to be resistant to fluoroquinolones. *parC* mutations detected were D87N (16/31, 51.6%), S83I (12/31, 38.7%), D87Y (2/31, 6.5%) and S83R (1/31, 3.2%). Seven percent (26/389) were predicted to be resistant to both antimicrobial classes. Only 28% of positive samples tested were predicted to be susceptible to both classes of antimicrobial.

Conclusion Resistance to macrolides, the current first-line treatment for *M. genitalium*, in specimens received at PHE from patients attending STI clinics in the UK and Ireland is very high, at 85%. Conversely, resistance to the second-line treatment, moxifloxacin, in these specimens was estimated at 8% although the actual rate of resistance may be higher as there are many mutations with unknown treatment outcomes. Isolates exhibiting resistance to both antimicrobial classes are of significant public health concern as further treatment options for this organism are limited. Effective surveillance of SNPs in this organism is imperative to further understand the affect on clinical outcome.

Disclosure No significant relationships.

P617 MOLECULAR TYPING OF *MYCOPLASMA GENITALIUM* SHOWS A DIVERSE EPIDEMIC WITH LIMITED AZITHROMYCIN RESISTANCE IN SOUTH AFRICA

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Background The occurrence of azithromycin resistance in *M. genitalium* infection is unknown in Africa, where diagnostic resources are limited and STIs are managed syndromically. This study aims to gain insight in the molecular epidemiology including antimicrobial resistance of *M. genitalium* infection in South Africa.

Methods We collected 87 *M. genitalium*-positive samples obtained from participants in three study cohorts: HIV-infected pregnant women residing in townships in Pretoria (n=44), men and women accessing primary healthcare services in rural Mopani District (n=32), and men accessing sexual health services in Johannesburg (n=11). Molecular typing was performed using single nucleotide polymorphism (SNP) analysis of the MG191 gene to determine sequence type (ST) combined with variable-number of tandem-repeat (VNTR) assessment of the MG309 gene. Molecular detection of macrolide resistance-associated mutations in the 23S rRNA gene was done and, if detected, subsequent sequencing of the *parC* and *gyrA* genes for quinolone resistance.

Results SNP analysis was successful in 22 specimens and showed 17 different STs (9 known and 8 new STs). VNTR assessment was successful for 36 specimens and showed variation in the number of repeat, ranging from 8 to 19; four strains had the same number of repeats (11). There was no geographic clustering of specific STs or number of repeats observed. Azithromycin resistance was detected in only 1/87 specimens (1.1%); a mutation in the *parC* gene associated with quinolone resistance was also detected in this case. This specific strain was a unique novel ST, but with similar tandem repeats, compared to the drug-susceptible stains.

Conclusion This study shows a well-established, genetically diverse epidemic of *M. genitalium* infection in South Africa. The prevalence of azithromycin resistance was low, which is probably the result of the relatively recent introduction of azithromycin in the syndromic management guidelines. Nevertheless, introduction of diagnostics and surveillance of resistance is urgently warranted.

Disclosure No significant relationships.

P618 MYCOPLASMA GENITALIUM TESTING IN CLINICAL PRACTICE: PREVALENCE AND RESISTANCE RATES IN A SOUTH LONDON SEXUAL HEALTH CLINIC

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Background The British Association of Sexual Health and HIV recommends testing for *Mycoplasma genitalium* (MG) in clinically indicated conditions (CIC) (non-gonococcal urethritis (NGU); epididymitis; pelvic inflammatory disease (PID); contacts of MG; test of cure (TOC)). MG testing was implemented in September 2018 in a large urban sexual health service. We aimed to assess the prevalence and antimicrobial resistance of MG in this clinic population after a 6-weeks embedding period.

Methods All patients diagnosed with a CIC and tested for MG between 28/10/2018-18/12/2018 were included. MG testing was performed using Aptima *Mycoplasma genitalium* assay (AMG; Hologic); confirmatory testing and resistance testing for macrolides and fluoroquinolones was performed at the Public Health England reference laboratory.

Results The 371 individuals tested for MG were predominantly male (77%), heterosexual (78%) and Caucasian (46%) and 85% tested per guidance. 18% were positive for MG. 38% (25/65) were positive using AMG but had negative confirmatory test and no resistance results. 18% with MG were co-infected with another sexually transmitted infection (9 chlamydia; 2 gonorrhoea; 2 trichomonas). The prevalence of MG by testing indication was: contacts of MG (33%, 11/33), TOC (25%, 3/12), NGU/epididymitis (17%, 38/229), PID/cervicitis (11%, 5/44) and inappropriately tested (14%, 7/51). 38% of MG had resistance; 34% macrolides; 8% fluoroquinolones; 3% both. Macrolide resistance was identified on the 23SrRNA gene at loci A2058G (45%) and A209G (55%), all fluoroquinolone was on the *parC* gene.

Conclusion We report a high MG prevalence in this population with high rates of resistance, the majority of which is macrolide. We recommend resistance guided therapy in view of high macrolide and fluoroquinolone resistance. Positive RNA detection with negative DNA detection is concerning and may either represent very low bacterial loads, a biological false positive result of AMG or a false negative result of the confirmatory test.

Disclosure No significant relationships.

P619 MACROLIDE AND QUINOLONE RESISTANCE IN MYCOPLASMA GENITALIUM: DATA FROM A UK SEXUAL HEALTH CLINIC

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Background Rates of macrolide resistance (MR) in *Mycoplasma genitalium* (Mgen) globally remain alarmingly high (30-100%) and quinolone resistance (QR) is now an increasing concern. In the UK, testing for Mgen is in its infancy and data for MR and QR are therefore lacking. The recent publication of guidelines by British Association for Sexual Health and HIV (BASHH) delivers hope that testing and experience in managing Mgen infection will increase. We aimed to measure infection rates and to determine the prevalence of MR and QR in men with urethritis and women with pelvic inflammatory disease (PID) attending a UK sexual health clinic.

Methods Men with urethritis, women with PID and current sexual partners of Mgen-infected patients were tested for Mgen (BASHH guidelines). The samples were tested using the Fast-Track Urethritis Basic assay for detection. Positive samples were tested by the SpeeDx ResistancePlus[®] MG assay to detect the presence of MR-mutations and the SpeeDx MG +ParC (beta) assay determined QR-mutations.

Results Forty-five patients tested positive for Mgen—53% of cases were men with urethritis; 29% were women with PID and 18% were asymptomatic patients. The prevalence of Mgen in men with urethritis was 18%, and in women with PID was also 18%. The prevalence of MR was 69% (31/45). The prevalence of QR was 7% (3/45); all 3 patients also had MR.

Conclusion These are the first UK data for MR and QR in Mgen from attendees to clinic at a single centre. MR was higher than previously reported in the UK and Europe. Reassuringly, QR is still low—however, this is likely to rise with increasing quinolone use. Patients with dual-class resistance pose a significant challenge as subsequent treatment options are limited. All testing for Mgen should include the detection of resistance-associated mutations so that the most appropriate agent can be used.

Disclosure No significant relationships.

P620

INCLUSIVITY, EXCLUSIVITY, STABILITY AND PROSPECTIVE TESTING OF TWO REAL-TIME PCR ASSAYS FOR *MYCOPLASMA GENITALIUM*

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10.1136/sextrans-2019-sti.688

Background *Mycoplasma genitalium* (MG) is an emerging sexually transmitted infection. It has been associated with cervicitis and PID in women and urethritis and persistent NGU in men.

Methods We evaluated two MG qPCRs, 16S rRNA and pdhD. The limit of detection (LOD) for the 16S rRNA and pdhD assays were determined with 11 MG strains. Inclusivity/exclusivity testing was performed with 11 MG strains and 43 non-MG strains. Stability testing was performed with mock vaginal and urine samples stored at +4°C and 25°C at 1.5X, 4X, 10X and 20X LOD at 0, 7, 14, 21, 28 and 35 days. These assays were employed in an ongoing prospective study examining the prevalence of MG in symptomatic and asymptomatic men and women. Positives were sequenced to determine mutation rates in the 23S rRNA gene conferring macrolide resistance.

Results The pdhD and 16S assays had LODs of 1324 and 1536 copies/ml, respectively. All inclusivity/exclusivity testing performed as expected. Detection in urine and vaginal matrix at 4°C was 100% for both assays. Detection in urine at 4°C was 100% for both assays while detection in urine at 25°C was 100% at 28 days, but was 90% at 35 days. For symptomatic men, the prevalence was 19% (4/21) and 14.3% (3/21) for the pdhD and 16S rRNA assays respectively, and was 7.14% (1/15) in symptomatic women for both assays. There

were no MG detections in asymptomatic subjects. Of the positives, 100% (5/5) were determined to be 23S mutants.

Conclusion Both assays had reasonable LODs and expected results for inclusivity/exclusivity testing. For stability testing, results were as expected up to 35 days, where a loss of positivity was observed for urine samples. We observed a high prevalence of MG in symptomatic men and women, as well as a high percentage of 23S mutants conferring macrolide resistance.

Disclosure No significant relationships.

P621

PREVALENCE OF *MYCOPLASMA GENITALIUM* INFECTION, ANTIMICROBIAL RESISTANCE, AND SYMPTOM RESOLUTION FOLLOWING TREATMENT

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Background *Mycoplasma genitalium* (MG) is an emerging cause of urethritis. Although an FDA-approved MG diagnostic test is now available in the U.S., syndromic management of urethritis remains widespread. Little is known about the geographic distribution of MG resistance in the U.S. and associated clinical outcomes. We evaluated the frequency of MG among men with urethritis, antimicrobial susceptibility of MG, and post-treatment symptom persistence.

Methods We enrolled men presenting with urethritis symptoms to 6 U.S. STD clinics during June 2017–July 2018. Participants with urethritis confirmed on stained urethral smear were eligible for a follow-up phone call 14–17 days post-enrollment and chart review. Urethral specimens were tested locally for *N. gonorrhoeae* and *C. trachomatis*. CDC tested specimens for MG and *T. vaginalis*. MG resistance mutations were detected by targeted amplification/Sanger sequencing of 23S rRNA loci (macrolide resistance mutations [MRM]) and *parC* and *gyrA* (quinolone resistance mutations).

Results Among 914 participants with evaluable MG results, MG was detected in 28.7% (95% CI 23.8–33.6). Men with MG were more often black (79.8% vs 66%), <30 years (72.9% vs 56.2%), and reported only female partners (83.7% vs 74.2%) than men without MG. Among MG+ participants, MRM was detected in 62.2% (range 53%–72.3%), *parC* mutations in 11.5% (range 6.6–18.4%), and *gyrA* in 0%. Among 763 participants with follow-up, 19.8% reported symptom persistence, without clinically meaningful difference by MG status. Among MG participants treated with azithromycin, those with MRM more often reported persistent symptoms (35.1%) and were more likely to return to clinic within 45 days than those without MRM.

Conclusion MG was common among men with urethritis and MRM prevalence high. Persistent symptoms were frequent among men with and without MG. Many participants with macrolide-resistant MG experienced symptom persistence and returned to clinic for evaluation.

Disclosure No significant relationships.

P622 THE USE OF SEEGENE'S ALLPLEX™MG & AZIR ASSAY FOR THE DETECTION OF MYCOPLASMA GENITALIUM AND MACROLIDE RESISTANCE IN WALES

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Background *Mycoplasma genitalium* (Mgent) is a sexually transmitted bacteria, associated with cervicitis and pelvic inflammatory disease in women and non-gonococcal urethritis in men. These bacteria lack cell walls and many prokaryotic metabolic pathways, mediating inherent resistance to most antimicrobials. Furthermore, Mgent has garnered concern as the prevalence of both fluoroquinolone and macrolide resistance has increased significantly in recent years, further restricting possible therapeutic avenues. In January 2019, Public Health Wales deployed the Seegene Allplex™MG & AziR assay to determine the presence of MG and its susceptibility to macrolides from genitourinary samples. This kit is novel in its ability to not only detect MG, but also define which specific 23S rRNA gene macrolide-resistance mediating mutations (MRM) are present without requirement for sequencing.

Methods 170 clinical samples (collected Jan-March 2019) were investigated: 83 clinical samples submitted from symptomatic patients (suspected MG infections by BASHH guidelines) combined with 87 samples randomly selected from clinical samples submitted for Cobas gonorrhoea/chlamydia (NG/CT) testing (non-targeted). All samples were from patients attending a genitourinary medicine (GUM) clinic in South Wales. Samples were extracted and prepared using the Hamilton Microlab Nimbus, STARMag universal cartridge extraction kit and Allplex™MG & AziR assay. Amplification and detection were performed by a Bio-Rad CFX96 equipped with SeeGene interpretative software.

Results Mgent prevalence with suspected NG/CT patients was 5/87 (5.7%) with 4 (80%) containing MRM (2x A2058G and 2x A2059G), while prevalence within the Mgent-suspected group was 11/83 (13.3%) with 5 (45.5%) containing MRM (4x A2059G and 1x A2058G mutations). Further up-to-date cumulative data to be presented at IUSTI.

Conclusion Mgent prevalence was 5.7% in the non-targeted cohort, while targeted patients gave 13.3% prevalence for a South Wales GUM clinic. Macrolide resistance prevalence was 56% on average. These results justify the implementation of routine Mgent and macrolide resistance testing in South Wales, abiding by European and BASHH guidelines.

Disclosure No significant relationships.

P623 POST-TRANSCRIPTIONAL REGULATION OF GENES BY NON-CODING RNA IN NEISSERIA GONORRHOEA, AN OBLIGATE HUMAN PATHOGEN

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Background Small non-coding RNAs (sRNAs) play an important role in bacterial gene expression and regulation. The

knowledge of sRNA in *Neisseria gonorrhoeae* is scarce despite of its clinical significance. We utilized the available RNA-seq data under aerobic and anaerobic condition to identify non-coding RNA. We further identified sRNAs which are differentially expressed under anaerobic condition and their mRNA targets.

Methods The normalized reads (RPKM) under aerobic and anaerobic conditions were compared and a three-fold or greater difference in the expression level of sRNAs was scored as differentially expressed sRNA. sRNA targets were found using online available tools (CoproRNA, targetRNA2). We further predicted the sRNA-mRNA interactions using intaRNA tool.

Results A total of 26 sRNAs were identified. Out of which, ten sRNAs were differentially expressed under anaerobic condition, physiologically important stage during infection. We further identified mRNA targets of these sRNAs based on deep sequencing of *N. gonorrhoeae* transcriptome under aerobic and anaerobic conditions. These results indicated that several sRNAs target genes that are involved in energy metabolism processes, stress response and various other networks.

Conclusion Our results provide new insights into the post-transcriptional regulation of genes by sRNAs in *Neisseria gonorrhoeae*.

Disclosure No significant relationships.

P624 CULTURE FOR URETHRAL GONORRHEA FROM ASYMPTOMATIC MEN POSITIVE FOR NEISSERIA GONORRHOEA BY URINE APTIMA COMBO 2 TESTING

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Background In a previous study of men attending Melbourne Sexual Health Centre who had *N. gonorrhoeae* detected by urine Aptima Combo 2 (AC2) testing, 11% were asymptomatic, reporting no urethral symptoms. This study aimed to determine if *N. gonorrhoeae* can be cultured from asymptomatic men screening positive for *N. gonorrhoeae* by nucleic acid amplification testing (NAAT) of urine.

Methods Between 1 July 2017 and 30 September 2018, men reporting sex with men attending Melbourne Sexual Health Centre who did not report urethral symptoms were screened for *N. gonorrhoeae* by AC2 testing of urine. NAAT positive men were recalled and a urethral swab performed for gonococcal culture using modified Thayer Martin media with determination of minimum inhibitory concentrations (MICs) for penicillin, azithromycin, ceftriaxone and ciprofloxacin by agar dilution.

Results There were 612 cases (538 individuals) positive for *N. gonorrhoeae* by urine AC2: 548 (90%) reported urethral symptoms; 64 (10%) did not report symptoms. Thirteen asymptomatic cases were excluded because of antibiotic use at or following screening. Of the remaining 51 asymptomatic men, 25 (49%) had a urethral swab performed a median of 4 days after screening. Thirteen men had urethral discharge at the return visit, 7 of whom reported the discharge at the return visit. Of the 25 men who were swabbed, 18 (72%) were culture positive for *N. gonorrhoeae*. Among the 12 men who remained asymptomatic with no discharge at the return

visit, 7 were culture positive. MIC profiles were obtained from all isolates.

Conclusion Gonorrhoea was isolated in most asymptomatic men screening positive for *N. gonorrhoeae* by urine NAAT. Clinicians should consider culture in such men to ensure optimal surveillance for antimicrobial resistance. Isolation of *N. gonorrhoeae* in men without discharge indicates these are true infections with viable organisms.

Disclosure No significant relationships.

P625 TRENDS IN SYMPTOMATIC PRESENTATION AMONG REPORTED GONORRHEA CASES, STD SURVEILLANCE NETWORK (SSUN), 2010–2017

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Background Rates of reported gonorrhea cases have increased in recent years among all groups in the U.S. Expanded screening, particularly extragenital screening among men who have sex with men (MSM), results in increased case finding, complicating interpretation of reported case rates. Monitoring trends in symptomatic presentation through enhanced surveillance may provide insight into changes in case rates.

Methods Randomly sampled cases from 54 counties in 5 U.S. states 2010–2017 were interviewed; symptom status (patient report of ‘any STD symptoms’) and sex-of-sex partner(s) were elicited. Interviewed cases were weighted to be representative of all reported cases in participating jurisdictions. Proportion of cases presenting with symptoms and symptomatic rate per 100,000 were calculated, stratified by gender and sex-of-sex partners. Trends over time were evaluated by Cochran-Armitage and Pearson’s trend tests.

Results During 2010–2017, 21,006 cases were interviewed, representing over 500,000 reported cases. Symptom status was available for 97.1%; the estimated number of symptomatic cases increased 125.9% (30,883 to 69,772). The proportion of women and non-MSM males reporting symptoms increased by 15.3% (48.3% to 55.7%) and 11.5% (80.1% to 89.3%), respectively. Conversely, the proportion of MSM cases reporting symptoms decreased by 23.2% (72.5% to 55.7%). Relative increase in estimated symptomatic case rate from 2010 to 2017 was 82.8% among women (56.0 to 102.4 per 100,000), 82.8% among non-MSM males (67.0 to 122.5 per 100,000) and 185.9% among MSM (946.2 to 2705.2 per 100,000). All trends were significant at $p < 0.05$.

Conclusion Decreases in the proportion of MSM cases reporting symptoms suggests increased case rates among MSM are partially attributable to expanded screening. Yet a significant, increasing trend in the symptomatic case rate among MSM suggests a real increase in gonorrhea transmission. The proportion symptomatic and symptomatic case rates for non-MSM males and females are also rising, suggesting more transmissions in these groups as well.

Disclosure No significant relationships.

P626 NEISSERIA GONORRHOEAE AS AN UNRECOGNIZED CAUSE OF PRESEPTAL CELLULITIS

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Background Preseptal cellulitis is an infection of the anterior portion of the eyelid and can present with chemosis and eye pain. Preseptal cellulitis and conjunctivitis is a rare, sight threatening infection, is less common in adults, and is usually caused by *Streptococcus* or *Staphylococcus* species. *Neisseria gonorrhoea* rarely causes preseptal cellulitis with only four cases previously described.

Methods We describe a case of preseptal cellulitis caused by *Neisseria gonorrhoea*.

Results: Case A 43-year-old woman presented with progressive pain and swelling of her left eye, a low-grade fever and dysuria. On exam, she was afebrile, had significant mucopurulent discharge, eyelid erythema, and a normal cornea. A CT scan of the orbit showed left periorbital preseptal soft tissue swelling. A nucleic acid amplification test (NAAT) for *Neisseria gonorrhoea* was positive in both the left eye swab and a urine specimen. Bacterial cultures from swabs from the eye were also positive for *Neisseria gonorrhoea*. She initially received intravenous (IV) cefepime, vancomycin, piperacillin/tazobactam that were subsequently changed to ceftriaxone, daptomycin and one dose of oral azithromycin. She completed a course of IV ceftriaxone daily for 4 days and 6 additional days of oral cefixime, tobramycin eye drops, and trimethoprim-sulfamethoxazole. She had significant clinical improvement within 3 days and her eye healed well.

Conclusion Clinicians must consider *N. gonorrhoea* infection in patients presenting with acute, unilateral, mucopurulent conjunctivitis and preseptal cellulitis. Rapid diagnosis is critical and we demonstrate the utility of NAAT on an eye specimen. Contact isolation precautions are encouraged, as there is evidence of transmission through fomites and contaminated hands. Treatment data are limited, but we recommend at least 3 days of IV ceftriaxone in combination with azithromycin before transitioning to oral antibiotics based on susceptibilities. In the era of antibiotic resistant gonorrhea, clinicians must be vigilant to ensure appropriate antibiotic treatment of this severe eye infection.

Disclosure No significant relationships.

P627 **CHANGING OF MOLECULAR CHARACTERIZATION OF GONOCOCCAL ISOLATES IN GUANGDONG, CHINA: IN A BACKGROUND OF A RISING EPIDEMIC**

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Background The epidemic of the *N. gonorrhoeae* infection is rapidly increasing since 2015 in China. The aims of this study were to explore the changes of antibiotic susceptibility and molecular characterization of *N. gonorrhoeae* in Guangdong, China, during 2013–2017.

Methods A total of 704 strains were collected consecutively from two cities in Guangdong, China, during 2013–2017. Minimum inhibitory concentrations to 6 antimicrobials were assessed through the agar dilution method. Penicillinase-producing *N. gonorrhoeae* (PPNG) and tetracycline-resistant *N. gonorrhoeae* (TRNG) were characterized for the plasmid type. All isolates collected in 2013, 2014 and 2017 were genotyped by *N. gonorrhoeae* multi-antigen sequence typing (NG-MAST). All statistical analyses were performed using the SPSS 20.0 (IBM) software.

Results Of the 704 consecutive gonococcal isolates, high resistance to penicillin (68.2%), tetracycline (85.7%) and ciprofloxacin (98.2%) were observed during the study period. Spectinomycin, Ceftriaxone and Azithromycin appeared to be effective agents with sensitivity of 100%, 96.4% and 90.7%, respectively. The penicillin- and azithromycin-resistant rates decreased from 78.4% (80/102) to 73.6% (120/163) ($P=0.001$) and 9.8% (10/102) to 3.7% (6/163) ($P=0.004$). The total prevalence of PPNG, TRNG and PPNG/TRNG was 25.4%, 33.1% and 13.4%, respectively, in which the African-type PPNG increased from 6.9% (7/102) to 15.3% (25/163) ($P=0.046$) instead of decreasing Asian-type PPNG from 30.4% (31/102) to 8.0% (13/163) ($P<0.001$), and the American-type TRNG increased from 0% to 4.3% ($p=0.01$) instead of decreasing the Dutch-type TRNG from 50.0% to 27.0% ($p<0.001$). Out of 380 isolates collected in 2013–14 and 2017, 145 (38.1%) novel STs were first genotyped. The most prevalent STs were ST5308 ($n=10$), ST5061 ($n=7$), ST3741 ($n=6$) and all ST4676 strains ($n=4$) decreased susceptibility to ceftriaxone ($MIC\geq 0.125$).

Conclusion The African-type PPNG and the American-type TRNG were increased, and more novel STs strains were emerged in Guangdong. The gonococcal isolates with new genotypes might contribute to the raising epidemic of gonorrhoea in this area.

Disclosure No significant relationships.

P628 **THE IMPACT OF INCLUDING THROAT AND RECTAL SWABS FOR CHLAMYDIA AND GONORRHEA TESTING ONLINE IN BRITISH COLUMBIA, CANADA**

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Background GetCheckedOnline (GCO) is a comprehensive, online sexually-transmitted infection (STI) testing service in British Columbia, Canada, which includes urine nucleic acid amplification testing (NAAT) for chlamydia (CT) and gonorrhoea (GC). In 2016, responding to mounting evidence of missed infections with urine-only screening, self-collected throat and rectal swabs were added. We aimed to describe missed infections with urine-only screening.

Methods We retrospectively analyzed all CT/GC-related testing episodes conducted through GCO in 2016–2018. Urine testing is recommended for all GCO clients. Rectal swabs are recommended to clients reporting receptive anal sex in the past 3 months; throat swabs are recommended to men who have sex with men (MSM) who indicate giving oral sex in the past 3 months. We described prevalence by site and quantified the proportion of CT/GC infections missed with urine-only screening.

Results Of 10,724 CT/GC urine test episodes, 2746 (25.6%) and 2288 (21.3%) included throat and rectal swabs, respectively. 95.0% and 86.0% of clients recommended for throat and rectal swab testing submitted samples, respectively. Among women, 3760 CT/GC urine test episodes were conducted, with 560 (14.9%) including rectal swabs. Percent positivity by infection-site was 3.6% CT-urine, 3.0% CT-rectal, 0.1% GC-urine, and 0.2% GC-rectal. Urine testing alone detected 95.3% of CT/GC infections. Among MSM, 3088 CT/GC urine test episodes were conducted, with 2587 (83.8%) including throat swabs and 1635 (52.9%) including rectal swabs. Percent positivity by infection-site was 1.5% CT-urine, 0.7% CT-throat, 5.1% CT-rectal, 0.5% GC-urine, 2.4% GC-throat, and 2.8% GC-rectal. Urine testing alone detected only 25.4% of all CT/GC infections.

Conclusion The majority of GCO clients recommended for self-collected throat and rectal swabs submitted samples. Approximately three-quarters of CT/GC infections among MSM would have been missed if swabs had not been offered. Online STI testing services should provide comprehensive biospecimen collection when indicated to facilitate CT/GC detection and treatment.

Disclosure No significant relationships.

P629 GONORRHEA ACQUISITION AFTER INFECTION WITH THE US NMNG URETHRITIS CLADE: A PROSPECTIVE, CHART-BASED STUDY

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Background Recent research suggests that *Neisseria meningitidis* (Nm) OMV serogroup B vaccination protects against gonorrhoea (caused by *Neisseria gonorrhoeae*, Ng). Since 2015, we have monitored a large cluster of urethritis cases caused by a uropathogenic, non-groupable Nm clade (US NmNG urethritis clade). The US NmNG urethritis clade encodes for MenB-4C vaccine antigens (FHbp, NhbA, NadA), but whether natural infection reduces subsequent risk of urethral gonorrhoea is unknown.

Methods We constructed a dataset combining surveillance and medical record data from men diagnosed with US NmNG clade urethritis (n=128) in a local STD clinic. We used time-to-event analyses of clinic visits between 1/2015 and 4/2018 to examine prospective urethral gonorrhoea risk. As gonorrhoea is a common event in STD patients, we compared subsequent gonorrhoea acquisition for men with US NmNG clade urethritis at baseline to men with Ng urethritis (n=255), chlamydial urethritis (n=253), or no infection (n=257) at baseline.

Results Participants were primarily Black (65%) and heterosexual (82%), with a median age of 28 years. At baseline, 13% had prior gonorrhoea history. Only one participant had prior MenB vaccination. Half (49%) of men returned for STD screening at least once during the follow-up period. Men with US NmNG clade urethritis at baseline had similar gonorrhoea risk as men with Ng at baseline (HR: 1.03, 95% CI: 0.60–1.76). Results were not meaningfully different when assessing extragenital gonococcal infections, or after adjustment for time since baseline, age, race, sexual orientation, prior gonorrhoea infection, and sexual behavior (number of partners, condom use, and oral sex). In contrast, those with US NmNG clade urethritis had increased gonorrhoea incidence compared to men with chlamydial urethritis (HR: 2.02, 95% CI: 1.11–3.69) and men with no infection at baseline (HR: 3.84, 95% CI: 1.87–7.91).

Conclusion Natural infection with US NmNG urethritis clade does not appear to protect men against subsequent acquisition of gonorrhoea.

Disclosure No significant relationships.

P630 ESTIMATING THE POTENTIAL IMPACT OF REALISTIC VACCINATION STRATEGIES AGAINST ANTIBIOTIC RESISTANT NEISSERIA GONORRHOEAE

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Background Gonorrhoea infection is increasing and becoming harder to treat. In England, incidence among men who have sex with men (MSM) has increased eight-fold since 2008, reaching $\geq 21,000$ cases in 2017. This epidemic, coupled with the growing threat of potentially untreatable antibiotic-resistant infection, has renewed interest in a gonococcal vaccine. Previous vaccine development attempts have failed; however, observational evidence suggesting the MeNZB meningococcal B vaccine is partially protective against gonorrhoea, with 31% effectiveness but uncertain duration, indicates it may be possible to develop a suitable vaccine.

Methods We fitted a stochastic transmission-dynamic model, incorporating asymptomatic and symptomatic infection and heterogeneous sexual behaviour, to gonorrhoea incidence in MSM in England over 2008–17 using particle Markov Chain Monte Carlo methods. Bayesian forecasting, considering realistic vaccination strategies under different scenarios of antibiotic resistance, determined how vaccine effectiveness and duration of protection affect population-level impact, and examined feasibility of achieving WHO's target of reducing gonorrhoea incidence by 90% between 2016 and 2030.

Results Even a partially-effective vaccine could have a substantial impact if protection lasts long enough. In a worst-case scenario of untreatable gonorrhoea, vaccinating all MSM attending sexual health clinics with a 58% effective vaccine protecting for ≥ 12 years (with boosters if required), or a 66% effective vaccine lasting ≥ 6 years, reduces expected incidence below the WHO target. A vaccine conferring 30% protection for 2–4 years reduces expected incidence in 2030 by 34% if gonorrhoea becomes untreatable, but if $\geq 80\%$ of gonorrhoea cases are treatable then incidence is reduced by 95%.

Conclusion Our statistically rigorous assessment shows that even a partially-effective vaccine, delivered through a practical targeting strategy, could have a substantial benefit in reducing gonorrhoea incidence in the context of an epidemic with rising antibiotic resistance. Our model can help design trials to measure vaccine effectiveness and duration of protection and assess cost-effectiveness of vaccination strategies.

Disclosure No significant relationships.

P631 CASES OF GONORRHEA WITH MULTIPLE ANATOMIC SITES OF INFECTION IN CANADA, 2016 TO 2017

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Background *Neisseria gonorrhoeae*, the causative agent of gonorrhoea, is the second most commonly reported bacterial sexually transmitted infection in Canada and a global public health threat. Many cases of gonococcal infection include isolates from more than one anatomical infection site. This study compares the antimicrobial resistance (AMR) and molecular sequence type (ST) of multiple anatomical infection site isolates from individual cases.

Methods Isolates were collected by Canadian provincial laboratories and submitted to the National Microbiology Laboratory (NML) from 2016–2017. AMR profiles were determined using

agar dilution as described by the Clinical Laboratory Standards Institute. Molecular genotyping was determined using *N. gonorrhoeae* multi-antigen sequence typing (NG-MAST).

Results In 2016–2017, NML received 8,300 *N. gonorrhoeae* isolates; 668 of the isolates were associated with multiple infection sites from a total of 307 cases. Of the 307 cases, 92.8% (n=285) had isolates with similar AMR profiles and the same NG-MAST ST. Twenty-two cases (7.2%) with isolates originating from multiple infection sites were found to have different AMR profiles and different STs. Of the 134 cases with throat and rectal isolates, 3.7% (5/134) had isolates with different STs. Of the 144 cases with both urogenital and rectal isolates, 6.3% (9/144) of isolates had different STs. Of the 132 cases with both urogenital and throat isolates, 9.9% (13/132) had different STs. Three cases had all three infections sites (throat, rectal and urogenital), each with different AMR profiles and different ST types.

Conclusion The majority of gonococcal cases with isolates from multiple infection sites have the same AMR profile and ST indicating a single infection. Approximately 7% of gonococcal cases with multiple infection site isolates were found to have very different AMR profiles and sequences types which may have implications in test-of-cure strategies, treatment failure investigations and surveillance programs.

Disclosure No significant relationships.

P632 REGIONAL DIFFERENCES IN GONORRHOEA ANTIMICROBIAL RESISTANCE PATTERNS IN THE NETHERLANDS

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Background The Gonococcal Resistance to Antibiotics Surveillance (GRAS) programme was established in the Netherlands to monitor gonorrhoea resistance patterns. Until now, GRAS data were only analysed and presented on a national level. This study aims to gain insight into regional differences and the representativeness of GRAS.

Methods 18 STI clinics participate in GRAS and monitor resistance to azithromycin, ciprofloxacin, cefotaxime and ceftriaxone by performing culture and susceptibility testing with Etest for gonorrhoea patients. To describe differences in antimicrobial resistance levels between STI clinic regions, data from 2013–2017 was used. Antimicrobial resistance was defined based on EUCAST breakpoints. For azithromycin and ciprofloxacin, variables associated with resistance in univariate analyses were added to a multilevel logistic regression model containing a random intercept for region. We calculated the proportional change in variance (PCV) to assess to what extent regional variance in antibiotic resistance was explained by these variables. We included patient characteristics (e.g. sex, age, ethnicity, anatomical location of infection) and laboratory characteristics (sample method and selective culture medium).

Results In 2013–2017, almost 9,000 susceptibility tests were performed. Resistance to azithromycin was 11.6% (varying between regions from 2.0%–41.5%), ciprofloxacin 29.4% (12.8%–61.1%), cefotaxime 2.0% (0.0%–4.2%) and ceftriaxone 0.0%. The PCV after adding patient characteristics to the

model was 73.8% for ciprofloxacin, but for azithromycin –17.8%. For laboratory characteristics, these were 32.8% and 36.6%. Adding both patient and laboratory characteristics explained 78.6% of regional variance for ciprofloxacin, and 15.5% for azithromycin.

Conclusion Regional variations in antimicrobial resistance are reported, and need to be taken into account when interpreting national surveillance data. Further research is needed to determine the cause of these regional differences, including an evaluation of regional laboratory practices. Especially for azithromycin, as regional variance could not be explained by population characteristics.

Disclosure No significant relationships.

P633 LOW GONORRHOEA ANTIMICROBIAL RESISTANCE AND CULTURE POSITIVITY RATES IN GENERAL PRACTICE: A PILOT STUDY

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Background In the Netherlands, the gonorrhoea resistance to antimicrobials surveillance (GRAS) programme is carried out at STI clinics, which provide care for high-risk populations. However, half of gonorrhoea infections are diagnosed in general practice (GP). We performed a pilot study to explore expanding GRAS to the GP population using laboratory-based surveillance. Additionally, antimicrobial resistance patterns of GP and STI clinic patients were compared.

Methods Three laboratories from different regions were included, which all perform gonorrhoea diagnostics for GPs and STI clinics and used eSwab for patient sampling. Additional culturing for all GP patients with gonorrhoea took place from February to July 2018. After positive PCR-NAAT test, residual eSwab material was used for culture. In positive cultures, susceptibility testing was performed for azithromycin, ciprofloxacin, cefotaxime and ceftriaxone using Etest.

Results During the study period, 484 samples were put in culture. 16.5% of cultures were positive (n=80). Antimicrobial resistance levels were low, with 2.6% resistance to azithromycin, 21.5% to ciprofloxacin and 0.0% to cefotaxime and ceftriaxone. Resistance levels in STI clinic GRAS data (first half of 2018) were 19.2% for azithromycin, 31.5% for ciprofloxacin, 1.9% for cefotaxime and 0.0% for ceftriaxone.

Conclusion Culture positivity rates for GP patients were low, probably due to long transportation times and awaiting PCR test results. Positivity rates might be improved by making changes in sampling and/or transportation methods, but that would require involvement of GPs and patients instead of keeping the surveillance lab-based. Resistance levels appeared to be much lower at the GP than at STI clinics, indicating that resistance might emerge first in more high-risk populations that visit the STI clinics. It is important to consider all potentially relevant patient populations when establishing a surveillance programme. Based on the findings from this study the current GRAS programme will not be extended to the GP population.

Disclosure No significant relationships.

P634 SURVEILLANCE FOR DISSEMINATED GONOCOCCAL INFECTIONS, ACTIVE BACTERIAL CORE SURVEILLANCE (ABCS) – UNITED STATES, 2015–2018

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Background Disseminated gonococcal infections (DGI) are uncommon; occurring in an estimated 0.5–3% of *Neisseria gonorrhoeae* (GC) cases. DGI surveillance is limited and case reports are often analyzed retrospectively or in case clusters. We describe the population-level burden of laboratory culture confirmed DGI using an established surveillance infrastructure, the Active Bacterial Core surveillance (ABCS) system of CDC's Emerging Infections Program.

Methods During 2017–2018, prospective surveillance was conducted among residents in three ABCs areas (3-counties in the Bay Area in California (CA), the 20-county Atlanta metropolitan area in Georgia [GA-MSA], and Georgia outside of the 20-county metropolitan area [GA-DPH]); retrospective surveillance was conducted during 2015–2016 in CA and GA-MSA. A DGI case was defined as isolation of GC from a normally sterile site; a case report form was completed for each case. Isolates collected during prospective surveillance underwent antimicrobial susceptibility testing (AST).

Results During 2015–2018, 53 DGI cases were identified (12 in CA, 6 in GA-DPH, and 41 in GA-MSA) for an overall rate of 0.11 cases per 100,000 population (0.08 per 100,000 in CA, 0.06 in GA-DPH, 0.16 in GA-MSA). DGI cases accounted for 0.06% of all reported cases of GC in the three surveillance areas. Most DGI cases were male (60%), aged 15–29 years (34%) or ≥ 45 years (34%), and were Black, non-Hispanic (58%). Clinical presentation was bacteremia (23%) or monoarticular septic arthritis (26%); 11% were immunocompromised. Of the 37 cases identified during 2017–2018, 18 viable isolates had AST completed. All were susceptible to Azithromycin, Ceftriaxone, and Cefixime; 6 (33%) were Penicillin and/or Ciprofloxacin resistant.

Conclusion DGI is an infrequent complication of GC. The ABCs infrastructure is a viable platform for DGI surveillance. As GC can quickly develop antimicrobial resistance, continued surveillance, including monitoring trends in antimicrobial susceptibility of DGI isolates and molecular epidemiology, could help inform DGI treatment recommendations.

Disclosure No significant relationships.

P635 THE ENHANCED GONOCOCCAL ANTIMICROBIAL SURVEILLANCE PROGRAM (EGASP) IN THE PHILIPPINES, 2018

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Background In July 2018, the Philippines Department of Health, the Centers for Disease Control and Prevention and World Health Organization implemented the Enhanced Gonococcal Antimicrobial Surveillance Program (EGASP). The Philippines is the second country to implement EGASP to monitor antimicrobial susceptibility trends of *Neisseria gonorrhoeae* (GC).

Methods Men with urethral discharge were enrolled at 4 participating sentinel clinics in Metro Manila. Symptomatic men had demographic and clinical data collected; two urethral swabs were collected for gram stain and culture. All positive cultures had antimicrobial susceptibility testing (AST) performed by 2 participating reference laboratories to determine minimum inhibitory concentrations for Cefixime, Ceftriaxone, Azithromycin, and Gentamicin using E-test.

Results From July – September 2018, 92 specimens were collected from symptomatic men; 61 (66%) were culture confirmed and all GC isolates had AST. Among 60 men with at least one GC infection, 32 (53%) were classified as men who have sex with women only, 15 (25%) as men who have sex with men and 13 (22%) were men who have sex with men and women. The median age of men was 24 years (range 15–52 years), 12 (20%) had antibiotic use in the last 2 weeks, 4 (7%) had travel in the last 30 days, and 43 (72%) received combination therapy of Ceftriaxone (250 mg, 500 mg or 1 g) or Cefixime 400 mg PLUS Doxycycline 100 mg or Azithromycin 1 g. Only 6 (10%) did not have treatment documented. No isolates had elevated MICs to the antimicrobials tested.

Conclusion We report on the first months of data from EGASP Philippines demonstrating the feasibility of collecting standardized and systematic epidemiological and laboratory data. All isolates were susceptible to all tested antimicrobials. Continued surveillance is critical to monitor for emerging resistance and to inform local and regional treatment recommendations.

Disclosure No significant relationships.

P636 HIGH DIVERSITY OF *NEISSERIA GONORRHOEAE* IN GERMANY REVEALED BY MOLECULAR TYPING USING NG-MAST (2014–17)

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Background *Neisseria gonorrhoeae* (NG) infections are not reportable in Germany. The Gonococcal Resistance Network (GORENET) is a laboratory network to monitor antimicrobial resistance (AMR) in Germany, linking data from sequence typing to epidemiological data. We described prevalence of gonococcal sequence types in Germany and associations to AMR to improve future treatment and prevention strategies.

Methods NG isolates collected between April 2014 and December 2017 were tested by E-test and sequence typed by NG multiantigen sequence typing (NG-MAST). For sequence typing, DNA was extracted and internal fragments of *porB* and *tbpB* were amplified by polymerase chain reaction. Fragments were sequenced by Sanger sequencing and evaluated using a global database (www.ng-mast.net). Genogroups were assigned to sequence types which shared one allele and exhibited $\geq 99\%$ homogeneity in the other allele.

Results 1220 isolates were sequence typed (106 in 2014, 96 in 2015, 525 in 2016, and 495 in 2017). In total, we detected 422 different sequence types that grouped into 17 genogroups. Among the most prevalent genogroups were G2400 (6.8%), G1407 (6.8%), G5441 (6.2%), G25 (5.6%), G2992 (5.5%) and G10557 (5.3%). The multi-resistant G1407 and G2400 were most prevalent in 2014 (12.4% and 10.5%, respectively) and declined to 6.1% and 7.3% in 2017. Two new genogroups, G11461 (3.6%) and G17420 (2.1%), emerged showing high prevalence in 2017 and no association to extended-spectrum cephalosporin resistance. Furthermore, a novel genogroup-association with cefixime resistance and reduced cephalosporin susceptibility was identified.

Conclusion From 2014 to 2017 prevalence of G1407 declined and two novel extended-spectrum cephalosporin sensitive clones G11461 and G17420 seem to have replaced the multidrug resistance clone G1407. To verify these results, continuous testing with an increased number of isolates should be performed.

Disclosure No significant relationships.

P637 *NEISSERIA GONORRHOEAE* GENOMIC DIVERSITY IN HIGH RISK GROUPS IN SWITZERLAND

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Background *Neisseria gonorrhoeae* cases are increasing in Europe, with decreasing susceptibility to first line antibiotics.

Whole genome sequencing (WGS) provides detailed information about gonococcal molecular epidemiology and prediction of antimicrobial resistance (AMR), especially if linked to epidemiological data. The aim of this study was to examine molecular, clinical and social epidemiological aspects of gonorrhoea infections in Switzerland.

Methods In 2015–2016, we cultured urethral, cervical, vaginal, rectal, and pharyngeal specimens from patients in three clinics predominantly attended by men who have sex with men (MSM) and female sex workers (FSW). MSM also completed a sexual behaviour questionnaire. Minimal inhibitory concentrations (MIC) were assessed by Etest, interpreted using EUCAST breakpoints except azithromycin (≥ 2 mg/L); WGS used an Illumina Miseq.

Results We sequenced 140 isolates from 116 participants, MSM (107, 92%, mean age 35.8 years) and FSW (6, 5%, mean age 25.3 years). Amongst MSM, 48/105 respondents (45.7%) reported recent sex abroad. Three patients (two MSM and one FSW) carried different strains at different body sites. The isolates show large genomic diversity, with 69 NG-MAST types and 37 MLST sequence types, largely embedded within characterised European Union clusters. NG-MAST 1407 was identified in $n=4$ isolates from two patients (FSW, not travel-associated and MSM, sex elsewhere in Europe). Mosaic *penAXXXIV* was seen in these isolates, and also in an NG-MAST 13488 from an MSM, which was also not travel associated. One isolate (heterosexual male, not travel-associated) with elevated cefixime MIC (0.19 $\mu\text{g/ml}$) carried a mosaic *penAX* in an NG-MAST 10557 background. Ciprofloxacin resistance was seen in these six isolates, and overall in 59/140 (42%), all containing GyrA mutations S91F and D95A/G/N.

Conclusion Switzerland has a high diversity of circulating gonorrhoea, generally related to European clusters. Multidrug resistant isolates were not identified in this study, but NG-MAST 1407 and *penA* mosaics, associated with elevated cephalosporin MICs, are circulating.

Disclosure No significant relationships.

P638 SURVEILLANCE OF GONOCOCCAL INFECTION TREATMENT FAILURES 2015–2018 IN QUÉBEC, CANADA

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Background Incident cases of gonococcal infection are increasing. Antibiotic resistance may compromise the effectiveness of treatment. In 2017, the proportion of azithromycin-resistant strains reached 31% in Quebec and a first strain non-susceptible to ceftriaxone and cefixime was detected.

Methods Since November 2014, public health departments are invited to report possible cases of treatment failures. Clinical and epidemiological information is collected using a standardized form for each report of gonococcal infection occurring <42 days after a previous episode in the same person. Antimicrobial susceptibility testing (AST) is conducted at the

provincial reference laboratory (Laboratoire de santé publique du Québec) and the NG-MAST typing is performed at the National Microbiology Laboratory. Cases are classified as retained (presence of all definition criteria) or suspected (not meeting all criteria but reinfection unlikely). Cases classifications are validated by a group of experts. Lack of re-exposure is based on the respondent's reported sexual history between the first treatment and the test of cure (TOC). Case definitions are consistent with those of Quebec and Canadian sentinel surveillance network for gonococcal infection.

Results Between November 2014 and December 2018, 44 cases of possible treatment failures were reported. After exclusion of 9 cases, 35 were analysed (25 classified as retained and 10 as suspected). There were 10 women, 24 men (68% MSM) and one trans person. Pharynx was identified as site of treatment failure for 14 cases (40%). AST were available for 23 cases (66%): 78% were resistant to ciprofloxacin and 43% to azithromycin. All strains were susceptible to cephalosporins, but one strain showed reduced susceptibility to cefixime. Eleven cases (31%) received azithromycin monotherapy as initial therapy.

Conclusion Treatment failure exist and is not always related to documented resistance. This analysis probably underestimates the real extent of treatment failures since it requires TOC that are not systematically collected. Reinfection cannot be completely excluded.

Disclosure No significant relationships.

P639 MOLECULAR MARKERS TO PREDICT CEFIXIME DECREASED SUSCEPTIBILITY OF *NEISSERIA GONORRHOEA*: A GLOBAL REVIEW

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Background In the last two decades, there have been numerous reports worldwide of *Neisseria gonorrhoeae* (NG) infections with clinical treatment failure to cefixime. Mutation in multiple NG genes including *penA*, *mtrR*, *pilQ*, *penB*, and *ponA*, have been associated with cefixime decreased susceptibility and resistance, however, no single mutation has been identified as necessary or sufficient.

Methods We performed a systematic review of all PubMed-published articles from 01/01/1995 to 11/01/2018 that reported molecular characteristics of decreased susceptibility of NG to cefixime. We summarized the findings and made suggestions for the development of a molecular-based NG assay to predict cefixime susceptibility. Based on clinical outcome data, we defined a minimum inhibitory concentration (MIC) $\geq 0.12\mu\text{g/mL}$ as the cutoff for decreased susceptibility to cefixime. For a wild-type (non-mutated) sequence comparison, we used the *penA* peptide sequence of NG reference strain M32091.

Results We found 74 articles, of which we excluded 49 due to incomplete information. Among the 25 articles included, there were 415 reported NG strains with reduced susceptibility to cefixime from 22 countries. Two types of *penA* alterations accounted for 99.5% (413/415) of strains with decreased

susceptibility to cefixime: (1) mosaic *penA*, which can be identified by mutations at amino acid position 375–377 or (2) non-mosaic *penA* but with at least one critical amino acid substitution at position 501, 542, or 551. The other two strains with MIC $\geq 0.125\mu\text{g/mL}$ were found in Spain in 2013 with a non-mosaic *penA* sequence but no alteration at amino acid position 501, 542 or 551.

Conclusion We conducted a systematic review of published reports of over 400 NG strains with decreased susceptibility to cefixime. We identified a combination of sequences in the mosaic and non-mosaic regions of the *penA* gene that if wild-type (non-mutated) may serve as reliable and sensitive markers to predict cefixime susceptibility globally.

Disclosure No significant relationships.

P640 TARGETING MURI PROTEIN TO COMBAT DRUG RESISTANCE IN *NEISSERIA GONORRHOEA* USING HOMOLOGY MODELING AND DRUG DOCKING STUDIES

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Background *Neisseria gonorrhoeae*, a causative agent of gonorrhoea, has developed resistance to most of the drugs and hence aptly declared as 'Superbug'. Glutamate racemase (MurI) considered as an important drug target. Therefore, identification of novel drugs for the treatment of gonorrhoea is urgently required.

Methods The amino acid sequence of MurI of *Neisseria gonorrhoeae* (YP_208550) was retrieved from NCBI. Based on query coverage, e-score and percentage similarity, 3OUT (glutamate racemase from *Francisella tularensis*) was selected as template after PDB BLAST, homology model was generated by Modeller programme of Discovery Studio 4.0. Best model was selected based on DOPE score and PDF energy score and further verified by Verify-3D protocol and Ramachandran Plot. Receptor binding site was identified after superimposition of template structure and modelled structure and the co-crystallized ligand of the template was docked into the modeled MurI structure. Based on docking score, best pose was selected and receptor-ligand pharmacophore model was generated.

Results The best homology model generated was selected based on the verify score of 107.93 from Verify 3D program of Discovery Studio 4.0. Validation of the selected model by Ramachandran plot showed 214 residues (91.8%) fall in most favored region. RMSD of 0.2475 Å was generated by superimposition of query and template structures. Quality factor of 84% for the protein models was obtained using ERRAT. Six pharmacophores were generated using best docking pose between D-glutamate and MurI. These were subjected to virtual screening with DrugBank database. 586 hits so obtained were filtered by fit value of 3.51 which resulted in 268 hits. These 268 hits were further subjected to Lipinski and Veber filter followed by ADMET, gave 73 hits. These were subjected to energy minimization and docking to obtain the best hits.

Conclusion The study identifies potential compounds that interact with active site of MurI protein, opening new avenues for the treatment option against multidrug resistant strains.

Disclosure No significant relationships.

P641 **GNOCOCCAL ANTIMICROBIAL SUSCEPTIBILITY FROM THE THAILAND ENHANCED GNOCOCCAL ANTIMICROBIAL SURVEILLANCE PROGRAM, 2015–2018**

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Background Antimicrobial resistant *Neisseria gonorrhoeae* (NG) surveillance is critically important to determine patterns of resistance and to ensure national treatment guidelines for gonorrhoea remain effective. The Thailand Ministry of Public Health, the U.S. Centers for Disease Control and Prevention, and the World Health Organization began the first Enhanced Gonococcal Antimicrobial Surveillance Programme (EGASP) in 2015 to monitor gonococcal antimicrobial susceptibility in Thailand.

Methods We describe gonococcal antimicrobial susceptibility results from November 2015 to October 2018. Symptomatic men with urethral discharge or dysuria who attended one of two sentinel sites in Thailand, Bangrak Hospital and Silom Community Clinic @TropMed, provided specimens for culture and completed a questionnaire. Antimicrobial susceptibility testing (AST) was performed on all NG isolates to determine Minimum Inhibitory Concentrations (MIC) for Ceftriaxone (CRO), Cefixime (CFM), Azithromycin (AZI), Gentamicin (GEN), and Ciprofloxacin (CIP) using E-test.

Results A total of 2,390 specimens were collected during 2015–2018; 1,373 (57.4%) had AST results. Only one isolate had an elevated MIC (≥ 2 $\mu\text{g/mL}$) to AZI, 1,262 isolates (91.9%) were resistant (MIC ≥ 1.0 $\mu\text{g/mL}$) to CIP, and no isolate had elevated MICs to CRO (≥ 0.125 $\mu\text{g/mL}$), CFM (≥ 0.25 $\mu\text{g/mL}$), or GEN (≥ 16 $\mu\text{g/mL}$). The overall and each year MIC₅₀ and MIC₉₀ were stable for CRO (MIC₅₀/MIC₉₀ = 0.004/0.008 $\mu\text{g/mL}$), CFM (MIC₅₀/MIC₉₀ = 0.016/0.016 $\mu\text{g/mL}$) and GEN (MIC₅₀/MIC₉₀ = 4/8 $\mu\text{g/mL}$). The overall MIC₅₀/MIC₉₀ for AZI was 0.125/0.25 $\mu\text{g/mL}$. The MIC₅₀ for AZI remained relatively stable only changing from 0.032 $\mu\text{g/mL}$ in 2015 to 0.125 $\mu\text{g/mL}$ during 2016–2018; the MIC₉₀ for AZI fluctuated between 0.125 (2015) and 0.5 (2017) $\mu\text{g/mL}$.

Conclusion Although CIP resistance was common, most isolates collected through EGASP appeared susceptible to CRO and CFM supporting the continued use of these antimicrobials to treat gonorrhoea in Thailand. Continued surveillance for antimicrobial resistance is important for monitoring the emerging threat of NG resistance.

Disclosure No significant relationships.

P642 **WHOLE GENOME SEQUENCING OF *N. GONORRHOEA* DECONVOLUTES SEXUAL BEHAVIOUR, POPULATION STRUCTURE AND TRANSMISSION IN SINGAPORE**

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Background Gonorrhoea is the third most commonly notified sexually transmitted infection (STI) in Singapore. In 2012, there were 1781 notifications, with an incidence rate of 33.53 per 100,000 population with more males than females being diagnosed. While most of the cases occur in people aged between 20 and 39 years of age, gonorrhoea is the most common STI among teenagers and among men who have sex with men (MSM) in Singapore. The aim of this study was to use whole genome sequencing to gain insights into the patterns of transmission that exist within and between different subpopulations in Singapore and internationally.

Methods We sequenced 676 samples from 544 patients infected with gonorrhoea between 2014–2016. Sequencing reads from *N. gonorrhoeae* genomes were mapped to a common reference and recombination masked, followed by phylogenomic, Bayesian clustering and pairwise network analyses. We correlated genetic relatedness with detailed clinical parameters.

Results *N. gonorrhoeae* circulating in Singapore is polyphyletic, and we defined 31 circulating sub-lineages. We detected distinct patterns of sexual behaviour associated with different genetic lineages: some lineages are strongly associated with MSM groups, whilst other lineages have increased rates of reported contact of commercial sex workers. It is likely that these associations reflect the underlying population within the transmission networks. We further correlate these genomic and behavioural subpopulations according to genetically determined antimicrobial resistance patterns.

Conclusion The analysis shows distinct transmission clustering within Singapore groups based on sexual preference and commercial sex worker use. Through the use of multiple isolates from single individuals, we established expected within patient diversity levels based on pairwise sequence differences and used this to infer both putative transmission events and also possible bridging between distinct transmission networks. Further work is required to increase the prediction accuracy of the transmission networks and relate this to predicted microbial resistance patterns.

Disclosure No significant relationships.

P643 **ADVERSE PREGNANCY AND NEONATAL OUTCOMES ASSOCIATED WITH *NEISSERIA GONORRHOEA*: A SYSTEMATIC REVIEW AND META-ANALYSIS**

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Background *Neisseria gonorrhoeae* (NG) infections during pregnancy have been reported to be associated with a range of adverse pregnancy outcomes, but systematic information is lacking. The objective of this study was to systematically review data about associations between NG and: preterm birth (PTB); low birth weight (LBW); premature rupture of membranes; spontaneous abortion; perinatal mortality; and ophthalmia neonatorum.

Methods We searched Medline, Excerpta Medica, Cochrane Library and the Cumulative Index to Nursing and Allied Health Literature databases up to October 2017. Two researchers selected studies, extracted data and assessed risk of bias independently. We used meta-analysis to calculate summary odds ratios (OR with 95% confidence intervals, CI) separately for unadjusted and adjusted results, stratified by study design. We assessed heterogeneity using the I^2 statistic.

Results We screened 2,290 articles and included 15 studies, published from 1976–2017, of which seven were from low or lower-middle income countries. For PTB, the summary unadjusted OR was 1.47 (95% CI 1.17–1.78, $I^2=0\%$) in four case-control studies, 1.93 (1.24–2.63, $I^2=86\%$) in two cross-sectional studies and 0.78 (0.49–1.06, $I^2=0\%$) in three cohort studies. Adjusted ORs were only available in three case-control studies, summary OR 1.14 (0.85–1.44, $I^2=16\%$). For LBW, the summary unadjusted OR was 1.57 (1.15–1.99, $I^2=53\%$) in three case-control studies, 1.20 (0.30–4.30) in one cross-sectional study and 0.99 (0.73–1.25, $I^2=47\%$) in two cohort studies. The adjusted summary OR was 1.33 (0.96–1.71, $I^2=0\%$) in the case-control studies. For other outcomes, unadjusted summary ORs varied, generally being lower for cohort than cross-sectional or case-control studies.

Conclusion In this systematic review of observational studies, the strength of associations between NG and adverse pregnancy outcomes were weaker than expected and, where data were available, attenuated after adjusting for confounding. Ongoing randomised controlled trials will now determine whether screening and treatment of NG in pregnancy reduces adverse outcomes.

Disclosure No significant relationships.

P644 **ANALYZING THE GENOMES OF *NEISSERIA GONORRHOEA* ISOLATES USING A NOVEL INTEGRATED BIOINFORMATIC PIPELINE: GEN2EPI**

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Background Whole genome sequencing (WGS) is a high-resolution approach for tracking the transmission and antimicrobial

susceptibility (AMS) of *Neisseria gonorrhoeae* (Ng). Multiple bioinformatics tools currently used for the analysis of WGS data for Ng complicate their application in clinical settings. We determined the genomic epidemiology and AMS of Ng from Saskatchewan (SK) using our integrated pipeline, Gen2-Epi, previously validated on 1484 publicly available Ng genome datasets.

Methods WGS was performed on 99 Ng isolates (2017–2018) from SK submitted to the Roy Romanow Provincial Laboratory. Genomic DNA was isolated using the DNAeasy mini kit (QIAGEN) and sequenced using MiSeq (Illumina). MICs were determined by agar dilution. Gen2Epi includes read assembly, scaffolding, strain typing (ST) by MLST and NG-MAST, plasmid identification, and, identification of mutations in antibiotic resistance genes by NG-STAR.

Results Nine MLST/NG-MAST/NG-STAR (M/M/S) STs comprised 75.6% (75/99) of the isolates; other M/M/S STs (24.3%, 24/99) comprised single isolates. M/M/S ST 1901/10451/90 predominated (21.3%, 21/99), carrying mosaic *penA* type 34.001 and mutations in *mtrR/porB/ponA/gyrA/parC*. These isolates were chromosomally resistant to penicillin (38%, 8/21), tetracycline (95.2%, 20/21), and ciprofloxacin (90%, 19/21); they were susceptible to ceftriaxone and 38% (8/21) had cefixime MICs of 0.125 mg/L. The second-most prevalent ST was 1584/7638/160 (18/99); most of these isolates (16/18) were susceptible to all antibiotics. Overall, 57.6% (57/99) of the isolates were tetracycline resistant; 29.8% (17/57) of these were from Regina and carried a *tetM* gene (M/M/S ST 12462/5985/42). One sporadic isolate was azithromycin resistant (23S rRNA-A2059G), carried *tetM* and was M/M/S ST 7822/304/515.

Conclusion Gen2Epi is a one-stop pipeline that both assembles and annotates raw reads and simplifies the analysis of transmission markers and AMS in Ng. We showed the emergence of M/M/S ST 1901/10451/90 as the predominant ST in SK. NG-MAST ST 10451 is similar (≤ 2 bp) to ST 1407 which is implicated in reduced susceptibility to cefixime.

Disclosure No significant relationships.

P645 **PERUVIAN GONOCOCCAL STRAINS REVEAL NOVEL NG-MAST TYPES AND FALSE-POSITIVE β -LACTAMASE ISOLATES WITH *BLA*_{TEM} GENE MUTATIONS**

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Background The Global Emerging Infectious Surveillance Program of the U.S. Department of Defense, Armed Forces Health Surveillance Branch supports a repository for *Neisseria gonorrhoeae* (GC) clinical isolates recovered from routine care at U.S. Military Treatment Facilities in the continental US (CONUS) and at several overseas (OCONUS) labs though collaborative surveillance projects. Here we report the use of phenotypic data in conjunction with molecular typing and whole genome sequencing (WGS) of GC to describe the antimicrobial resistance trends from isolates collected from three geographically different clinics in Lima, Callao and Iquitos, Peru.

Methods Putative GC collected from patients between 2012 and 2015 were confirmed as GC using standard biochemical and serological methods. Susceptibility to eight different antibiotics was determined by Etest. β -lactamase (β L) activity was determined by nitrocefin hydrolysis. NG-MAST types were determined by standard methods and WGS analysis.

Results Sixty eight out of 90 isolates examined were confirmed as GC. Antimicrobial susceptibility testing showed a high level of resistance to ciprofloxacin (70%) and lower percentages of resistant strains to other common antibiotics. Although 63% percent of isolates were β -lactamase positive by the nitrocefin test, only 70% of these isolates were Pen^R. The other 30% had reduced susceptibility to Pen (Pen^{RS}). Whole Genome Sequencing (WGS) revealed mutations in the *bla*_{TEM-1B} gene for these Pen^{RS} isolates. These isolates were collected from different clinics, but showed genetic relatedness based on nucleotide polymorphism (SNP)-based analysis. Several novel NG-MAST types were detected among the isolates.

Conclusion These findings highlight the high prevalence of multidrug resistant GC in Peru. The identification of NG-MAST types not identified in surveillance reports from Europe or the United States is important. Further, WGS allowed us to discern false positive β -lactamase isolates by detecting mutations in the *bla*_{TEM} genes observed in Pen^{RS} isolates and showed the clonally relatedness of these isolates.

Disclosure No significant relationships.

P646 AGENT-BASED MODELLING STUDY OF ANTIMICROBIAL RESISTANT *NEISSERIA GONORRHOEAE* TRANSMISSION

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Background Antimicrobial resistant (AMR) gonorrhoea is a global public health threat. Diagnoses of gonorrhoea have increased in England over the last decade. Guidelines in UK now recommend single dose ceftriaxone, so preserving the efficacy of ceftriaxone is essential. In England, over half of tested isolates remain sensitive to previously recommended drugs, e.g. ciprofloxacin. We evaluate options for improving antibiotic stewardship, through better use of existing surveillance data or new diagnostic tests.

Methods We previously developed an agent-based stochastic network model of gonorrhoea transmission, including ciprofloxacin-sensitive and resistant strains for MSM. This has been modified, to add a heterosexual population and a full model including bridging between MSM and heterosexuals. A novel feature is the time-varying network which breaks and reforms connections within a fixed cumulative network to capture behavioural heterogeneity in duration and number of partnerships. We explored different strategies to facilitate individualised treatment selection, including discriminatory POCT, and selecting treatment based on either index case or partner susceptibility.

Results Our MSM model suggests, based on 50% resistance to ciprofloxacin at baseline, that using POCT to detect ciprofloxacin-sensitive infections could reduce ceftriaxone doses by 70%. If index case susceptibility information were to be used to determine partner treatment, ceftriaxone use could be

reduced by 27%. In the heterosexual model, the prevalence is much lower and could only be maintained through assuming higher transmission probability or duration of infection or via bridging to the higher prevalence MSM group.

Conclusion Novel POCT which identify susceptible infections are likely to come to market soon, but are costly. Mathematical models can evaluate the trade-offs between increasing test costs and reduced time to treatment or between delaying treatment to confirm susceptibility and reduce use of ceftriaxone in partners. The flexible model structure will be used in future to implement evolution of resistance and the impact of vaccination.

Disclosure No significant relationships.

P647 EFFECTIVE MONOTHERAPY DUE TO HIGH RATE OF AZITHROMYCIN RESISTANCE IN *NEISSERIA GONORRHOEAE* INFECTION IN MEN IN SOUTH AFRICA

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Background *Neisseria gonorrhoeae* drug resistance has emerged worldwide. There is limited data about the situation in South Africa where syndromic management is used for sexually transmitted infections (STIs). We investigated the antimicrobial resistance profile of *Neisseria gonorrhoeae* infections in high-risk men.

Methods We conducted a cross-sectional study at three primary healthcare facilities in Johannesburg, South Africa. We recruited: (a) men with persistent or recurrent discharge following recent treatment, and b) men-who-have sex with men (MSM) presenting with urethral discharge. Urethral swab and urine were obtained for culture of *Neisseria gonorrhoeae* on New York city medium followed by drug susceptibility testing using E-test with minimum inhibitory concentration (MIC) as per EUCAST guidelines. Molecular diagnostics for STIs were performed using the TIB MOLBIOL Lightmix Kit 480 HT CT/NG assay and real-time PCR assays for *Trichomonas vaginalis* and *Mycoplasma genitalium*.

Results We recruited 48 men of which 30 (63%) had persistent or recurrent discharge and 18 (37%) were MSM. Urine PCR was positive for *Neisseria gonorrhoeae* in 36 men (75%); *Chlamydia trachomatis* was detected in 9 (19%), *Mycoplasma genitalium* in 13 (27%) and *Trichomonas vaginalis* in 6 (13%). Gonococcal cultures were positive for 25/36 men (69%) with *Neisseria gonorrhoeae* detected molecularly. Isolates showed resistance to ciprofloxacin in 60%, penicillin 32% and tetracycline 60%. Reduced susceptibility to azithromycin was identified in 11/25 (44%) isolates: 5 were resistant (MIC range 1–8 μ g/ml) and another 6 showed intermediate resistance. All MIC values for the cephalosporins and spectinomycin were within the susceptible range.

Conclusion The observed high rate of azithromycin resistance in *Neisseria gonorrhoeae* infection in our high-risk population is of great concern as it effectively results in monotherapy. These findings add to the debate on the best regimen choice for syndromic management, and emphasize that the introduction of diagnostics is a priority in our setting.

Disclosure No significant relationships.

P648 FACTORS ASSOCIATED WITH NEISSERIA GONORRHOEAE AZITHROMYCIN RESISTANCE IN THE QUEBEC SENTINEL NETWORK, 2015–2017

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Background *N. gonorrhoeae* azithromycin resistance (MIC \geq 2 mg/L) increased from 1.7% to 30.9% between 2013 and 2017 in Quebec, Canada. The Quebec sentinel network aims to 1) maintain a sufficient number of cultures for antimicrobial resistance surveillance; 2) link antimicrobial susceptibility surveillance to epidemiological and clinical information; and 3) monitor treatment failures. We herein examine the associations between *N. gonorrhoeae* azithromycin resistance and epidemiological/clinical characteristics.

Methods Three regions participated: Montréal (two clinics recruiting mostly men having sex with men (MSM)), Montérégie (22 clinics recruiting mostly heterosexuals) and Nunavik (participated only in 2016, recruited mainly heterosexual Inuit people). One strain per year, per individual was selected. When data was presented for 2015–2017 (2015 was incomplete), the most recent strain per individual was considered. Proportions were compared using chi-square tests.

Results Between September 2015 and December 2017, 68% of episodes (840/1240) had a culture performed and 571 strains were obtained, including all duplicates. This analysis includes 190 strains in 2016, 270 strains in 2017 and 469 strains for 2015–2017. Most isolates were collected in MSM (349/469; 76%). Sampling sites were urethra (329/469; 70.2%), rectum (90/469; 19.2%) and pharynx (50/469; 10.7%). Azithromycin resistance was significantly higher in MSM (25.5% vs 9.2% in heterosexuals, $p < 0.001$), in cases who reported previous gonorrhoea (27.3% vs 15.3%, $p = 0.004$), syphilis (29.5% vs 19.8%, $p = 0.045$), HIV (31.8% vs 20.1%, $p = 0.035$) and who reported a sex partner outside Quebec in 2016 (36.7% vs 16.8%, $p = 0.021$), but this difference was not maintained in 2017 (21.2% vs 21.7%, $p = 0.951$). No significant difference was observed with regard to age, number of sex partners, anatomical site and presence of symptoms.

Conclusion Recommendations to perform cultures appear to be well implemented (70% of episodes). Azithromycin resistance seems to be well established in Quebec with a possible declining contribution of travel-acquired resistant infection.

Disclosure No significant relationships.

P649 VARIATIONS IN TIME TO CLINICAL PRESENTATION FOR PATIENTS WITH UNCOMPLICATED GENITAL GONORRHOEA

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Background Current high rates of gonorrhoea highlight a need for rapid effective treatment. Specifically, reducing the

duration between onset of symptoms and presentation for clinical care can prevent the onward transmission of infection and the development of sequelae. We sought to evaluate variation in time to presentation (TTP).

Methods Participants were recruited from 14 clinics across England into the gentamicin for the treatment of gonorrhoea (GToG) trial between October 2014 and November 2016. Demographic, behavioural, and clinical data were analysed from participants presenting with genital discharge and/or dysuria who tested positive for *Neisseria gonorrhoeae* using a nucleic acid amplification test.

Results 316 participants (269 men) with a median age of 27.6 years (range 16.3–68.4) were included. 194 (61%) were Caucasian, 29 (9%) Black African, 27 (9%) Asian and 66 (21%) of other ethnicities. Median TTP was 4 days (range 1–252) with participants reporting genital discharge (297/316 [94%]), dysuria (251/316 [79%]), genital discharge and dysuria (232/316 [73%]) and 76/316 (24%) additional concurrent symptoms (e.g. rectal bleeding, genital itching). TTP was longer than a week in 24% of participants. Age was inversely correlated with TTP ($r_s = -0.276$; $P = 0.01$) and TTP was longer in women compared to men (median 14 vs 3 days; $P < 0.001$), and in those with other symptoms (median 7 vs 3 days; $P < 0.001$). Sexual behaviours comprising same sex partner, higher number of partners, or casual/one-off relationships were associated ($P < 0.05$) with shorter TTP. TTP was also shorter ($P < 0.05$) in those with a history of previous gonorrhoea, but not previous chlamydia or history of HIV testing. TTP did not vary ($P \geq 0.05$) by ethnicity, chlamydia co-infection, amount of discharge, or reported condom use.

Conclusion Specific demographic, behavioural and clinical factors were associated with TTP in individuals with symptomatic gonorrhoea. Detailed knowledge of these factors can be used to prioritise and optimise gonorrhoea management and prevention.

Disclosure No significant relationships.

P650 RANDOMIZED CLINICAL TRIAL COMPARING GENTAMICIN+AZITHROMYCIN VS. CEFTRIAZONE + AZITHROMYCIN FOR RECTAL AND PHARYNGEAL GONORRHEA

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Background Dual therapy including ceftriaxone plus azithromycin is currently the recommended first-line gonorrhoea treatment internationally. However, for gonorrhoea cases where ceftriaxone or other extended-spectrum cephalosporin can not be administered (e.g., cephalosporin resistance, allergy, or unavailability), the therapeutic options are very limited. In a previous randomized controlled clinical trial (RCT) by Kirkcaldy et al. (Clin Infect Dis. 2014), gentamicin 240 mg plus azithromycin 2 g showed 100% microbiological cure for uncomplicated gonorrhoea. However, only 10 pharyngeal infections and one rectal infection were examined. We further evaluated the efficacy and tolerability of gentamicin+azithromycin for treatment of uncomplicated rectal and pharyngeal gonorrhoea.

Methods A non-inferiority, open-label, single center RCT was conducted in Prague, Czech Republic. Patients, 18–75 years of age, diagnosed with uncomplicated rectal or pharyngeal gonorrhoea by nucleic acid amplification test (NAAT) (GeneProof®) were randomized to treatment with gentamicin 240 mg intramuscularly plus azithromycin 2 g orally or ceftriaxone 500 g intramuscularly plus azithromycin 2 g orally. The primary outcome was negative culture and negative NAAT, i.e., one week and three weeks, respectively, after treatment.

Results Both clinical and microbiological cure was achieved by 100% of patients in the gentamicin+azithromycin arm (n=68; 40 rectal, 14 pharyngeal, and 14 infections in both localizations) and ceftriaxone+azithromycin arm (n=66; 36 rectal, 14 pharyngeal, and 16 infections in both localizations). Administration of gentamicin was significantly less painful than ceftriaxone according to the visual analog score ($p < 0.001$). Gastrointestinal adverse events were slightly more common in ceftriaxone arm (50.0%) than in gentamicin arm (41.2%), but in most (64%) cases they were mild.

Conclusion Both gentamicin+azithromycin and ceftriaxone+azithromycin were 100% effective for treatment of rectal and pharyngeal gonorrhoea. Gentamicin 240 mg plus azithromycin 2 g appears to be an effective alternative for treatment of both urogenital and extragenital gonorrhoea in case of ceftriaxone resistance, allergy, or unavailability.

Disclosure No significant relationships.

P651 ELUCIDATING THE EFFECT OF ESCULETIN AGAINST GLUTAMATE RACEMASE – A NOVEL DRUG TARGET OF NEISSERIA GONORRHOEAE

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Background *Neisseria gonorrhoeae* (NG) is a sexually transmitted pathogen infecting both men and women. In spite of a number of antibiotics, gonorrhoea (also known as “The Clap”), remains a frequently reported STI and is an important cause of pelvic inflammatory disease and infertility. Due to resistance to most of the currently used drugs, NG has been named as ‘Superbug’ posing a serious threat to gonorrhoea treatment worldwide. Therefore, there is an urgent need to find novel drug targets and to develop new antibacterial agents.

Methods Using system biology to identify potential drug targets and the known inhibitors/drugs against homologous proteins, we identified a novel drug target, namely glutamate racemase (GR). This enzyme is involved in the early phase of peptidoglycan biosynthesis in both gram positive and gram negative bacteria. As protein-ligand interactions play a key role in structure-based drug design, we screened natural compounds for binding to NG-GR by carrying out docking studies, shortlisted the best docked compounds and evaluated them for their functional, structural and antibacterial activity.

Results The computational analysis showed that the coumarin derivative-esculetin exhibited best binding affinity among all the tested compounds. Characterization of the biophysical properties of purified recombinant GR using circular

dichroism, in the absence and presence of esculetin, indicated a change in protein conformation in the presence of esculetin. This change in the protein structure was associated with a concomitant inhibition of racemization activity of recombinant GR. Esculetin also inhibited the growth of the bacteria in culture both in time and concentration dependent manner.

Conclusion In conclusion, these observations could provide impetus for further research in this direction. Better understanding of antibacterial mechanisms of esculetin will help in establishing lead molecules for the treatment of gonococcal infections.

Disclosure No significant relationships.

P652 USE OF SPECIMENS SUBMITTED FOR NEISSERIA GONORRHOEAE MOLECULAR TESTING TO ENHANCE SURVEILLANCE IN A CANADIAN ARCTIC TERRITORY

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10.1136/sextrans-2019-sti.720

Background Surveillance for antimicrobial resistance (AMR) in *Neisseria gonorrhoeae* (NG) is critical to monitor trends and to inform treatment guidelines for NG. In Nunavut (NU), a Canadian Arctic territory, culture for NG is not possible due to environmental conditions which affect organism viability. Specimens submitted for nucleic acid amplification tests (NAAT) are routinely used to screen for NG and have the potential to provide important surveillance information with additional testing.

Methods In January, 2018, Nunavut commenced submission of Roche-Cobas NG positive NAAT specimens to the National Microbiology Laboratory (Winnipeg, Canada). Samples were sequenced using *Neisseria gonorrhoeae* multi-antigen sequence typing (NG-MAST). Real-time (RT-) PCR assays were used to detect single nucleotide polymorphisms (SNPs) in genes associated with ciprofloxacin resistance (*gyrA*, *parC*) and azithromycin resistance (23S rRNA).

Results From January to September, 2018, 257 samples were submitted to NML. 229 samples were typeable and 21 different NG-MAST STs were identified, of which approximately half are unique to NU. The most prevalent ST was ST16840 (34.5%, 79/229) which is associated with ciprofloxacin resistance and is closely related to ST 10451, a common sequence type identified across Canada. 28.5% (66/229) were ST5985, a common ST circulating in Canada and is associated with tetracycline resistance. Fully susceptible ST 4637 represented 10.5% (24/229) specimens. Of 216 specimens, 92 were predicted to be ciprofloxacin resistant and of 218 specimens; less than five samples were predicted to be azithromycin resistant.

Conclusion Data from Nunavut, a Canadian Arctic region where the collection of NG culture is not feasible, support the use of NAAT positive NG specimens to provide enhanced surveillance to monitor the types of NG circulating in a community and ensure that currently recommended therapies are appropriate. Future surveillance initiatives linking the samples to epidemiologic data has the potential to support additional public health interventions in at-risk populations.

Disclosure No significant relationships.

P653 MODELING THE IMPACT OF PARTIALLY EFFICACIOUS GONORRHEA VACCINES

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Background Gonorrhoea is one of the most common sexually transmitted infections. Current control measures are inadequate and are threatened by the emergence of gonococcal antimicrobial resistance. This emerging challenge calls for a vaccine which will reduce the circulation and transmission of this infection, and thus emergence of drug-resistant strains in the population.

Methods A novel deterministic compartmental mathematical model of the heterosexual transmission of *Neisseria gonorrhoeae* was constructed to assess the impact of a pre-exposure (prophylactic) vaccine.

Results Catch-up vaccination with a prophylactic vaccine introduced in 2020, with vaccine efficacy in reducing susceptibility of 50% and vaccine coverage of 80% at 2030, reduced gonorrhoea prevalence by 29% by 2030, 34% by 2040, and 37% by 2050. The number of vaccinations needed to avert one infection was 31 in 2030, 24 in 2040, and 13 in 2050. Through age group prioritization, the number of vaccinations needed to avert one infection (in 2030) ranged from 24 for the 15–19 years age group, to 50 for the 45–49 age group. Through risk group prioritization (also in 2030), prioritizing the highest sexual risk group (such as female sex workers) was most effective with only 1 vaccination needed per infection averted. Meanwhile, for the lowest sexual risk group (general population), 110 vaccinations were needed per infection averted.

Conclusion Even a partially efficacious gonorrhoea vaccine can considerably reduce the prevalence of infection. Vaccine effectiveness is optimized by targeting high sexual risk groups and young individuals.

Disclosure No significant relationships.

P654 CLONAL SPREAD OF AZITHROMYCIN RESISTANT NEISSERIA GONORRHOEAEE IN CANADA, 2014–2017

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Background *Neisseria gonorrhoeae* have acquired resistance to many antimicrobials including third generation cephalosporins and azithromycin, the current co-therapy recommended by the Canadian STI guidelines for gonorrhoea treatment. Resistance to azithromycin and molecular sequence types were determined for *N. gonorrhoeae* circulating in Canada.

Methods From 2014–2017, *N. gonorrhoeae* isolates and data collected by Canadian provincial public health laboratories was submitted to the National Microbiology Laboratory (N=12,776) for *N. gonorrhoeae* multi-antigen sequence typing (NG-MAST) and azithromycin MIC determination (resistance

MIC \geq 2.0 mg/L) by agar dilution, as described by the Clinical Laboratory Standards Institute.

Results Azithromycin resistance was identified in 3.3% (127/3,809), 4.7% (198/4,190), 7.2% (326/4,538) and 11.6% (616/5,290) of *N. gonorrhoeae* in 2014, 2015, 2016 and 2017, respectively, a significant increase between 2014–2017 ($p<0.001$). MICs ranged from 2– \geq 256 mg/L. The most common sequence types identified in the azithromycin resistant isolates include: 2014; ST10451 (n=40), ST10567 (n=38) and ST11765 (n=10); 2015; ST12302 (n=110), ST10451 (n=34) and ST9047 (n=23); 2016: ST12302 (n=240), ST15750 (n=27) and ST10451 (n=10); 2017; ST12302 (n=375), ST14698 (n=119) and ST15750 (n=17). ST12302 was newly recognized in 2015 and identified in only two provinces, Quebec and Ontario, but spread to Alberta (n=10) and British Columbia (n=16) in 2017. ST12302 is associated with low-level azithromycin resistance (MIC=2 mg/L). ST10451 emerged in 2014 in Quebec, Ontario and Alberta and was also identified in 2015–2017. ST10451 is related to ST1407 (differing by 1 bp) which is an internationally-recognized epidemic strain, harboring cephalosporin resistance.

Conclusion Azithromycin resistance in *N. gonorrhoeae* is established and spreading in Canada, increasing significantly between 2014 and 2017. This exceeds the 5% level at which the WHO states an antimicrobial should be reviewed as an appropriate treatment. Continued surveillance of antimicrobial susceptibilities and sequence types of *N. gonorrhoeae* is necessary to identify clusters, inform treatment guidelines and mitigate the impact of resistant gonorrhoea.

Disclosure No significant relationships.

P655 MOLECULAR EPIDEMIOLOGY ASSOCIATED WITH RESISTANCE IN NEISSERIA GONORRHOEAEE ISOLATES FROM SOUTH BRAZIL DURING 2008–2016

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Background *Neisseria gonorrhoeae* (NG) has an extraordinary ability to develop resistance to all antimicrobials used for its treatment. This study analysed molecular determinants of antimicrobial resistance and NG-MAST of 153 NG isolates collected at Florianópolis metropolitan area during 2008–2016.

Methods Minimal Inhibitory Concentration (MIC) was determined by agar dilution and the molecular epidemiology was evaluated by NG-MAST.

Results Resistance was observed to penicillin (PEN) (26.1%), tetracycline (TET) (41.2%), ciprofloxacin (CIP) (52.3%) and azithromycin (AZT) (5.2%). All isolates were susceptible to cefixime (CFX) and ceftriaxone (CRO). However, 8.5% of isolates had MIC=0.125 mg/L for CFX, one log below the resistance cut-off point (EUCAST). β -lactamase production was detected in 12.4% of isolates and one of them carried the *bla*_{TEM-135} allele. The American or Dutch *tetM* gene were carried by 5.2% of the isolates. Mutations in the QRDR were observed in 87.5% of isolates resistant to CIP. NG-MAST showed 64 different sequence types (STs), including 19 novel STs. ST225, ST2992, ST1582, ST338, ST1407, ST2202 and ST6827 were most prevalent. G225 genogroup was associated with resistance to CIP ($p<0.001$), PEN ($p=0.016$) and TET

($p < 0.001$) whereas G1407 genogroup was associated with MIC=0.125 mg/L for CFX ($p=0.001$), resistance to CIP, PEN ($p=0.016$) and TET ($p < 0.001$). Isolates that shared the same *tbpB* 29 allele were associated with resistance to AZT ($p=0.008$) and PEN ($p=0.035$). ST338 was associated with *bla*_{TEM-1} gene ($p < 0.001$) and *tetM* ($p=0.006$), whereas the cluster sharing the same *tbpB* 137 allele was associated with *tetM* gene.

Conclusion This study showed high rates of resistance to PEN, TET and CIP associated with persistence and dissemination of gonococcal strains resistant to CIP and plasmid resistance to PEN and TET. Despite the high resistance profile to CIP, the treatment recommended to the south region of Brazil was the association of CIP-AZT until 2017, when the national recommendation changed it to CRO-AZT.

Disclosure No significant relationships.

P656

GYRA AND PARC MUTATIONS IN FLUOROQUINOLONE-RESISTANT *NEISSERIA GONORRHOEA*E ISOLATES FROM KENYA

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Background Phenotypic fluoroquinolone resistance was first reported in Western Kenya in 2009 and later in Coastal Kenya and Nairobi. Until recently gonococcal fluoroquinolone resistance mechanisms in Kenya had not been elucidated. The aim of this paper is to analyze mutations in both GyrA and ParC responsible for elevated fluoroquinolone MICs in *Neisseria gonorrhoeae* (GC) isolated from heterosexual individuals from different locations in Kenya.

Methods Antimicrobial Susceptibility Tests were done on 84 GC in an ongoing STI surveillance program. Of the 84 isolates, 22 resistant to two or more classes of antimicrobials were chosen for analysis. Antimicrobial susceptibility tests were done using E-test and the results were interpreted with reference to European Committee on Antimicrobial Susceptibility Testing (EUCAST) standards. The isolates were sub-cultured and whole genomes sequenced using Illumina platform. Reads were assembled *de novo* using Velvet, and mutations in the GC Quinolone Resistant Determining Regions identified using Bioedit sequence alignment editor. Single Nucleotide Polymorphism based phylogeny was inferred using RaxML.

Results Double GyrA mutations; S91F and D95G/D95A were identified in 20 isolates. Of these 20 isolates, 14 had an additional E91G ParC mutation and significantly higher ciprofloxacin MICs ($p=0.0044^*$). On the contrary, norfloxacin MICs of isolates expressing both GyrA and ParC QRDR mutations were not significantly high ($p=0.82$) compared to MICs of isolates expressing GyrA mutations alone. No single GyrA

mutation was found in the analyzed isolates, and no isolate contained a ParC mutation without the simultaneous presence of double GyrA mutations. Maximum likelihood tree clustered the 22 isolates into 6 distinct clades.

Conclusion Simultaneous presence of mutations in ParC and GyrA has been reported to increase gonococcal fluoroquinolone resistance from different regions in the world. Our findings indicate that GyrAS91F, D95G/D95A and ParC E91G amino acid substitutions mediate high fluoroquinolone resistance in the analyzed Kenyan GC.

Disclosure No significant relationships.

P657

HIGH AZITHROMYCIN RESISTANCE AND DECREASING CEFTRIAXONE SUSCEPTIBILITY IN *NEISSERIA GONORRHOEA*E IN SHENZHEN (2010–2017), CHINA

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Background Emergence and development of resistance in *Neisseria gonorrhoeae* (NG) to antibiotics has become a major public health problem worldwide. The aim of our study was to determine the antimicrobial susceptibility, especially ceftriaxone and azithromycin, and molecular epidemiological typing of NG isolates in Shenzhen, China.

Methods A total of 1,282 NG isolates were collected from Shenzhen, between 2010 and 2017. The minimum inhibitory concentrations (MICs) of NG isolates were determined by the agar dilution method. Resistance to azithromycin (AZM-R) was defined as MIC ≥ 1.0 mg/L, and decreased susceptibility to ceftriaxone (CRO^D) was defined as MIC ≥ 0.125 mg/L. Isolates were genotyped using *Neisseria gonorrhoeae* multi-antigen sequence typing (NG-MAST).

Results Among the isolates, 5.0% showed CRO^D, 17.3% was AZM-R and 1.3% was both CRO^D and AZM-R. Increasing ceftriaxone MICs was found from 2010–2014 to 2015–2017 [ridit value: 0.585; 95% confidence interval (95%CI): 0.559–0.611], but not for CRO^D and AZM-R. The proportions of isolates resistant to ciprofloxacin (97.4%, increasing from 96.6% in 2010–2014 to 98.8% in 2015–2017) and penicillin (68.2%, increasing from 60.6% in 2013–2014 to 73.5% in 2015–2017) were increasing, but PPNG was decreased. All isolates were susceptible to spectinomycin. Genogroup 5308 was inversely association associated with AZM-R; the corresponding odds ratio (95%CI) was: 0.098 (0.013–0.747).

Conclusion The founding of increasing ceftriaxone MICs over the time and high proportions of AZM-R in Shenzhen region calls for reevaluation dual therapy. Timely and efficient surveillance with isolates characterization and changes of susceptibility over time is essential.

Disclosure No significant relationships.

P658 DID MINIMUM INHIBITORY CONCENTRATIONS IN *N. GONORRHOEAE* ISOLATES CHANGE IN GERMANY SINCE 2014?

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Background German national guidelines recommend ceftriaxone combined with azithromycin for *Neisseria gonorrhoeae* (NG) treatment since 2014. The Gonococcal-Resistance-Network (GORENET) monitors gonococcal antimicrobial resistance (AMR) in Germany. The aim is to assess whether national guidelines are still effective in Germany and which factors affect higher minimum inhibitory concentrations (MICs).

Methods GORENET laboratories sent NG isolates to the conciliar laboratory for centralized retesting of AMR using E-test. We included infection year, sex, age, infection site and clinical service type in the analysis. Geometric means were calculated for MICs for infection year. The effects of infection year, sex, age, infection site and clinical service type on MICs for ceftriaxone, cefixime, and azithromycin were investigated by multiple linear regression.

Results

Overall, 278 (2014), 303 (2015), 438 (2016) and 409 (2017) isolates were analysed. Of these, 90% of isolates came from men. Median age was 33 years (IQR: 25–44). Cumulative geometric means of MICs 2014–2017 were 0.006 µg/ml for ceftriaxone, 0.022 µg/ml for cefixime, and 0.185 µg/ml for azithromycin. In adjusted analysis, MICs decreased for ceftriaxone, cefixime and azithromycin by 0.74 (CI-95% 0.70–0.79), 0.89 (CI-95% 0.87–0.92) and 0.79 (CI-95% 0.75–0.83) per year, respectively. For ceftriaxone, isolates from urology (1.40; 95%-CI 1.15–1.69) and other service types (1.39; 95%-CI 1.10–1.77) compared to internal medicine, and from women (1.58; 95%-CI 1.14–2.18) were associated with increased MICs. Regarding cefixime isolates collected from urology (1.14; 95%-CI 1.02–1.28) compared to internal medicine, and from women (1.41; 95%-CI 1.18–1.69) were associated with increased MICs. For azithromycin, isolates from urology (0.82; 95%-CI 0.70–0.97) compared to internal medicine, and from women (0.77; 95%-CI 0.59–1.00) were associated with decreased MICs.

Conclusion Treatment options as recommended by German national guidelines are still applicable. The lower MICs after 2014 may be due to the change of national treatment guidelines in 2014. Differences in MICs regarding service types and sex need to be further investigated.

Disclosure No significant relationships.

P659 IMPROVED TYPEABILITY USING CULTURE-FREE GENOTYPING OF *NEISSERIA GONORRHOEAE* COMPARED TO ROUTINE CULTURE-DERIVED SURVEILLANCE

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Background Surveillance of *Neisseria gonorrhoeae* (NG) is important to monitor NG transmission and dissemination of resistant strains. A widely used surveillance method is NG multi-antigen sequence typing (NG-MAST) which relies on genotyping of cultured strains while culture frequently fails. Recently, we developed a culture-free genotyping method with a higher typing rate compared to culture-based methods. As typing rate is lower in the routine culture-based NG-MAST, some sequence types (ST) might be missed in surveillance. Therefore the aim of this study was to compare genotyping results of culture-positive and culture-negative NG.

Methods All positive nucleic acid amplification test (NAAT) screening samples of which a routine culture was performed were retrospectively collected from January 2017 till August 2018. In total, 179 samples were collected (100 male urine, 22 vaginal swab, 57 anorectal swab). DNA was isolated and culture-free NG-MAST was applied. A phylogenetic tree was constructed of Sanger sequence data using multiple alignment and unweighted pair group method with arithmetic mean.

Results Of 179 samples, 143 (79.9%) were successfully genotyped with culture-free NG-MAST, 24/179 failed and 12/179 showed possible mixed strain infections. Culture was successful in 113/179 samples of which 92/113 NAAT samples were successfully genotyped with culture-free NG-MAST and 8/113 showed possible mixed strain infections. Results showed six genogroups (n≥5 samples), which all included both culture-positive and negative NG. However, culture-free NG-MAST successfully genotyped 51/66 culture-negative samples revealing six additional ST (n=7 samples).

Conclusion With both the culture-free and routine culture based method, the same genogroups were identified. This would mean that major trends could be identified with both methods. However, some ST were missed using routine surveillance. Therefore, the culture-free NG-MAST method could be used to genotype culture-negative or uncultured samples to aid in early detection of outbreaks and resistant genotypes.

Disclosure No significant relationships.

P660 EXTRA-GENITAL CIPROFLOXACIN-RESISTANT *NEISSERIA GONORRHOEA* INFECTIONS AMONG SEXUAL-HEALTH CLINIC USERS IN LIMA, PERU

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Background The increasing prevalence of drug-resistant *Neisseria gonorrhoeae* (NG) infections has caused great concern. NG susceptibility to ciprofloxacin can be reliably predicted using a real-time polymerase chain reaction (PCR) assay for the determination of mutation at codon 91 of the gyrase A (*gyrA*) gene. Ciprofloxacin remains the empiric antimicrobial recommended to treat NG infections in Peru, however local data are limited regarding the prevalence of ciprofloxacin resistance.

Methods Clinical swab specimens from pharyngeal and rectal anatomic locations were collected quarterly between 2013 and 2016 from a cohort of men who have sex with men (MSM) and transgender women in Lima, Peru. NG detection was done using Aptima Combo 2 assay (Hologic Inc, USA). NG-Positive samples were selected for DNA extraction using High Pure PCR Template Preparation Kit (Roche Inc, USA). DNA was amplified using a probe-based Real-time PCR assay to determine point mutations at codon 91 of the *gyrA* gene.

Results Overall, 156 individuals had at least one sample that tested positive for NG by the Aptima assay, 61 (39%) of whom reported a previous sexually transmitted infection diagnosis and 50 (32%) were HIV-infected. Of the 80 participants with *gyrA* genotype results available, 67 (84%) had at least one sample with a *gyrA* mutant NG strain; also, 5 individuals alternated between wild type and mutant NG strain infections during follow up in the same anatomical site.

Conclusion We report the prevalence of individuals with extra-genital NG infections with a *gyrA* mutation conferring ciprofloxacin resistance. While most countries of the region recommend ceftriaxone for NG treatment, Peruvian guidelines need to be updated urgently given the high frequency of ciprofloxacin resistance. The use of molecular genetic markers may facilitate surveillance for antimicrobial resistance.

Disclosure No significant relationships.

P662 CELL ENVELOPE DAMAGE OF *N. GONORRHOEA* AFTER 15-MIN BETA-LACTAM EXPOSURE ENABLES RAPID ANTIMICROBIAL SUSCEPTIBILITY TESTING

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Background Designing diagnostic tools to perform phenotypic antimicrobial susceptibility testing (AST) at the point-of-care (POC) is a vital step in tackling the global threat of

antimicrobial resistance. Gonorrhea infections with resistance to the first-line dual therapy have already emerged, highlighting the impending threat of untreatable gonorrhea. A rapid, phenotypic AST could enable evidence-based (instead of empirical) therapy and improve surveillance. The focus of this work is to develop innovative strategies to measure the phenotypic antimicrobial susceptibility of *Neisseria gonorrhoeae* clinical isolates after just 15–30 min of exposure with an antibiotic. We focused on the duration of the exposure step because it remains the bottleneck for phenotypic AST with fastidious and slow-growing microorganisms.

Methods We selected nucleic acid readout because our long-term goals include building fully integrated POC devices that determine the phenotypic response to antibiotic of a specific pathogen rapidly. We have been developing rapid phenotypic ASTs based on quantification of nucleic-acid concentrations in antibiotic-exposed samples. We describe a new phenotypic AST that does not depend on the speed of DNA replication and applies to beta-lactams penicillin, ceftriaxone, and cefixime acting on clinical isolates of *N. gonorrhoeae* very rapidly.

Results Our assay had 100% categorical agreement with the gold-standard agar dilution AST when *N. gonorrhoeae* isolates were incubated for 15-min with penicillin, and 100% categorical agreement when incubated for 30 min with ceftriaxone and cefixime, and steps can be performed within 35 min measured from contrived urine samples exposed to penicillin.

Conclusion By designing techniques which allow us to rapidly determine the antibiotic phenotype, evidence-based prescription of antibiotics will become possible.

Disclosure No significant relationships.

P663 SHARP INCREASE OF CIPROFLOXACIN RESISTANCE OF *NEISSERIA GONORRHOEA* IN YAOUNDÉ, CAMEROON

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Background We hypothesize that in Yaoundé, Cameroon, the circulating *Neisseria gonorrhoeae* strains would have acquired resistance mechanisms to ciprofloxacin since the availability of the antibiotic under the form of a generic drug formulation in 2012.

Methods We conducted a retrospective study (2012–2017) using data collected at the Centre Pasteur du Cameroun. Antimicrobial susceptibility results of *N. gonorrhoeae* isolates were retrieved from the laboratory information system and the laboratory worksheets. We included results of the disk method for tetracycline, azithromycin, spectinomycin and the minimal inhibitory concentrations (MICs) obtained with the E-test method for penicillin, ceftriaxone and ciprofloxacin. Data on the beta-lactamase activity was included, if available. European Committee on Antimicrobial Susceptibility Testing (EUCAST) breakpoints were applied.

Results Over the years *N. gonorrhoeae* isolates showed resistance towards all tested antibiotics: the MICs of ciprofloxacin shifted to higher concentrations (with MIC90% of 6 mg/l in 2013 to 32 mg/l in 2017) and 84% of the tested strains were resistant in 2017; resistance to penicillin was highest in 2016 (91%) and overall mainly plasmid mediated; the highest MIC values of 1 and 1.5 mg/l for ceftriaxone were detected in 2017 in 2 isolates; a total of 7 and 8 isolates resistant to

ceftriaxone and spectinomycin, respectively, were detected over the time period; 7% of the isolates was resistant to azithromycin in both 2013 and 2015; a high percentage (mean: 59%) of resistance to tetracycline was observed over the whole period. Overall, 42% of the isolates were resistant to three or more antimicrobials.

Conclusion A sharp increase in ciprofloxacin resistance of *N. gonorrhoeae* was detected, requiring the revision of the current Cameroonian treatment guidelines recommending ciprofloxacin. In addition, multidrug resistant *N. gonorrhoeae* strains are present in Yaoundé, Cameroon. A national surveillance program to monitor the antimicrobial susceptibility at national level should be installed and supported.

Disclosure No significant relationships.

P664 **IN VITRO EVALUATION OF GEPOTIDACIN, AN ORAL ANTIMICROBIAL AGAINST MULTIDRUG-RESISTANT MYCOPLASMA GENITALIUM**

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Background *Mycoplasma genitalium* has rapidly developed resistance to first-line azithromycin and second-line moxifloxacin. Third-line pristinamycin is difficult to source and only 80% effective. Consequently, there is an urgent need for alternative therapies, and to protect new antimicrobials against development and/or spread of resistance. Resistance-guided therapy and combination with other antimicrobials are important tools. Gepotidacin is a novel, first-in-class triazaacenaphthylene topoisomerase II inhibitor inhibiting DNA replication by a mechanism distinct from fluoroquinolones. Limited studies have shown activity against fluoroquinolone susceptible *M. genitalium* strains

Methods We determined the gepotidacin minimal inhibitory concentration (MIC) and minimal bactericidal concentration (MBC) in 54 *M. genitalium* isolates by the Vero-cell culture method. Macrolide resistance was present in 31 isolates, fluoroquinolone resistance in 18 (33%) isolates; 17 had dual resistance. Synergy testing was performed for gepotidacin and doxycycline by checkerboard titration for four macrolide or dual resistant isolates.

Results Gepotidacin was active against all 54 *M. genitalium* isolates with median and modal MIC of 0.125 mg/L and MIC₉₀ at 0.25 mg/L (range \leq 0.016–0.5 mg/L). No difference in MIC between macrolide resistant and susceptible isolates ($p=0.24$) or between fluoroquinolone and dual-resistant and susceptible isolates ($p=0.2$) was demonstrated. Gepotidacin MBC was available for 45 *M. genitalium* isolates with a median MIC of 0.064 and a median MBC of 0.125 mg/L and all isolates had \leq 4 fold difference between MIC and MBC suggesting bactericidal effect. Checkerboard titrations showed synergistic or additive effect with a Fractional Inhibitory Concentration Index (Σ FIC) of 0.5 for two isolates (one macrolide resistant and one dual resistant) and additive effect (Σ FIC at

0.62 and 0.75) for a macrolide and a dual resistant isolate, respectively.

Conclusion Gepotidacin warrants further evaluation in clinical treatment trials for *M. genitalium*. Combination therapy with doxycycline should be clinically studied to assess effect and potential protection against development and/or spread of resistance.

Disclosure No significant relationships.

P665 **RAPID SEQUENCE TYPING FOR ANTIMICROBIAL RESISTANCE SURVEILLANCE IN NEISSERIA GONORRHOEAEE USING WHOLE GENOME SEQUENCING**

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Background The *Neisseria gonorrhoeae* (NG) genome changes by ~4 single nucleotide polymorphisms (SNP) per genome per year, information which is considered when predicting sexual networks using next generation sequencing to type circulating gonococcal strains. Oxford Nanopore Technologies' MinION provides opportunities for rapid "run-until" sequencing until a target coverage is achieved. We assessed MinION capacity to rapidly predict NG whole-genome strain type, from patients attending a London sexual health clinic, as an aid to rapid turn-around antimicrobial resistance (AMR) surveillance.

Methods One-directional MinION sequencing using bar-coded DNA library preparations from 44 well characterised NG isolates, prospectively collected from clinic, were run on MinION flow cells (version R9.2; three per flow cell) and Illumina MiSeq platform as a comparator. To determine shortest run-time to accurately predict strain type, MinION sequences at various time points and genome coverages were placed on a phylogenetic tree consisting of the same isolates sequenced on the MiSeq platform, clustered with a large European NG reference collection (Euro-GASP).

Results Total library preparation time was approximately one hour per flow cell. Whole genome coverage for MinION sequences varied per isolate as sequencing proceeded at different rates. In 44 isolates, 90 minutes of MinION sequencing produced a median coverage of 21-fold, and was sufficient for 30/44(68%) isolates to achieve <4 SNP differences compared to the corresponding MiSeq sequence. Estimated median SNP distance between the platforms at 90 minutes (of MinION sequencing) was 1.9 SNPs (IQR: 0.4–5.9).

Conclusion MinION sequencing enabled the placement of the majority of NG sequences onto the correct location on a reference tree after 90 minutes of sequencing, suggesting that such a method, particularly with newer iterations of the technology and library preparation protocols, might support early identification of sexual networks that support transmission, as well NG AMR surveillance.

Disclosure No significant relationships.

**P666 INCREASED RESISTANCE TO EXTENDED-SPECTRUM
CEPHALOSPORINS IN *NEISSERIA GONORRHOEAE*
ISOLATES IN NANJING, CHINA (2013–2018)**

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Background The aim of this study is to monitor the trend in antimicrobial resistance in *Neisseria gonorrhoeae* in Nanjing, China. Gonococcal strains isolated during 2015–2018 were examined for susceptibility to seven antibiotics and compared with results from 2013–14 (Antimicrob Agents Chemother, 2018)

Methods 1173 gonococcal strains were isolated from men with urethritis; n=789 (2015–18), compared with n=384 (2013–14). MICs for seven antibiotics were determined by agar dilution method. Criteria for decreased susceptibility to ceftriaxone (MIC \geq 0.125 mg/L) and cefixime (MIC \geq 0.25 mg/L) were defined by WHO. Using CLSI and EUCAST (for azithromycin only) criteria, the following MIC breakpoints were used to ascertain resistance: \geq 128 mg/L, spectinomycin; \geq 2 mg/L, penicillin and tetracycline and \geq 1 mg/L, ciprofloxacin and azithromycin. Resistance determinants were investigated using WGS of two isolates which were resistant to both ceftriaxone and cefixime.

Results The percentage of isolates with decreased susceptibility to ceftriaxone rose from 9.9% in 2013–14 to 23% in 2016 and decreased to 16.7% in 2018 (P=0.01). The percentage of isolates with decreased susceptibility to cefixime rose from 0.3% (2013–14) to 15.7% in 2016 and decreased to 13.7% in 2018 (P<0.0001). 38 isolates displayed MIC \geq 0.5 mg/L for cefixime, among them 26.3%(10) belonged to ST5308 and one isolate to ST1407 NG-MAST types. Two isolates that exhibited MIC=1 mg/L for ceftriaxone and MIC=2 mg/L for cefixime were detected in 2017 and 2018, respectively. Each possessed mosaic penA-60.001 gene (the same as FC428 isolated in Japan). Azithromycin resistance decreased from 32.3% (2013–14) to 15.2% (2018) and high-level azithromycin resistance (MIC \geq 256 mg/L) decreased from 10.4% (2013–14) to 3.4% (2018) (P<0.001). All 1173 isolates were susceptible to spectinomycin, but resistant to ciprofloxacin. 81.3% isolates were resistant to penicillin and 84.8% to tetracycline.

Conclusion The proportion of *N. gonorrhoeae* isolates with decreased susceptibility to extended-spectrum cephalosporins increased significantly from 2013 to 2018. Ceftriaxone-resistant strain has emerged in Nanjing, China.

Disclosure No significant relationships.

**P667 GUIDING *NEISSERIA GONORRHOEAE* MANAGEMENT BY
MOLECULAR DETECTION OF CIPROFLOXACIN
RESISTANCE BY SPEEDX RESISTANCEPLUS GC ASSAY**

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Background There is a growing concern due to the emergence of multi-drug resistance developed in *Neisseria gonorrhoeae*. A rapid molecular test could provide antimicrobial susceptibility knowledge prior to start of treatment and decrease the turnaround time from current culture methods (7 days). The aim

was to evaluate the clinical performance of the ResistancePlus GC assay (SpeedX) compared to the in-house PCR and antimicrobial susceptibility results for ciprofloxacin.

Methods Antimicrobial susceptibility data was captured on all GC culture positives from 2015–2017 in Scotland. A *gyrA* real-time PCR was used to detect for ciprofloxacin resistance in *N. gonorrhoeae*. In this study 168 samples were selected from a range of sites (Cervical/vaginal, Rectal, Urine or Throat). Results were compared to susceptibility results of cultures isolated from the same patient episode (within 14 days). The culture isolates displayed a range of MICs with 84 susceptible and 84 resistant to ciprofloxacin.

Results Ciprofloxacin resistance was seen in 420/1338 episodes (31.4%) in 2017. The ResistancePlus GC assay was able to detect *N. gonorrhoeae* in all of the samples (100%) and *gyrA* in 164/168 samples (97.6%). The 4 samples with *gyrA* undetected had high Ct's (\geq 35) in a 2nd line real-time PCR for *porA*. In total 162/164 *gyrA* results matched the phenotype of a culture isolate taken from the same episode (98.7%). Further analysis showed that performing the assay on the discrepant culture isolates matched the phenotype result.

Conclusion The ResistancePlus GC assay performed well on clinical samples and could offer ciprofloxacin susceptibility testing within 4 hours to a laboratory service. This would therefore allow for an alternative antibiotic to be prescribed. Modeling based on current episodes in Scotland could mean that ciprofloxacin would be able to be used in \geq 50% of episodes which provides an exciting new approach to GC treatment.

Disclosure No significant relationships.

**P668 TRANSFER OF HIGH-LEVEL MACROLIDE RESISTANCE IN
*NEISSERIA GONORRHOEAE***

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Background Previous transformation experiments with *Neisseria gonorrhoeae* (Ng) have established that it is able to acquire high-level antibiotic resistance via transformation. We aimed to assess if a high-level ceftriaxone resistant Ng strain (WHO X) was able to acquire resistance to azithromycin (AZM) via this mechanism.

Methods A mid log phase culture of Ng WHO X (AZM MIC 0.25 μ g/mL) was mixed with whole genomic DNA extracted from Ng WHO strain V (AZM \geq 256 μ g/mL). A concentration of 1.5x MIC of AZM was added as a stress factor for the selection of the resistance determinants. Control experiments were conducted by omitting the addition of AZM and/or DNA. Consecutively, the mixture was plated on blood agar plates and incubated at 36°C in a 6% CO₂ atmosphere. Of each blood agar plate 1 or 2 colonies were selected for E testing performed according to CLSI guidelines. Colonies growing alongside the E-test strip at the higher range of the MIC values were selected for further characterization, including whole genome sequencing, and to identify the acquired resistance mechanisms.

Results The MIC for AZM of WHO strain X increased to greater than 256 μ g/ml. There was no change in the MICs of Ng in the control experiments. Whole genome sequencing results will be presented demonstrating the pathways to resistance.

Conclusion *Neisseria gonorrhoeae* is able to rapidly acquire high level macrolide resistance in the presence of both DNA of AZM highly resistant NG strains and AZM.

Disclosure No significant relationships.

P669 **CLINICALLY ISOLATED THIAMINE AUXOTROPHS OF *NEISSERIA GONORRHOEAE* INDICATE INCREASED SUSCEPTIBILITY TO HOST INNATE DEFENSES**

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Background Thiamine pyrophosphate (TPP) is an important metabolite that affects many metabolic pathways within the cell. Thiamine (thi) auxotrophs of *Neisseria gonorrhoeae* (Gc) that could not grow without TPP or other thiamine derivatives were isolated from patients in the 1970's, but the effect of thi auxotrophy on Gc pathogenesis is not known. We recently demonstrated that a genetically defined Gc mutant that cannot biosynthesize TPP is more susceptible to killing by neutrophils, cationic antimicrobial peptides (CAMPs), and reactive oxygen species (ROS) in vitro, and attenuated for experimental infection of mice that have a neutrophil response to infection. Here we investigated the susceptibility of five recently isolated TPP auxotrophs to paraquat, an inducer of ROS and CAMPs as a first step towards understanding the consequence of thi auxotrophy during human infection.

Methods Eighty-nine Gc isolates in the USUHS Gc Resistance and Reference Repository isolated between 2014 and 2017 were screened for the capacity to grow on medium without TPP. Auxotrophs were tested for susceptibility to paraquat and colistin (polymyxin E) using standard methods.

Results Five thi auxotrophs were identified among the 89 isolates tested (5.6%). Four of the auxotrophs exhibited increased susceptibility to paraquat and colistin compared to a wild-type Gc strain. Auxotroph 4097, in contrast, showed a ~2-fold greater resistance to 0.0195 mM of paraquat and colistin compared to a wild-type Gc strain, suggesting this isolate may carry a compensatory mutation(s).

Conclusion We conclude that clinically isolated thi auxotrophs are more susceptible to ROS and CAMPs. We hypothesize that these isolates may have a lesser ability to withstand oxygen-dependent and independent effectors of the host inflammatory response and that selection for compensatory mutations during infection may be one mechanism by which thi auxotrophs remain in circulation. Analysis of WGS data is underway to identify the genetic basis of thi auxotrophy and possible compensatory mutations.

Disclosure No significant relationships.

P670 **INTERNATIONALLY DISSEMINATED CEFTRIAXONE-RESISTANT *NEISSERIA GONORRHOEAE* STRAIN FOUND IN CHINA**

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10.1136/sextrans-2019-sti.737

Background Ceftriaxone has been used to treat gonorrhoea in China for more than one decade, but an increasing level of decreased susceptibility or clinical resistance to ceftriaxone has been found. Moreover, the international spread ceftriaxone-resistant clones has been recognized as a threat to effective control of gonorrhoea. We now describe an imported ceftriaxone-resistant *N. gonorrhoeae* strain isolated in China, 2016.

Methods The isolate was collected in 2016. The antimicrobial susceptibility to ceftriaxone (CRO), cefixime (CFM), azithromycin (AZM), spectinomycin (SPT) and ciprofloxacin (CIP) was determined using the agar dilution method in reference lab at National Center for STD Control. A combination of molecular epidemiological methods including *N. gonorrhoeae* multiantigen sequence typing (NG-MAST), multi-locus sequence typing (MLST) and *N. gonorrhoeae* sequence typing for antimicrobial resistance (NG-STAR) was used to determine characteristics and resistant determinants of this isolate.

Results The strain was resistant to CRO (MIC 0.5 mg/L), CFM (MIC 1 mg/L), TET (4 mg/L) and CIP (≥ 32 mg/L), but susceptible to AZM (0.25 mg/L) and SPT (16 mg/L). The MLST type was ST1903, and NG-MAST type was ST3435. The NG-STAR type was ST233, which contains a type 60 mosaic penA allele, -35A Del in the mtrR promoter, G120K-A121D in PorB, L421P in PonA, S91F-D95A in GyrA, S87R in ParC, and wild-type 23srRNA.

Conclusion We identified a ceftriaxone-resistant *N. gonorrhoeae* strain which has sustainably transmitted worldwide for more than 3 years. The epidemiological and molecular typing data drew an integral transmission chain of this clone from Japan to China, and then disseminated globally. These findings indicate an imported risk of resistant clones in China and also call for an enhanced global gonococcal antimicrobial surveillance to track the emergence and dissemination of resistant strains for timely control the spread.

Disclosure No significant relationships.

P671 **DISTRIBUTION OF ANTIMICROBIAL RESISTANCE IN *NEISSERIA GONORRHOEAE* – 5 YEARS OF GERMAN GONOCOCCAL RESISTANCE NETWORK (GORENET)**

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10.1136/sextrans-2019-sti.738

Background The widespread antimicrobial resistance (AMR) of *Neisseria gonorrhoeae* (NG) is a serious problem for the treatment of gonorrhoea. Because NG infections are not reportable in Germany, only limited data on disease epidemiology and antimicrobial susceptibility patterns are available. The Gonococcal Resistance Network (GORENET) monitors trends of NG AMR in Germany and links this to epidemiological data and NG multiantigen sequence typing (NG-MAST) data to guide treatment algorithms and target future prevention strategies.

Methods Between April 2014 and December 2018, NG isolates and data on patient-related information were collected from laboratories nationwide and centralized susceptibility testing using E-test was performed. Susceptibility results for

cefixime, ceftriaxone, azithromycin, ciprofloxacin and penicillin were defined according to EUCAST 4.0 standards.

Results Of 2115 isolates, 91.6% of isolates were from men. The most frequently tested materials among men were urethral (92.4%) and rectal swabs (3.8%), and among women mainly endocervical swabs (80.9%). Resistance to ceftriaxone (MIC \geq 0.125 mg/L) occurred only sporadically (0–0.3%) during the entire observation period (2015 and 2018), while 1.0–2.1% of isolates were resistant to cefixime (MIC \geq 0.125 mg/L). Proportion of isolates resistant to azithromycin (MIC \geq 0.5 mg/L) was 11.4% (2014), 11.3% (2015), 4.3% (2016), 3.7% (2017), 9.4% (2018). 53.4–71.7% were resistant to ciprofloxacin, and 14.2–24.3.1% were resistant to penicillin.

Conclusion Resistance to ceftriaxone and to cefixime was low, whereas azithromycin resistance showed a discontinuous presentation with partly high levels during the observation period. Rates of ciprofloxacin and penicillin resistance were very high. According to the current national guidelines, ceftriaxone 1-2g IV and azithromycin 1,5g orally are usually used in dual therapy. Shortly revised national guidelines will state that use of azithromycin should be avoided if possible if a test of cure can be guaranteed and a susceptibility test is available. Continued surveillance of NG AMR remains relevant to ensure efficient disease management.

Disclosure No significant relationships.

P672 GENETIC PATHWAY TO HIGH LEVEL AZITHROMYCIN RESISTANCE IN *NEISSERIA GONORRHOEA*

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Background The in-vitro genetic pathways to high-level azithromycin (AZM) resistance have hitherto not been established in *Neisseria gonorrhoeae* (Ng).

Methods A Ng morbidostat that dynamically increases AZM concentrations in response to Ng growth was built according to the protocol of Toprak et al. The reference strains Ng WHO-F and WHO-X were grown in 12 mL GC broth supplemented with IsoVitalX™ (1%) and vancomycin, colistin, nystatin, trimethoprim selective supplement for 30 days in a 6% CO₂ environment at 36°C. Depending on the turbidity and growth of the culture, 1 mL of fresh medium or AZM was added to the culture vials after each cycle of 21 minutes. The experiment started with a concentration of 20x minimal inhibitory concentration (MIC) of AZM in the drug reservoir which was increased up to 320x MIC for both strains by the end of the experiment. Samples of the cultures were taken 2–3 times a week and MICs of AZM were determined using E-tests. Whole genome sequencing will be performed using Illumina MiSeq. All experiments were run in triplicate.

Results The initial MICs of WHO-F and WHO-X were 0,125 µg/mL and 0,25 µg/mL respectively. In the first week, the MICs of WHO-F and WHO-X increased approximately 24-fold for WHO-F and 48-fold for WHO-X. After 30 days, WHO-F and WHO-X had attained MICs of 96 µg/mL and \geq 296 µg/mL, respectively. The genetic pathways to resistance will be analysed and presented.

Conclusion We were able to induce high level AZM resistance in Ng within 30 days of AZM exposure using our Ng morbidostat.

Disclosure No significant relationships.

P673 IN-VITRO ACTIVITY OF SMT-571 AND COMPARATORS AGAINST CLINICAL ISOLATES AND REFERENCE STRAINS OF *NEISSERIA GONORRHOEA*

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10.1136/sextrans-2019-sti.740

Background The emergence and spread of multidrug resistance to antibiotics used to treat gonorrhoea has resulted in a dramatic loss of effective regimens for the condition. Currently, the extended spectrum cephalosporin, ceftriaxone, is the only viable monotherapy option available, however, resistance to this last line treatment is now emerging globally. Herein, we assessed the *in vitro* activity of a novel small molecule antimicrobial with a new mechanism of action, SMT-571, against a large collection of *N. gonorrhoeae* clinical isolates and reference strains including numerous MDR and XDR gonococcal isolates.

Methods MICs (mg/L) of SMT-571 were determined by agar dilution according to current CLSI guidelines. The MICs of ceftriaxone, cefixime, azithromycin, ciprofloxacin, spectinomycin, tetracycline, and ampicillin were determined using the Etest method (AB bioMérieux, Marcy l'Etoile, France).

Results SMT-571 showed potent *in vitro* activity against all the tested *N. gonorrhoeae* isolates (n=262) with MICs ranging from 0.064 to 0.125 mg/L, and the MIC₅₀, MIC₉₀ and modal MIC were all 0.125 mg/L. The compound was not influenced by pre-existing resistance mechanisms with no cross-resistance or correlation between the MICs of SMT-571 and comparator agents being observed.

Conclusion This study is the first broad evaluation of the *in vitro* activities of a new mechanism, novel small molecule antimicrobial for the treatment of gonorrhoea. SMT-571 demonstrated high *in vitro* activity against a large geographically, temporally and genetically diverse collection of clinical *N. gonorrhoeae* isolates and international reference strains, including various types of high-level resistant, MDR and XDR gonococcal isolates.

Disclosure No significant relationships.

P675 TWO RECENT CASES OF EXTENSIVELY DRUG-RESISTANT (XDR) GONORRHOEA IN THE UNITED KINGDOM LINKED TO A EUROPEAN PARTY DESTINATION

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10.1136/sextrans-2019-sti.741

Background The development of antimicrobial resistance (AMR) to macrolides and extended-spectrum cephalosporins (ESC) in *Neisseria gonorrhoeae* (NG), is a major public health

concern. While macrolide AMR is increasing globally, ESC AMR is low and extensive drug-resistance (XDR) rare.

Methods We report the clinical management and microbiology of two recent cases of XDR NG in the UK.

Results Case A (female) presented to a sexual health clinic (SHC) in October 2018 with urinary symptoms. She cleared the infection following treatment with ceftriaxone 500 mg plus azithromycin 1g. She had recently had vaginal intercourse with ≥ 1 male partner in Ibiza, Spain. Case B (female) presented to a SHC elsewhere in England in November 2018 with anal and genital symptoms. She had recently had unprotected vaginal, oral and anal sex with an asymptomatic man who had been in Ibiza and had links with the same sexual network as case A. He tested NG NAAT-negative in December without treatment. Case B initially responded clinically to treatment with ceftriaxone 1g, but symptoms relapsed and she remained culture-positive 2 weeks later. She failed subsequent treatment with gentamicin 240 mg plus azithromycin 2g but cleared the infection with 3 days of IV ertapenem. Both isolates were resistant to ceftriaxone (MIC 1.0 mg/L), cefixime, penicillin, ciprofloxacin and tetracycline, had intermediate susceptibility to azithromycin (MIC 0.5 mg/L), and were susceptible to spectinomycin. Whole genome sequencing indicated that both isolates were from the FC428 clone, which has been reported sporadically globally, usually with epidemiological links to the Asia-Pacific region.

Conclusion These FC428 clone isolates are able to cause both asymptomatic and symptomatic infection with a variable response to ceftriaxone and azithromycin treatment. This clone is likely to increase over time in Europe and threatens the effectiveness of gonorrhoea treatment. Surveillance of AMR, test-of-cure, extra-genital sampling and partner notification are vital to maintain effective treatment and prevent spread.

Disclosure No significant relationships.

P676 **AZITHROMYCIN RESISTANCE AMONG *NEISSERIA GONORRHOEAE* CASES IN KING COUNTY, WASHINGTON, USA, 2017–2018**

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10.1136/sextrans-2019-sti.742

Background Public Health – Seattle & King County (PHSKC) participates in Strengthening the U.S. Response to Resistant Gonorrhoea (SURRG), funded by the Centers for Disease Control and Prevention, to enhance surveillance of antimicrobial resistance in *Neisseria gonorrhoeae* (GC). We aimed to identify predictors of azithromycin-resistant GC.

Methods GC culture specimens were collected from patients with GC infection who attended the PHSKC STD Clinic or one of five King County, Washington, medical clinics during 2017–2018. Positive culture isolates underwent azithromycin susceptibility testing with Etest; azithromycin resistance (AZI-R) was defined as minimum inhibitory concentration ≥ 2.0 $\mu\text{g}/\text{mL}$. Clinical and sociobehavioral data was obtained from medical records and partner services interviews; we compared

characteristics of cases with and without AZI-R and evaluated statistical significance with chi-square and Fisher's exact tests.

Results During 2017–2018, 1,164 GC isolates from 1,048 unique cases underwent azithromycin Etest susceptibility testing. Overall, 6.5% of isolates and 6.8% of cases had AZI-R. Prevalence was higher in rectal isolates (8.3% of 373) than urethral (5.0% of 496, $p=0.05$) and similar to pharyngeal (7.4% of 270, $p=0.68$). AZI-R was more common in men who have sex with men (MSM) than heterosexuals (8% vs 3%, $p=0.04$), and in Hispanics vs. non-Hispanics (12% vs 6%, $p<0.01$). Age, GC history, number of sex partners, HIV-status, PrEP-status, and diagnosing facility type were not associated with AZI-R. Most (95%) AZI-R cases were treated with an azithromycin-containing regimen (dual therapy with ceftriaxone (92%) or gentamicin (4%)). Nearly all (96%) had a documented negative test of cure (culture and/or NAAT); no treatment failures were observed.

Conclusion AZI-R was identified in 6.8% of GC cases in King County, Washington. While more common in MSM and Hispanic persons, AZI-R was not strongly associated with other characteristics we evaluated. Health care providers should be aware of the potential for AZI-R in patients with GC.

Disclosure No significant relationships.

P677 **PRESCRIBED TREATMENTS FOR *NEISSERIA GONORRHOEAE* INFECTIONS AND TREATMENT FAILURES IN THE QUEBEC SENTINEL NETWORK, 2015–2017**

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10.1136/sextrans-2019-sti.743

Background *Neisseria gonorrhoeae* is becoming increasingly resistant to the antibiotics used and many countries reported therapeutic failures. The WHO published a global action plan on antimicrobial resistance. Several measures were undertaken in Québec including the use of a dual therapy. Since 2015, the provincial sentinel network aims to 1) maintain sufficient cultures for the surveillance of antimicrobial resistance 2) complement the reference laboratory antimicrobial surveillance by providing epidemiological and clinical information and 3) complement the surveillance of treatment failures.

Methods Two clinics specialized in STBIs and several general practitioners, located in three regions (Montreal, Montérégie, Nunavik) are enrolled. Epidemiological and clinical data (including reasons for visits, laboratory samples and treatments prescribed) of gonococcal infections are collected on a centralized secured web application. Cases are classified as retained treatment failures (presence of all predefined criteria) or suspected treatment failures.

Results From September 2015 to December 2017, 1240 episodes in 1115 individuals were recorded (111 women, 1000 men, 3 transgender, 1 unknown sex). At least 83% of the

prescribed treatments fully respected the recommended first-line treatments (ceftriaxone 250 mg or cefixime 800 mg in combination with azithromycin 1g). Among the 731 (59%) episodes with a test of cure performed, 47 (6.4%) were positive; specific questionnaires for the treatment failure assessment were available for 28. After analysis, 5 episodes were classified as retained or suspected treatment failure, including 4 pharyngeal infections and 2 cases who received azithromycin monotherapy. In 2018 (preliminary data), 15 additional assessment questionnaires were completed, adding 5 treatment failures (3 suspected and 2 retained).

Conclusion The results of the sentinel network help to guide Quebec public health decision-making. When certain B-lactam allergy forces clinicians to prescribe an alternative treatment, a dual therapy including gentamicin is now recommended. Overrepresentation of azithromycin monotherapies among treatment failures in the sentinel network also contributed to this recommendation change.

Disclosure No significant relationships.

P678 AN EFFECTIVE GONOCOCCAL LIPOOLIGOSACCHARIDE (LOS) VACCINE: WE KNOW ENOUGH TO MAKE ONE

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10.1136/sextrans-2019-sti.744

Background Long-lived gonococcal LOS IgG, induced during an initial challenge, prevented re-infection in 7/8 subjects ($v. = 1/6$; $p=0.026$), but treatment within three days of urethritis onset prevented an antibody response. This suggested that recidivism was related to early treatment. These data form the basis for an effective LOS vaccine.

Methods MS, NMR Spectroscopy and immunochemistry were used to structure the LOS made by the challenge strain, MS11mkC. Gonococci in scrapings of diagnostic slides were LOS genotyped. A multiplexed indirect immunofluorescent assay for LOS IgG was used to quantify LOS IgG.

Results MS11mkC LOS are genetically identical to those of gonococci within PMNs, with two α oligosaccharide chains, nLc4 (Gal β 1-4GlcNAC β 1-3Gal β 1-4Glc β) and GalNAC-nLc4 (GalNAC β 1-3-nLc4). Protective MS11mkC LOS IgG should protect against all circulating gonococci. The multiplex assay detected IgG specific for the nLc4 terminal Gal residue, the internal nLc3 GlcNAc and the basal Lc2 disaccharide. Concentrations ($\mu\text{g/mL}$) of IgG in sera of contacts of persons with gonorrhoea, specific for the three antigens, summed to the concentrations that bound the native nLc4 α chain and were greater in sera from those seen ≥ 7 days after exposure than those seen earlier ($p = 0.04$ for the nLc4 Terminal Gal comparison). Contacts of persons with gonorrhoea who resisted infection circulated higher concentrations of IgG specific for the nLc4 terminal Gal than those who became infected during exposure ($\Delta = 1.78 \mu\text{g/mL}$; $p = 0.10$). The $1.78 \mu\text{g/mL}$ difference is close to the $2 \mu\text{g/mL}$ that provides protection against meningococcal infection.

Conclusion An effective gonococcal vaccine can be made based on the human challenge study and an understanding of the immunochemistry of LOS. Gonococcal LOS is not pyrogenic in rabbits and can be made less so by deletion of *lptA*. A seed strain that is suitable for industrial production is available, as is an immunogenicity assay.

Disclosure No significant relationships.

P679 NEISSERIA GONORRHOEA (GC) CULTURE POSITIVITY BY INDICATION FOR CULTURE AND ANATOMIC SITE, SEATTLE, WASHINGTON, 2017–2018

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10.1136/sextrans-2019-sti.745

Background In order to increase the number of gonococcal isolates available for antimicrobial susceptibility surveillance, we expanded indications for GC culture in a municipal STD clinic in Seattle, Washington. We evaluated GC culture positivity by clinical criteria.

Methods In 2017–2018, GC culture specimens were collected from STD clinic patients who met these criteria: (1) contact to GC, (2) GC NAAT+ not yet treated, or (3) symptomatic urethritis/cervicitis with intracellular diplococci on gram stain. Clinicians inoculated Modified Thayer-Martin agar plates at the bedside and incubated in a candle jar. Patient characteristics and indication for culture were abstracted from medical records; culture positivity was compared by indication, anatomic site, and patient group with Fisher's exact test.

Results Clinicians collected a total of 3,884 specimens, of which 1,107 (29%) were GC culture positive. Culture positivity among 74 endocervical, 1,611 pharyngeal, 1,154 rectal, and 1,045 urethral isolates was 30%, 17%, 29%, and 46%, respectively. Among contacts to GC, endocervical culture positivity was 6/26 (23%), pharyngeal 79/752 (11%), rectal 88/549 (16%), and urethral 71/445 (16%). Urethral culture positivity in male contacts without urethral discharge was low (6/221 [3%]). Pharyngeal culture positivity among GC contacts who were men who have sex with men was similar to heterosexual men (10% of 719 vs 12% of 17, $p=0.68$) but lower than pharyngeal positivity among women (43% of 14, $p<0.01$). Among patients with a recent NAAT+ screening test, cultures were positive in 12/35 (34%) endocervical, 133/514 (26%) pharyngeal, 168/337 (50%) rectal, and 30/94 (32%) urethral specimens. Most (91% of 476) men with urethritis and intracellular diplococci on gram stain were culture positive.

Conclusion Men with symptomatic urethritis had the highest GC culture yield (91%), followed by persons with recent GC NAAT+ (26–50%). Cultures in GC contacts had a modest yield (11%–23%). These criteria were appropriate for obtaining GC isolates for antimicrobial surveillance.

Disclosure No significant relationships.

P680 OROPHARYNGEAL GONORRHOEA IN THE ABSENCE OF UROGENITAL GONORRHOEA IN A SEXUAL NETWORK OF MALES AND FEMALES

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10.1136/sextrans-2019-sti.746

Background We describe a sexual network consisting of two males and five females who were tested for gonorrhoea at

genital and oropharyngeal sites in early 2018, with the aim of exploring whether tongue kissing transmits gonorrhoea.

Methods Participants independently provided extremely detailed interview accounts of sexual activity with one another, to permit inter-participant verification. Testing for *N. gonorrhoeae* was by nucleic acid amplification testing (NAAT). Whole genome sequencing (WGS) was performed on available culture-positive samples to assess genomic relatedness between samples.

Results Sexual contact included tongue kissing for all participants, and many participants participated in oro-genital and genital-genital intercourse with one another. All sexual contact occurred during a 1-week period in Victoria, Australia. Two participants had samples available for WGS and these were highly related genomically, and these participants were separated in this network by two other participants. All seven participants had gonorrhoea, six participants had oropharyngeal gonorrhoea in the absence of genital gonorrhoea, and the other participant had only vaginal gonorrhoea. No men acquired urethral gonorrhoea.

Conclusion The fact that six of seven participants had oropharyngeal gonorrhoea in the absence of urogenital gonorrhoea supports the notion that tongue kissing is a common mode of gonorrhoea transmission. No men acquired urethral gonorrhoea from oro-penile sex, suggesting that transmission from oropharynx to urethra may be less likely than by tongue kissing. Our WGS results, when viewed in conjunction with the extremely-detailed sexual behaviour data, support the notion that gonorrhoea diagnoses in this network were likely the result of within-network transmission. Our findings highlight the need for more research to define the transmission routes for gonorrhoea in heterosexuals, to inform screening policies.

Disclosure No significant relationships.

P681 IMPORTATION OF CIPROFLOXACIN RESISTANT *NEISSERIA GONORRHOEA* INTO THE UK: A PUBLIC HEALTH CHALLENGE

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10.1136/sextrans-2019-sti.747

Background Current UK guidelines for managing *Neisseria gonorrhoeae* (NG) infection include ciprofloxacin use if antimicrobial susceptibility is indicated, but this option would be less useful if ciprofloxacin resistant NG (CpR-NG) rates increased, for example to levels reported in some parts of Asia. CpR-NG rates in the Americas are lower than in the UK. We investigated whether having recent condomless sex in "high" CpR-NG (HCpR-NG) regions (sex abroad, but not in the Americas) was associated with being infected with CpR-NG.

Methods We conducted two cross-sectional surveys of UK Sexual Health Clinics (March 2015-March 2016; May 2017-June 2018). Patients aged ≥ 16 years with symptoms of an STI

provided samples: vulvovaginal swab (females); first void urine (men-who-have-sex-with-women (MSW) and men-who-have-sex-with-men (MSM)); pharyngeal and rectal swabs (MSM). Data were collected on travel-associated sexual behaviour, including condomless sex abroad (CSA) in the past three months with a new partner. Routine clinic NG results were obtained. Resistance-associated mutations in *gyrA* (fluoroquinolones) for NG were identified using Sanger sequencing. Patients reporting CSA in HCpR-NG regions were compared to no sex abroad using Pearson's chi-squared test and multi-variable logistic regression models.

Results Overall, 71/1055 (6.7%) reported CSA in HCpR-NG regions. Of these, 12/71 (16.9%) compared to 85/984 (8.6%) not reporting CSA had NG ($p=0.02$). Among-NG positive patients, fluoroquinolone resistant mutations were found in 9/12 (75.0%) patients reporting CSA in HCpR-NG regions, compared to 35/85 (41.2%) who did not report CSA ($p=0.03$). After adjustment for other risk factors, the association between fluoroquinolone resistant NG and CSA in HCpR-NG regions remained significant (aOR:2.33[95% CI:1.03–5.24]).

Conclusion Having recent condomless sex with a new partner in regions of high ciprofloxacin resistance was associated with being NG-positive in the UK and having ciprofloxacin resistant NG. Importation of resistance may undermine attempts to recycle older antibiotics in the management of NG infection.

Disclosure No significant relationships.

P682 EFFICACY OF SECURIDACA LONGIPENDUCLULATA FRESEN (POLYGALACEAE) AGAINST STANDARD ISOLATES OF *NEISSERIA GONORRHOEA*

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10.1136/sextrans-2019-sti.748

Background A study was carried out to determine the in vitro antibacterial activity of ethanol extract of root and bark of *Securidaca longipenduclulata* against standard isolates of *Neisseria gonorrhoeae*.

Methods The plant materials were collected early in the morning and dried at room temperature, followed by ethanol extraction using a rotary pump. Antibacterial activity assay was done against two bacterial isolates, viz. US standard isolate NO. 0296 and WHO standard isolate K using the agar diffusion method with dimethyl sulphoxide as a negative control and ceftriaxone antibiotic as a positive control. Antimicrobial activity was determined by measuring the zone of inhibition around each well. The minimum inhibitory concentration of the extract was determined using different concentrations of the extract and plated on the GC media. For each extract six replicate trials were conducted against each organism. The protocol of Odebiyi and Herbune (1978) was followed to determine the presence of phytochemical compounds.

Results The results obtained showed that both the root and bark extracts of *Securidaca longipendulata* have antibacterial activity against the two bacterial strains with a zone of inhibition of ≥ 10 mm in both root and bark and a bactericidal activity at 10^{-2} thus 0.01 μ g/ml of 10% crude extract in tube dilution. The antibiotic susceptibility tests on the common antibiotics in comparison with the extract showed that the root and bark extract have a higher susceptibility than

tetracycline, penicillin and ciprofloxacin. The extracts showed presence of saponins, steroids, glycosides, flavonoids, terpenes, alkanoids, phenolics and tanins.

Conclusion The demonstrated antibacterial activity of *Securidaca longipedunculata* against *Neisseria gonorrhoeae* provides a scientific basis for the traditional use in treating venereal diseases in Kenya. This investigation and further studies will pave way for use of this plant in antibacterial drug development for alleviating human suffering and open u reseach in discovery of new antimicrobial a gents.

Disclosure No significant relationships.

P683 RACIAL AND ETHNIC DISPARITIES RELATED TO *NEISSERIA GONORRHOEAE* AMONG U.S. MILITARY ACTIVE DUTY SERVICE MEMBERS

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10.1136/sextrans-2019-sti.749

Background *Neisseria gonorrhoeae* is the second most common reportable infection in the United States, which if undiagnosed and untreated, can lead to severe long-term sequelae. Active duty U.S. Military service members are risk-taking young adults; however, military service offers some inherent control for social determinants often associated with increased risk of sexually-transmitted infections. Even in the absence of disparities in income and education, increased burden of disease among racial and ethnicity minorities may still exist. Herein, we describe the association between race/ethnicity and gonorrhea among active duty service members.

Methods This study was conducted among symptomatic and high risk patients enrolled at military infectious disease clinics from 2012 to 2017. Outcome variables were based on nucleic acid amplification test results extracted from medical records. The magnitude of association was assessed using adjusted odds ratios and 95% confidence intervals.

Results Data from 488 active duty participants were analyzed. The crude prevalence of gonorrhea and chlamydia among this clinic population was 17% and 25%, respectively. After adjusting for sex and age, non-Hispanic black service members had 3.5 times greater odds ($p=0.000$) and Hispanic service members had 2.9 times greater odds ($p=0.009$) of gonorrhea compared to non-Hispanic white service members. This phenomenon was not observed when comparing odds of chlamydia among blacks or Hispanics to whites.

Conclusion Despite similarities in income and education, black and Hispanic service members still bear a disproportionate burden of gonorrhea illness. Service members of color may have unique risk factors that predispose them to gonorrhea. Findings suggest that interventions aimed at reducing gonorrhea should be targeted towards persons of color to ensure disparities in disease burden are effectively addressed. Future studies should examine sexual behaviors among black and

Hispanic service members that may be contributing to increased odds of gonorrhea within the military population.

Disclosure No significant relationships.

P684 GONORRHEA SEQUENCE TYPES IN NON-CULTURED SPECIMENS FROM A PROVINCIALLY REPRESENTATIVE SAMPLE IN BRITISH COLUMBIA CANADA, 2018

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Background In British Columbia (BC), Canada, enhanced gonorrhea surveillance to monitor sequence types (STs) is based on cultures which are typically performed on symptomatic individuals, at extra-genital sites, and at clinics in the Greater Vancouver Area (GVA), leaving certain subpopulations under-represented. We sought to describe *Neisseria gonorrhoeae* multi-antigen sequence types (NG-MASTs) in a provincially representative sample using remnant nucleic acid amplification tests (NAATs).

Methods A sample of gonorrhea positive NAATs diagnosed at the BC Centre for Disease Control Public Health Laboratory from March 1 to September 31, 2018 were sent to the National Microbiology Laboratory for sequence typing using the NG-MAST method. Samples were selected to be representative of the distribution of gonorrhea in BC by sex and geography. NG-MAST was linked to case information from the provincial sexually transmitted infections surveillance database. Associations were tested using Chi-square or Fisher's exact test.

Results There were 261 NAAT-positive gonorrhea specimens selected: 129 (49%) from urine, 71 (27%) from rectal, 35 (13%) from vaginal, 19 from cervical (7.3%) and 7 (2.7%) from urethral sites. Males represented 60% of the sample (156/261) and 21% (55/261) were from outside GVA. Mean age was higher in males than females (33 vs 28 years, $p<0.01$). Co-infection with chlamydia was more common among females than males (16% vs 5%, $p<0.01$). To date, results were available for 186 (71%) of the sample. The most common NG-MASTs were ST-7638 (11/186, 5.9%), ST-4207 (10/186, 5.4%), ST-12302 (9/186, 4.8%), ST-15246 (9/186, 4.8%) and ST-5985 (9/186, 4.8%). ST-12302 and ST-5985 were more common outside GVA ($p<0.01$ and $p=0.03$, respectively).

Conclusion We were able to use remnant NAAT specimens from a provincially representative sample to identify STs not routinely found using culture-based surveillance (e.g. ST7638, ST-4207). Moreover, some STs were more common outside GVA supporting the need for molecular methods to improve representativeness for gonorrhea surveillance.

Disclosure No significant relationships.

P685 EVALUATION OF EXTRAGENITAL SWABS FOR SIMULTANEOUS *NEISSERIA GONORRHOEA*E CULTURE AND NUCLEIC ACID AMPLIFICATION TESTING

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Background Nucleic acid amplification testing (NAAT) has replaced culture as the predominant test for *Neisseria gonorrhoeae* (GC). However, antimicrobial susceptibility testing requires culture. We assessed whether a single swab specimen could be used for both NAAT and culture testing for GC.

Methods From May to December 2018, we collected paired specimens from patients presenting to the municipal STD clinic in Seattle, WA who met clinical criteria for gonorrhoea culture. One specimen was collected using the BBL CultureSwab plus Amies Gel with Charcoal and one was collected using the Aptima collection kit. Approximately half of BBL specimens were collected by clinicians and half were self-collected by patients. BBL specimens were sent to the laboratory at ambient temperature where they were cultured for GC and then processed and tested using Aptima Combo 2. The second swab was placed in an Aptima transport tube and processed according to the manufacturer's instructions (clinical NAAT). We calculated the agreement between Aptima GC test results among clinical and BBL specimens and the sensitivity of BBL NAAT using the clinical NAAT result as the gold standard.

Results We collected 109 paired rectal specimens (53 clinician-collected and 56 patient-collected) and 104 paired pharyngeal specimens (49 clinician-collected and 55 patient-collected). Twenty-nine (27%) rectal specimens and 19 (18%) pharyngeal specimens were culture positive. Among rectal specimens, 44 (40%) clinical NAATs and 33 (30%) BBL NAATs were positive (90% agreement, BBL 75% sensitive). Among pharyngeal specimens, 59 (57%) clinical NAATs and 39 (38%) BBL NAATs were positive (81% agreement, BBL 66% sensitive). None of the BBL specimens tested positive in the absence of a paired positive clinical NAAT. The sensitivity of NAAT of BBL specimens did not vary substantially between clinician and patient collected specimens.

Conclusion Aptima testing of BBL CultureSwab specimens collected in Amies Gel with Charcoal is insensitive for GC.

Disclosure No significant relationships.

P686 THE ENHANCED SURVEILLANCE OF ANTIMICROBIAL-RESISTANT GONORRHEA (ESAG) IN CANADA

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Background Gonorrhoea (GC) is the most commonly reported drug resistant sexually transmitted infection (STI) in Canada

with 23,708 cases reported in 2016, double the 11,874 cases reported in 2007, corresponding to an 81% increase in rates. Only about 19% of these were cultured, meaning that direct AMR data was only available for one-fifth of GC cases. The Public Health Agency of Canada (PHAC) launched the Enhanced Surveillance of Antimicrobial-Resistance Gonorrhoea (ESAG) program in 2013 in three jurisdictions (Alberta, Manitoba, and Nova Scotia) in order to improve the understanding of current trends of AMR-GC. This enhanced laboratory-epidemiological linked surveillance program collects data not available via its existing routine and laboratory surveillance.

Methods All cultures and data from participating jurisdictions are included in the surveillance program. The National Microbiology Laboratory performs antimicrobial susceptibility testing for a panel of antimicrobials and sequence typing. Enhanced epidemiological data collected includes treatment information and risk factors.

Results From 2014–2017, ESAG captured 2767 cultures from 2566 cases. The majority of the cases were male (81%) and less than 40 years old (83%). There was a 25% decrease from 2014 to 2017 in the number of cases from men who have sex with men. The proportion of isolates demonstrating resistance to at least one antibiotic agent steadily increased from 2014 (54%) to 2016 (66%), dropping to 58% in 2017. Large declines in decreased susceptibility to both cefixime (91%) and ceftriaxone (88%) and increasing rates of resistance to azithromycin were observed.

Conclusion ESAG data for 2014–2017 demonstrated decreased susceptibility to the preferred therapy antimicrobials, suggesting that resistance to these key antimicrobials could complicate GC treatment considerably in the future. The expansion of ESAG remains a priority with negotiations currently underway with the remaining jurisdictions with the goal national representation.

Disclosure No significant relationships.

P687 SEXUAL NETWORK AND GENOTYPIC ANALYSIS OF AN OUTBREAK OF GONORRHEA IN WINNIPEG, CANADA

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Background Alongside traditional epidemiologic tools, network analyses and molecular epidemiology offer deeper insights into the structure of STBBI epidemics. In the context of a 2014 gonorrhoea (NG) outbreak, this study sought to compare molecular networks to case-contact networks constructed from public health investigations.

Methods Data were from enhanced public health investigations of NG in Winnipeg, Canada. NG-MAST was used to determine the molecular subtypes of NG. Subtypes were described by socio-demographic/clinical characteristics. Multivariable logistic regression models were used to assess the association of socio-demographic/clinical characteristics, and having the most frequently reported subtype. Networks constructed from case-contact investigations were visualized; components were characterized with univariate network statistics, including degree centralization. Conditional uniform graph (CUG) tests assessed observed degree centralization.

Results In total, 126 NG cases were genotyped, with 41 subtypes found. Five subtypes accounted for 51% of all subtypes,

with ST-3672 (n=22) predominant. At the bivariate level, infection with ST-3672 was associated with younger age (62% of those infected were 15–19 years old, $p=0.002$), and chlamydia co-infection (67% vs 37%, $p=0.012$). In multivariable analysis, age group remained significant, while an interaction between inner-core residency and chlamydia co-infection was detected. Case-contact networks were highly-fragmented, consisting mainly of dyads and triads. Of 85 components, the largest component included 6 nodes, while 61% were dyads. CUG testing indicated in-degree centralization was lower than expected ($p<0.05$). Genotyping combined with case-contact data increased the potential size and geographic reach of each component. Of potential components found after incorporating subtypes, 32% (10/33) were dyadic, with the largest component consisting of 45 nodes.

Conclusion Molecular data revealed connections that were not apparent from case-contact investigations alone, leading to more cases potentially linked together, and over a wider geographic area. A handful of subtypes were responsible for the majority of infections. Early identification of dominant subtypes may potentially curtail transmission of NG.

Disclosure No significant relationships.

P688 RECENT INCREASES IN RATES OF GONORRHEA IN TORONTO, ONTARIO, 2012–2018

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Background In Toronto, gonorrhoea is the second most commonly reported sexually transmitted infection, after chlamydia. From 2000 to 2012, rates of gonorrhoea in Toronto were stable, ranging from 56/100,000 to 72/100,000. However, rates started to rise in 2013. In 2018, rates increased by 37% from 2017, the largest observed annual increase since 2000, reaching a high of 158/100,000. This study aimed to describe gonorrhoea trends in Toronto between 2012 and 2018.

Methods Data for gonorrhoea cases reported between 2012 and 2018 were extracted from the integrated Public Health Information System on January 29 2019. Analyses were conducted in SAS 9.4.

Results In 2018, 4,549 gonorrhoea cases were reported in Toronto, 135% higher than 1,939 cases (71/100,000) reported in 2012. The increase was driven by a rise in reports among males, increasing by 192% while females increased by 24%; males comprised 81% of cases in 2018. Males most commonly reported engaging in sex with men (MSM), and the proportion with this risk factor increased from 55% in 2012 to 69% in 2018. Conversely, the proportion of males reporting sex with women declined from 25% in 2012 to 17% in 2018. Females in 2018 most commonly reported not using a condom (77%) in the last sexual encounter, slightly higher than 2012 (71%). In 2018, 38% of cases (44% of males, 9% of females) had rectum and/or pharyngeal gonorrhoea, higher than 20% of cases in 2017.

Conclusion The rising rates in gonorrhoea, particularly among MSM, may be due to changes in screening guidelines in 2013 that included extragenital screening of gonorrhoea. In April 2018, both rectal and pharyngeal specimens were approved for Nucleic Acid Amplification Testing in Ontario, potentially playing a role in the additional increase in 2018. This study

demonstrates that it is important that physicians continue to screen for extragenital gonorrhoea among MSM.

Disclosure No significant relationships.

P689 TURNING GONORRHEA AGAINST HIV: LATENT HIV 'SHOCK-AND-KILL' USING A GONOCOCCAL-DERIVED METABOLITE

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Background Clinical studies have long indicated that a pathological synergy exists between *Neisseria gonorrhoeae* and HIV, with gonococcal infection increasing HIV transmission between HIV serodiscordant sexual partners. In trying to understand this association, we discovered that *N. gonorrhoeae* liberate a small molecule that stimulates HIV replication from latently infected CD4+ T cells. This led to our discovery that heptose phosphate (HP)-containing metabolites, 7-carbon phospho-sugars not produced by animals, serve as a molecular cue that bacteria are present in the tissues and elicit an NF- κ B-dependent transcriptional response. Based upon these observations, this study aims to test the hypothesis that HP can function both to (i) drive the virus from latency and (ii) stimulate the antiviral response to work in synergy with available highly active antiretroviral therapies to cure HIV infection.

Methods We have used a combination of cell line and primary human leukocyte-based models to test the effect of natural and synthetic analogues of HP to stimulate HIV from latency, both alone and in combination with potential latency reversing agents, and to understand their effect of HPs on different leukocytic populations that have potential to either promote or inhibit HIV infection.

Results We show that HP has a superior combination of HIV latency reversal without toxicity often evident with conventional LRAs, and HP activity synergizes with other LRAs such that these can be administered at lower concentrations. Finally, we observed that HP stimulates primary human leukocytic responses with anti-viral potential.

Conclusion Our findings suggest that HP-based agonists are a novel LRA capable of both driving HIV from latency and stimulating immune responses so as to help control the infection. By virtue of its synergy with other LRAs and clinically available anti-retroviral agents, this represents an enticing new avenue in ongoing efforts to develop a cure for established HIV infection.

Disclosure No significant relationships.

P690 ESTABLISHMENT OF THE GONORRHEA MOUSE MODEL FOR PRE-CLINICAL TESTING OF ANTIBIOTICS THAT FOLLOW THE PK DRIVER FAUC/MIC

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Background New antibiotics for gonorrhoea are needed due to the emergence of resistance to extended-spectrum cephalosporins in *Neisseria gonorrhoeae* (Ng). We recently established the 17 β -estradiol mouse model of gonococcal lower genital tract

infection for testing antibiotics that utilize free time above MIC as the pharmacokinetic (PK) driver to predict efficacy. We further established the mouse model for antibiotic testing by defining the *in vivo* efficacy of ciprofloxacin (CIP), an antibiotic that uses the free area under the curve over MIC (fAUC/MIC).

Methods Lower genital tract infection with Ng strain FA1090 was established in female mice using published methods for two days, after which increasing oral doses of CIP (or controls) were administered (n = 10–20 mice/group) and infection was quantified for 8 days. Plasma drug levels from uninfected mice were measured after administration of similar doses of CIP, and PK parameters (modeled using WinNonlin software) were correlated with observed efficacy.

Results Single oral doses ranging from 5 to 60 mg/kg CIP showed significant activity against strain FA1090, with the highest doses (15, 30, and 60 mg/kg) clearing 100% of infections within 8 days; these correspond to predicted fAUC/MICs of 66–264. The 60 mg/kg dose cleared infection in all mice within 48 h, which we defined previously as the endpoint in the model that best correlates with *in vivo* exposures required for successful CRO/CFX treatment regimens.

Conclusion The gonorrhea mouse model shows a dose-dependent response for CIP against a CIP^S strain with a dose of 60 mg/kg required to clear infection in 48 hrs. PK modeling suggests that achieving exposures necessary for effective treatment of CIP^R strains (mic ≥ 1 $\mu\text{g/ml}$) would be challenging. These data that establish PK/PD correlations for CIP - with a fAUC/MIC driver- further strengthens the usefulness of this mouse model to test novel antimicrobial compounds against gonorrhea.

Disclosure No significant relationships.

P691 WIDESPREAD USE OF HIGH-DOSE CEFTRIAXONE THERAPY FOR UNCOMPLICATED GONORRHEA WITHOUT REPORTED CEFTRIAXONE TREATMENT FAILURE

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Background Antimicrobial resistance (AMR) to *N. gonorrhoeae* has emerged for each of the antibiotics following their introduction into clinical practice recommended as first-line therapies. To improve rational and effective clinical antibiotic treatment, we analyzed the prescription patterns of antibiotics and its therapeutic effect in the treatment of uncomplicated gonorrhea in China.

Methods We obtained data from a follow-up multicenter-surveillance program. Multinomial logistic regression analyses were conducted to explore the associations between demographic/clinical variables with the levels of sensitivity to ceftriaxone and prescription of high-dose ceftriaxone.

Results In this study, 1686 patients infected with *N. gonorrhoeae* were recruited in a surveillance network during the

period of 1 January 2013 through 31 December 2017 in 7 hospitals distributed in 5 provinces. The prevalence of isolates with decreased susceptibility to ceftriaxone was 9.8% (131/1333), fluctuating between 5.6%–12.1%. Injectable ceftriaxone was chosen as the first-line treatment among 83.1% patients, and most of them (72.7%,1018/1401) received more than 1000 mg dosage. Patients who were infected with gonorrhea or infected with other STDs before (AOR 1.611 95%CI [1.103–2.352]; AOR 2.329 95%CI [1.553–3.494]) or who used already antibiotics for this infection (AOR 1.597, 95%CI [1.04–2.452]) were associated with higher prescribed ceftriaxone dosage prescribed. All of the patients recruited in this study were cured regardless of the isolates' susceptibility to ceftriaxone or the dosage of ceftriaxone they received.

Conclusion No ceftriaxone failure treatment for uncomplicated gonorrhoea were reported in China, however, high-dose ceftriaxone were widely used in China, its impacts needs further studies.

Disclosure No significant relationships.

P692 GENTAMICIN SUSCEPTIBILITY TO NEISSERIA GONORRHOEAE IN MALAWI AFTER TWENTY-FIVE YEARS OF SUSTAINED USE

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Background Gentamicin has been used exclusively for the treatment of *Neisseria gonorrhoeae* (GC) in Malawi, since 1993. Previous gentamicin susceptibility testing in 1993, 1996 and 2007, showed $\geq 95\%$ susceptibility by both agar dilution and E-test. However, clinical cure rates 1–2 weeks following treatment, have been in the 90% range. We are in the process of repeating this assessment to inform treatment guidelines.

Methods We are enrolling HIV-infected men presenting with acute urethritis at the sexually transmitted infections (STI) clinic at Bwaila District Hospital in Lilongwe, Malawi. All participants provide urethral swabs for STI etiologic testing, and are treated syndromically per Malawian standard of care, with gentamicin 240 mg IM, doxycycline 100 mg, BID for 7 days, and metronidazole 2g single dose. Patients are seen one week post-treatment for repeat clinical exam and GC culture. All specimens with a positive GC culture are tested locally for gentamicin susceptibility via E-test. E-test inhibition with ranges from 0-4, 4-16, and ≥ 16 are categorized as high, moderate, and low susceptibility, respectively. Clinical cure is determined by genital examination.

Results 42 men with gonococcal urethritis have been enrolled to date. Baseline gentamicin E-test results: high susceptibility: 0-1: 21%; 1-2: 60%; 2-4: 19%; moderate or low susceptibility ≥ 4 : 0%. 37/42 men (88%) returned for follow-up. 4/37 (11%) were culture positive for GC, including 2 (5%) symptomatic men. 3/4 (75%) of the week one E-test results were in the high susceptibility range, and 1/4 (25%) was in the low susceptibility range (≥ 16).

Conclusion Based on our E-test results, all of the baseline GC isolates appear to be susceptible to gentamicin. However, at one-week follow-up, ~11% continued to be infected with GC. Determining if these are treatment failures, re-infections or new infections is a challenge. Laboratory comparisons of matched isolates are planned to help categorize these concerning results. Study enrollment continues.

Disclosure No significant relationships.

P693 NEISSERIA GONORRHOEAE IN-VITRO SUSCEPTIBILITIES TO CEFTRIAXONE, CEFIXIME AND AZITHROMYCIN IN GISP ISOLATES, 1987–2017

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Background *In-vitro* susceptibility distributions to antibiotics can evolve over time because of emerging resistance determinants. This can affect clinical drug efficacy and interpretation of laboratory susceptibility tests. In January 2019, the Clinical Laboratory Standards Institute (CLSI) analyzed *Neisseria gonorrhoeae* (Ng) susceptibility parameters for ceftriaxone (CRO), cefixime (CFX) and azithromycin (AZI) to review interpretive criteria for laboratory tests.

Methods GISP (Gonococcal Isolate Surveillance Project) is a United States national surveillance project at approximately 25 sentinel STD clinics, collecting about 5,000 yearly urethral isolates from symptomatic men. From 1987–2017, minimal inhibitory drug concentrations (MIC) of 164,506 isolates were determined by agar dilution using CLSI-recommended protocols. Susceptibility parameters were calculated with R software, and included mean MIC, 98.5% MIC indicating end of wild-type distribution, and percent isolates meeting 2019 CLSI susceptibility (S) criteria (CRO, CFX, AZI \leq 0.25, 0.25, 1 $\mu\text{g}/\text{mL}$, respectively) or current GISP alert definitions (CRO, CFX, AZI \geq 0.125, 0.25, 2 $\mu\text{g}/\text{mL}$, respectively).

Results Since 1987, only 5 isolates did not meet CRO S criteria. CRO alerts peaked at 1.05% in 1991. Mean MICs were highest in 2016 (0.013 $\mu\text{g}/\text{mL}$; 95% CI: 0.013–0.013), but compared to the mean MIC when GISP began (0.011 $\mu\text{g}/\text{mL}$; 95% CI: 0.010–0.011) the difference was less than a full drug dilution. Isolates not meeting CFX S criteria, 76 since 1987, were at a 0.17% peak in 1992, as were mean MICs. Isolates not meeting AZI S criteria were highest at 3.6% and 4.4% in 2016 and 2017, respectively, as were mean MICs.

Conclusion Ng CRO and CFX *in-vitro* susceptibilities have not uniformly decreased since GISP began, while most indicators suggest declining AZI *in-vitro* susceptibility. CLSI reviewed these data in conjunction with clinical, pharmacokinetic/dynamic and other international susceptibility data and kept steady (CRO, CFX) or established new (AZI) 2019 laboratory testing susceptibility criteria.

Disclosure No significant relationships.

P694 CASE-BASED ENHANCED GONORRHEA SURVEILLANCE, CHICAGO, IL, 2018

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Background In 2017, 11,730 gonorrhea (GC) cases were reported to Chicago Department of Public Health (CDPH), a 33% increase from 2015 (8,786 cases). CDPH conducted enhanced GC surveillance to identify factors that may inform interventions.

Methods A 33% random sample was selected for further investigation from lab-confirmed GC cases reported August - December 2018 (N=3,337), through Illinois National Electronic Disease Surveillance System. Enhanced surveillance data came from: (1) case telephone interviews, (2) provider case reports, and (3) web-based provider survey.

Results From October 2018 - February 2019, enhanced surveillance data was obtained from 459 cases (171 interviews, 399 provider reports; 111 with both), representing 68% of 672 cases with attempted contact, and 14% of all GC cases during the period. Survey respondents were representative of all reported cases: 68% male, median age 27 years, 53% Non-Hispanic Black, 22% Non-Hispanic White, 22% Hispanic. Prior GC infection was documented in 30% of cases, and was more prevalent among males (adjusted prevalence rate ratio [aPRR]= 1.90) and HIV infected persons (aPRR = 1.64). Adolescents and young adults (AYA; aged 13–24 years) comprised 47% of all reported GC cases. Compared to adults, AYA were less likely male (47% vs 80%, $p < 0.01$), reported fewer sex partners, and less likely to have had syphilis testing (34% vs 46%, $p = 0.01$), adequate GC treatment (78% vs 85%, $p = 0.09$; 66% for female AYA), or PrEP awareness (52% vs 74%, $p = 0.02$). Half (54%) of male AYA reported same sex partners. Provider case reports documented Expedited Partner Therapy in 2% of cases and 8% with referral to partner notification.

Conclusion Prior GC infection and HIV co-infection were prevalent, without discriminative factors, indicating innovative measures are needed. AYA differ substantially from adults in risk profile, and may have less complete case management. Age-specific and risk-targeted interventions are needed to optimally manage GC and interrupt transmission.

Disclosure No significant relationships.

P695 EPIDEMIOLOGY OF KEY STIS AMONG FEMALE SEX WORKERS IN THE MIDDLE EAST AND NORTH AFRICA: SYSTEMATIC REVIEW AND META-ANALYTICS

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Background This study characterizes the epidemiology of *Treponema pallidum* (syphilis), *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, and herpes simplex virus

type 2 (HSV-2) among female sex workers (FSWs) in the Middle East and North Africa (MENA), a neglected research area.

Methods Literature was systematically reviewed, with findings reported following PRISMA guidelines. Pooled prevalences of current and/or lifetime infection for each STI were estimated using random-effects meta-analyses. Sources of between-study heterogeneity were determined through meta-regressions.

Results One *T. pallidum* incidence study and 144 STI prevalence studies were identified for 45,812 FSWs in 13 MENA countries. Pooled prevalence of current infection was 12.7% (95% confidence interval-CI: 8.5–17.7%) for *T. pallidum*, 14.4% (95% CI: 8.2–22.0%) for *C. trachomatis*, 5.7% (95% CI: 3.5–8.4%) for *N. gonorrhoeae*, and 7.1% (95% CI: 4.3–10.5%) for *T. vaginalis*. Pooled prevalence of lifetime infection was 12.8% (95% CI: 9.4–16.6%) for *T. pallidum*, 80.3% (95% CI: 53.2–97.6%) for *C. trachomatis*, and 23.7% (95% CI: 10.2–40.4%) for HSV-2. The multi-variable meta-regression for *T. pallidum* prevalence demonstrated strong subregional differences, with the Horn of Africa and North Africa showing, respectively, six-fold (adjusted odds ratio (AOR): 6.4; 95% CI: 2.5–16.8) and five-fold (AOR: 5.0; 95% CI: 2.4–10.6) higher odds for prevalence than Eastern MENA. There was also strong evidence for a declining *T. pallidum* prevalence at a rate of 7% per year (AOR: 0.93; 95% CI: 0.88–0.98). Study-specific factors including diagnostic method, sample size, sampling methodology, and response rate, were not associated with syphilis prevalence.

Conclusion STI infection levels among FSWs in MENA are considerable, supporting a key role for commercial heterosexual sex networks in transmission dynamics, and highlighting the health needs of this neglected and vulnerable population. Syphilis prevalence in FSWs appears to be declining for at least three decades. Gaps in evidence persist for multiple countries.

Disclosure No significant relationships.

P696 HIV AMONG FEMALE SEX WORKERS AND CLIENTS IN THE MIDDLE EAST AND NORTH AFRICA: SUBREGIONAL DIFFERENCES AND EPIDEMIC POTENTIAL

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Background This study addresses the gap in our understanding of HIV epidemiology among female sex workers (FSWs) and clients in the Middle East and North Africa (MENA) region.

Methods An exhaustive systematic review of population-size estimation and of HIV prevalence studies was conducted. Findings were reported following PRISMA guidelines. The pooled mean HIV prevalence was estimated using random-effects meta-analyses. Associations with prevalence, sources of heterogeneity, and temporal trends were investigated using meta-regressions.

Results We identified 270 size-estimation studies in FSWs and 42 in clients, as well as 485 HIV prevalence studies on

287,719 FSWs, and 69 on 29,531 clients/proxy populations (male sexually transmitted infections clinic attendees). The median proportion of reproductive-age women reporting current/recent sex work was 0.7% (range=0.2–2.4%), and of men reporting currently/recently buying sex was 5.7% (range=0.3–13.8%). HIV prevalence ranged from 0–70% in FSWs (median=0.1%), and 0–34.6% in clients (median=0.4%). The regional pooled mean HIV prevalence was 1.4% (95% CI=1.1–1.8%) in FSWs and 0.4% (95% CI=0.1–0.7%) in clients. Country-specific pooled HIV prevalence in FSWs was <1% in most countries, 1–5% in North Africa and Somalia, 17.3% in South Sudan, and 17.9% in Djibouti. Meta-regressions identified strong subregional variations in prevalence, where compared to Eastern MENA, the adjusted odds ratios (AORs) ranged from 0.2 (95% CI=0.1–0.4) in Fertile Crescent to 46.3 (95% CI=25.9–82.6) in Horn of Africa. There was also strong evidence for increasing prevalence post-2003, at a rate of 14% per year (AOR=1.14, 95% CI=1.08–1.20).

Conclusion HIV epidemics among FSWs are emerging in MENA, with some already in an established phase, though still some countries have limited epidemic dynamics. The epidemic has been growing for over a decade, with strong regionalization and heterogeneity.

Disclosure No significant relationships.

P697 FEASIBILITY OF HPV SELF-COLLECTION FOR CERVIX SCREENING IN UNDER-SCREENED STREET ENTRENCHED WOMEN

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Background HPV self-collection is a promising approach to improve uptake of cervical screening in under-screened women. The aim of this feasibility study was to measure uptake of HPV self-collection, HPV positivity, and screening history of street entrenched women in a rural region centre.

Methods Women 30–69 years of age, attending drop-in community-based primary care and integrative reproductive health clinics in Northern British Columbia (BC), Canada and self-reported not having received cervix screening in the last 3 years, were offered self-collection for HPV testing. A convenience sample of all comers was administered a questionnaire and underwent a medical chart review, including the provincial cervix screening registry. Demographics, HIV status, and cervix screening history were collected. All women who tested HPV16/18 positive were referred for colposcopy.

Results A total of 66 eligible women were analyzed (mean age 43.3 years), with population saturation reached after 3 months recruitment. An additional 11 women were deemed ineligible due to age or prior hysterectomy. 83% self-reported as Indigenous. Based on the provincial cervix screening registry, 48% of women were up-to-date on cervix screening based on

triennial screening guidelines. All women undertook self-collection and the majority of women reported high perceived acceptability, safety, and accuracy of HPV self-collection. HPV 16/18 positivity was 7.6%, with 40% co-infected with HIV. Overall HIV prevalence was 16.4%, however, over 25% of women had unknown HIV status based on medical chart review.

Conclusion HPV self-collection was highly acceptable as part of community-based integrative reproductive health services. Despite being a traditionally underserved population, and women self-reporting being overdue for screening, over half the women were up to date on cervix screening, albeit regular screening was lacking for many. The findings from this feasibility study will inform future implementation of HPV self-collection to improve and maintain regular cervix screening services in street entrenched women.

Disclosure No significant relationships.

P698 **COMPREHENSIVE HEALTHCARE INTERVENTION FOR FEMALE SEX WORKERS IN ETHIOPIAN STI CLINICS: EXPERIENCE FROM MEKELLE UNIVERSITY**

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Background Evidence suggests that the presence of untreated sexually transmitted infections (STIs) increases the chance of HIV transmission during unprotected sex. In the Ethiopian context, many female sex workers live in poor conditions in rented slums and are not typically known or recognised by local authorities, making them unable to access health facilities.

Methods Data were obtained from a register of female sex workers recorded for purpose of service provision at confidential STI clinics in Mekelle and Adigrat, Ethiopia, from May 2010 to August 2015 and from May 2011 to August 2015, respectively. A simple descriptive analysis of services delivered to patients was performed.

Results Among the 6288 patients included in this study, the prevalence of STIs was 23.4%. Of these, 12.9% (814/6288) of patients presented with vaginal discharge, 7.9% (490/6288) with genital ulcers and 2.3% (158/6288) with lower abdominal pain (as per the WHO syndromic approach to STIs). Moreover, 180 cases of genital ulcer were tested for syphilis with the VDRL test; 36 (20%) tested positive for active infection. The HIV prevalence declined from 10% in 2010 to 1.1% in 2015. The frequency of STIs amongst repeat patients was considerably lower than that in new presentations.

Conclusions HIV prevalence declined from 10% in 2010 to 1.1% in 2015. Compared to new cases, the frequency of STIs among repeat clients was extremely low, suggesting that the cumulative effect of peer promotion and preventative sexual health education is effective in reducing the rates of STIs among vulnerable populations. Clinic and workplace geography, hours of clinic operation, confidentiality and peer outreach are important factors in the prevention and control of STI/HIV infection in key sex worker populations. A comprehensive clinic intervention enhances early diagnosis and treatment of STIs and increases the proportion of sex workers accessing HIV treatment services.

Disclosure No significant relationships.

P699 **ROLE OF MANAGEMENT IN ENHANCING EFFICIENCY OF FEMALE SEX WORKERS HIV PROGRAMS IN NIGERIA**

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Background HIV is high among female sex workers (FSW). Community-based organizations (CBOs) staff and volunteers, deliver HIV services to FSWs. One overlooked avenue for enhancing efficiency in delivery of services is good personnel management. This study was done to understand challenges faced by CBO staff during service delivery and management practices hindering their output.

Methods Qualitative methods were used in this study. Staffs and volunteers from 9 CBOs in three states, Abuja, Lagos and Nasarawa participated in the study. States were selected using convenience sampling. Journals were distributed to CBO staff to document their daily challenges for 3–6 weeks. After 6 weeks, we collected 23 journals, read entries and conducted 6 non-participant observations and 31 key informant interviews. Information from the completed journals, interviews and observations, were grouped into themes to reveal insights. Using these insights, we conducted brainstorming sessions with CBOs to generate problem-solving ideas. The most relevant ideas were tested in focus groups.

Results The study revealed that CBOs provide HIV services as agreed with donors. They did not solicit and implement feedback from volunteers. Instituting feedback mechanisms will make CBO personnel feel relevant and serve as an avenue for harvesting solutions to challenges in service delivery. The study showed that FSW peer session schedules change constantly and volunteers find it difficult to communicate changes to CBO staff resulting in poor supervision. Poor supervision affects the quality of services volunteers provide. Therefore ensuring communication within CBO personnel, will improve coordination of activities and quality of HIV services delivered. Finally, while CBOs have systems in place to reward performance, these systems were underutilized and not incentivized. If reward systems for best practices are rejuvenated, it will motivate personnel.

Conclusion Good personnel management can enhance FSW HIV programs. Feedback mechanisms, communication and reward systems are tools that will ensure efficient delivery HIV prevention services.

Disclosure No significant relationships.

P700 **UNINTENDED PREGNANCY AMONG FEMALE SEX WORKERS IN MEKELLE CITY, NORTHERN ETHIOPIA: A CROSS-SECTIONAL STUDY**

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Background Unintended pregnancy is a significant public health concern in the world. Particularly, female sex workers are exposed to the risk of unintended pregnancy, abortion and

their consequences. This study assessed unintended pregnancy and its associated factors among female sex workers in Northern Ethiopia.

Methods A community based cross-sectional study was conducted among 346 female sex workers at five localities of Mekelle city from March to April, 2014. Sex workers were selected with simple random sampling technique using sampling frame obtained from urban health extension program. Epi-data version 3.1 was used to enter data and analysis was done using SPSS version 20. Bivariate and multivariate logistic regressions were performed to identify factors associated with unintended pregnancy using odds ratio and 95% confidence interval with P-value of 0.05.

Results The magnitude of unintended pregnancy among female sex workers was 28.6%. During this period, 59 women had abortion which represents three-fifths, (59.6%) of those with unintended pregnancy. Female sex workers who had history of abortion formerly had 15.6 (AOR = 15.64 95% CI: [8.03, 30.47]) times higher odds of unintended pregnancy compared to their counterparts. Sex workers who had steady partners had 2.9 (AOR = 2.87, 95% CI: [1.47, 5.61]) times higher odds of have unintended pregnancy than those who hadn't. Drug users had 2.7 (AOR = 2.68, 95% CI: [1.30, 5.52]) times higher odds of unintended pregnancy than those who hadn't use. Sex workers who had longer duration in sex work were 67% less likely to have unintended pregnancy than those with <12 months (AOR = 0.33, 95% CI: [0.11, 0.95]).

Conclusion High level of unintended pregnancy and a range of associated factors were identified among sex workers. Improving utilization of effective pregnancy prevention methods in a consistent manner can avert the existing high level of unintended pregnancy among female sex workers.

Disclosure No significant relationships.

P701 TIME TRENDS IN PREVALENCE AND INCIDENCE OF HIV, GONORRHEA AND CHLAMYDIA AMONG FEMALE SEX WORKERS IN BENIN, 2008–2018

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Background The conduction of 3 cohort studies among professional female sex workers (FSWs), e.g. women whose main source of revenue is sex work, since 2008 in Benin allowed the estimation of time trends in HIV, gonorrhoea and chlamydia prevalence and incidence in this key population over the last decade.

Methods The 3 cohort studies were conducted from 09/2008–03/2012, 10/2014–12/2016 and 04/2017–09/2018, respectively. Women were recruited at the Dispensaire IST, a FSW-dedicated clinic, after providing informed consent. Follow-up was quarterly in the first 2 studies and bi-annual in the latest one. FSWs were tested for HIV (rapid test with confirmatory assay according to Benin guidelines), gonorrhoea and chlamydia (BD ProbeTec™ CT/NG, Becton Dickinson Inc.) at baseline and at each follow-up for HIV and semi-annually for gonorrhoea and chlamydia. Questionnaires were administered.

Results In all studies, median age was 32–33 years and the proportion of women not born in Benin 50–60%. HIV [gonorrhoea (chlamydia)] prevalence was 37.1% [4.3% (3.5%)] in 2008 (n=396), 29.1% [9.7% (4.8%)] in 2014 (n=361) and 26.0% [13.8% (7.4%)] in 2017 (n=312). There was a significant downward (upward) trend in HIV (gonorrhoea and chlamydia) prevalence: $p < 0.001$ ($p < 0.001$ and $p = 0.03$). Among respectively 319, 299 and 213 women with follow-up, gonorrhoea (chlamydia) incidence was 8.9 (2.1), 9.0 (4.6) and 14.8 (5.8) per 100 person-years; $p = 0.07$ ($p = 0.003$). HIV incidence was 1.4, 0.8 and 0.7 per 100 person-years in 2008–12, 2014–16 and 2017–18, respectively ($p = 0.41$).

Conclusion HIV prevalence is decreasing, but still high, whereas HIV incidence is low in this highly mobile key population. This combination of high prevalence and low incidence is likely due to HIV treatment scale-up over the last decade, including the adoption of an HIV “test and treat” strategy since 2016 in Benin. However, the increase in both gonorrhoea and chlamydia is worrying and calls for renewed control strategies for these curable infections.

Disclosure No significant relationships.

P702 CHARACTERIZING HIV-ASSOCIATED VULNERABILITIES AMONG WOMEN ENGAGED IN TRANSACTIONAL SEX TO DESIGN PROGRAMS IN UKRAINE

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Background Evidence suggests a range of HIV-associated vulnerabilities associated with the exchange of sex for money or other material goods, but most research and programs in Ukraine focus on formal sex work. We sought to describe the prevalence of HIV and HIV-associated vulnerabilities among adolescent girls and young women engaged in transactional sex outside of formal sex work.

Methods We conducted a cross-sectional bio-behavioral study in Dnipro, Ukraine in 2016 of young women (14–24 years). 469 participants were recruited who reported transactional sex but not sex work, from places where female sex workers solicit clients. Transaction sex was defined as a sexual engagement with the expectation of receiving, gifts or other resources in return, when the price of sex is often not negotiated upfront and is implicitly understood.

Results Mean age of participants was 21.2 years. The mean age among participants at first sex was 16.0 years (range 12–21). At first sex 34% (160) received gifts or money, and 7% (34) reported forced first sex. During the past week, 81% (378) had sex with a regular transactional partner, with whom 35% (132) had condomless sex. In the past month, 29% (137) had sex while inebriated with regular transactional partners, and 64% (299) did not use/remember whether a

condom was used during last sex act with them. 49% (231) reported also having non-transactional intimate partners, with whom 46% (107) reported condomless sex in the last week. 56% (262) never had an HIV test and 87% (408) were unaware of HIV prevention programs in Dnipro. HIV prevalence was 1.7% (8).

Conclusion The high prevalence of HIV-associated vulnerabilities, low testing rates, and high HIV prevalence highlight the importance of designing HIV prevention programs to reach young women engaging in transactional sex.

Disclosure No significant relationships.

P703 PREGNANCY INTENTION AND PREVALENCE ACCORDING TO HIV STATUS AMONG FEMALE SEX WORKERS IN MALI

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Background Women living in Sub-Saharan Africa have the world's highest rates of new HIV infections and unintended pregnancies. These two risks are magnified in the female sex worker's (FSW) population where HIV prevalence is 12 times higher than in the general population. Yet, no information is available concerning FSW's pregnancy intentions, which could help prevent HIV mother-to-child transmission and unintended pregnancies. This study investigated whether pregnancy intention and pregnancy prevalence varied according to FSWs' HIV status. We hypothesized that FSWs living with HIV (FSWLHIV) were less likely to intent carrying a pregnancy and to be pregnant.

Methods We analysed baseline data from a prospective observational cohort study. Three hundreds and twenty-five FSWs were recruited in Bamako, Mali (November 2017 - February 2018). Participants completed a questionnaire. We assessed pregnancy frequencies among women according to HIV status and compared those using chi-square. Age-adjusted odds ratios were estimated using logistic regression.

Results Mean age was 25 years (N=303), 20.8% of the participants were HIV positive and 16.2% had the intention of becoming pregnant during the next six months. The proportion of FSWs reporting having been pregnant prior to entering in sex work were 72.1% (44/61) for the FSWLHIV and 60.8% (142/240) the other FSWs (p-value=0.2452). The occurrence of pregnancies since engagement in sex work was reported much less often (FSWLHIV = 36.1% and others = 28.8%) with still no significant difference between the two groups (p-value=0.3494). FSWLHIV reported more frequently to have wanted a pregnancy in the last 6 months compared to other FSWs (aOR = 2.57, 95%CI: [1.3, 2.2]).

Conclusion With FSWLHIV being more likely to desire children during sex work practice, while less than half of them currently receive ART, a specific attention should be given to support them in that decision in order to prevent mother-to-child transmission.

Disclosure No significant relationships.

P705 BACTERIAL SEXUALLY TRANSMITTED INFECTIONS AMONG WOMEN WHO INJECT DRUGS AND EXCHANGE SEX IN KING COUNTY, WASHINGTON

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Background Women who inject drugs are at elevated risk for many adverse health outcomes, including sexually transmitted infections (STIs). Exchange sex is prevalent in this population, but its independent effect on STIs is unclear.

Methods We included data regarding the past year from cis-gender women age <60 who reported injecting drugs and participated in the 2015 or 2016 cycles of the National HIV Behavioral Surveillance (NHBS) survey in Seattle (N=377). Using a log-binomial regression model, we estimated the odds of self-reported bacterial STI (gonorrhoea, syphilis, or chlamydia) among women who inject drugs associated with exchanging sex for money or drugs. We adjusted for sociodemographic characteristics, condom use, and substance use behaviors. We hypothesized that engaging in exchange sex would be independently associated with increased odds of STI.

Results The period prevalence of bacterial STI in the past 12 months was 8.1% in the full sample. On univariate analysis, STI prevalence was significantly higher among women who reported exchange sex than among those who did not (10.8% vs 4.0%; p=0.02) as was STI testing (53.4% vs 34.0%; p<0.01). Women who exchanged sex were less likely to report condomless vaginal or anal sex at last intercourse (84.4% vs 89.1%; p=0.19). Women who exchanged sex were more likely to use non-injection crack (59.1% vs 38.8%; p<0.01) and were more likely to report heavy alcohol use (31.3% vs 19.7%; p=0.01). After adjusting for sociodemographic variables, condom use, and substance use; the association between exchange sex and STI remained statistically significant (adjusted odds ratio=2.7; 95% confidence interval: 1.1–7.2).

Conclusion In this sample of Seattle area women who inject drugs, exchanging sex for drugs or money was associated with double the odds of STI which could be a result of more frequent STI testing. Healthcare providers should prioritize making testing and treatment accessible and appropriate for women who exchange sex.

Disclosure No significant relationships.

P706 LOW GONORRHEA AND CHLAMYDIA TESTING RATE AMONG FEMALE SEX WORKERS IN GUANGDONG PROVINCE: A CROSS-SECTIONAL ANALYSIS

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Background Female sex workers (FSW) are at high risk of gonorrhoea and chlamydia infection. However, gonorrhoea and chlamydia testing rate remain low in this population. This study aimed to assess the gonorrhoea and chlamydia testing

rates and its associated factors among FSW in Guangdong, China.

Methods A cross-sectional study was conducted in seven cities in Guangdong province. We collected data on socio-demographic characteristics, gonorrhoea and chlamydia testing uptake and health care services utilization from participants through face-to-face interview in 2017. We reported the outcomes adjusted for age, ethnic, education level, marital status, monthly income and local working time through multivariable logistic regressions.

Results Overall, 1207 people participated in the survey. The mean age of FSW was 30.69 ± 6.75 years. The average number of customers per week was 8.18 ± 5.43 . Ninety (7.46%) of them had gonorrhoea testing and 125 (10.36%) people had chlamydia testing in the last 12 months. Multivariable analysis indicated that FSW who reported having abnormal vaginal discharge (aOR=3.33, 95%CI: 2.03–5.46) or having ulcers in the genital area (aOR=6.16, 95%CI: 1.99–19.06) in the past year were more likely to have gonorrhoea testing. Those who had stable partners (aOR=2.59, 95%CI: 1.35–4.99), had anal sex (aOR=2.23, 95%CI: 1.76–2.84), had HIV testing (aOR=3.94, 95%CI: 2.34–6.65) and syphilis testing (aOR=3.27, 95%CI: 1.96–5.46) were also more likely to have gonorrhoea testing. Similar as gonorrhoea testing, participants who had abnormal vaginal discharge in the past year (aOR=4.09, 95%CI: 2.62–6.40), had ulcers in the genital (aOR=10.37, 95%CI: 3.23–33.31), had anal sex (aOR=2.36, 95%CI: 1.54–3.60), had HIV testing (aOR=5.16, 95%CI: 3.21–8.30) and syphilis testing (aOR=6.90, 95%CI: 4.21–11.32) were more likely to have chlamydia testing.

Conclusion Gonorrhoea and chlamydia testing rates remain low among FSW in China. Interventions that can further improve the uptake of gonorrhoea and chlamydia are further needed. Providing gonorrhoea and chlamydia testing at syphilis/HIV testing sites and among asymptomatic FSW may increase testing rate.

Disclosure No significant relationships.

P707 UNDERSTANDING THE CORRELATES OF STI-HIV CO-INFECTIONS AMONG FEMALE SEX WORKERS IN KITUI

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Background Genital infections such as Sexually Transmitted Infections (STI) increases the chances of acquiring and transmitting HIV. Kenya AIDS Indicator Survey showed that STI like syphilis was 2.5 times more common among people living with HIV. There is need to understand and respond to such co infections in a HIV prevention

Methods An analysis of cohort data of 1513 Female Sex Workers (FSW) enrolled and receiving HIV services in the KP clinic managed by Hope Word Wide, Kenya in Kitui County was conducted. Cohort data for the period of October 2017 to September 2018 was used and analysed for the STI and HIV screening and diagnosis. The analysis also segregated the

analysis by age, above 24 years and below 24 years. Odds Ratio was calculated to measure the association.

Results Out of 1513 FSWs, 1391(92%) received HIV testing services at least once in the year while 1448 (96%) were screened for STI in the same period. A total of 130 (9%) and 29 (2%) FSWs received STI and HIV positive results respectively for the period. The Odds Ratio suggest that those FSWs who have STI had 1.2 times higher chances of being HIV positive. When desegregated by age, FSWs below 24 years with an STI had 2.1 times higher chances.

Conclusion There exists correlation between HIV and STI among Female Sex Workers in Kitui specially among those below 24 years. The intervention needs to screen, diagnose and treat STI among FSWs more aggressively as a response to HIV prevention.

Disclosure No significant relationships.

P708 WOMEN'S ENCOUNTERS WITH VENUE-BASED HIV RISK CONTEXTS IN ABUJA, NIGERIA

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10.1136/sextrans-2019-sti.773

Background Venues where people meet sexual partners are understood to be important locations where HIV transmission risk plays out and represent potential intervention points. Women involved in sex work and those seeking casual partners spend time in the same venues, forming sexual partnerships with some of the same people and experiencing the same risks. This study provides a characterization of key venues where women meet new sexual partners in Abuja, Nigeria, and describes the sexual behaviours, sexual networking patterns, and challenges experienced by women in these venues.

Methods Key informant interviews were used to characterize 836 venues where people congregate for social activities in Abuja, Nigeria, in terms of number of patrons, busy times, and availability of harm reduction supplies. A questionnaire capturing demographics, behaviours, health, and experiences of violence was administered to 892 women who participate in sex work or casual sex at a random sample of 105 of the profiled venues. Descriptive analysis was conducted with stratification by type of venue.

Results A diverse set of venues were identified, with bars/nightclubs identified as having the highest volume of patrons. Most of the women indicated meeting partners at bars/nightclubs as well as hotels/lodges. Half of the women had experienced a miscarriage or abortion and perceived themselves to be at great risk of HIV infection. Eighteen percent had experienced condom breakage in the previous week, 15% had ever been arrested, and 8% had been beaten in the past year.

Conclusion A diverse set of women intermingle at different venues and have a diverse set of needs, including reproductive health, violence reduction, and infectious disease prevention. By re-orienting HIV programs towards venues where sexual partnerships form instead of towards specific key populations who are often blamed for transmission, the broader needs of

a larger group of individuals who attend these venues may be addressed.

Disclosure No significant relationships.

P709 **ABNORMAL CERVICAL SCREENING TEST AND SEXUALLY TRANSMITTED INFECTIONS IN WEST AFRICA'S FEMALE SEX WORKERS**

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10.1136/sextrans-2019-sti.774

Background Cervical cancer is the most common cancer in women in Sub-Saharan Africa. The situation is worst among female sex workers (FSW), a population with poor access to quality reproductive health services. This study aimed to: (1) estimate the prevalence of abnormal cervical screening test (ACST) and (2) assess the association between ACST and sexually transmitted infections (STIs)/lower genital tract infections (LGTIs) among FSW in Cotonou (Benin) and Bamako (Mali).

Methods We conducted a cross-sectional study among non-pregnant FSW aged 18 to 64 years from April 2017 to February 2018. We used a peer recruitment sampling strategy in two West African cities. Visual inspection with acetic acid (5%) and with Lugol's iodine (VIA/VIL) were performed to screen for cervical cancer. Women were also screened for STIs/LGTIs, specifically those with *Trichomonas vaginalis* (TV), *Candida albicans* (CA), *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG) and bacterial vaginosis (BV). ACST prevalence was computed and its association with STIs/LGTIs was assessed using multivariate logistic regression.

Results ACST prevalence was 20.2% among 312 FSW in Benin Vs. 10.5% among 353 FSW in Mali. Of these, 91.2% never had cervical screening. Mean age at sexual debut was 16.3 ± 3.0 years. The overall STIs/LGTIs prevalence rates were: TV, 2.7%; CT, 10.9%; NG, 19.4%; HIV, 23.0%; CA, 7.4% and BV, 37.1%. CA was the only infection associated with ACST (aOR = 4.03; 95%CI: 1.77–9.17). Also, there was a statistical association between a coinfection by CA-TV and ACST (aOR = 3.21; 95%CI: 1.47–7.01). Finally, age at sexual debut < 10 years old was significantly associated with ACST (aOR = 6.10; 95%CI: 1.19–31.21).

Conclusion The prevalence of ACST and STIs/LGTIs was very high; there is an obvious need to improve the diagnostic capability and the clinical management of these conditions among FSW of Sub-Saharan Africa.

Disclosure No significant relationships.

P710 **EPIDEMIOLOGY OF ABNORMAL CERVICAL CYTOLOGY IN FEMALE SEX WORKERS IN MALI, WEST AFRICA**

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Background To our knowledge, no previous study has been carried out about cervical cancer in female sex workers (FSW) in Mali. The objective of this work was to estimate the prevalence and risk factors of cervical precancerous lesions among FSW in Mali.

Methods We carried out a cross-sectional study from November 2017 to February 2018 in Mali. Screening for cervical cancer was performed with Papanicolaou test. HIV and syphilis serology, direct examination of vaginal smears for vaginitis and bacterial vaginosis and nucleic acid amplification tests for gonorrhoea and chlamydia were also carried out. We calculated the prevalence rates. Risk factors of low grade squamous intraepithelial lesions (LSIL), and high grade squamous intraepithelial lesion (HSIL) were identified using polytomous logistic regression. Adjusted odd ratios (aOR) with 95% confidence intervals (95%CI) were estimated.

Results Among the 353 women enrolled in the study, 20.4% were HIV seropositive, whereas 53.8% had at least one of other sexually transmitted infections (STIs), including trichomoniasis at 3.7%; chlamydia, 14.0%; gonorrhoea, 24.4%, syphilis, 3.1% and bacterial vaginosis (Nugent score ≥ 7), 23.5%. The mean age at first sexual intercourse was 15.3 ± 2.9 years. Fifty-eight women had abnormal cytology/histology (17.4%; 95% CI: 13.3–21.4%) and only 8.8% of FSW had at least one cervical screening test in the past year. Among all participants, 2.7% presented atypical glandular cells of undetermined significance (AGUS), 11.3% with LSIL, and 3.3% with HSIL. Risk factors of LSIL were HIV infection (aOR = 1.53; 95%CI: 1.02–2.30) and age at sexual debut < 10 years (aOR = 4.52; 95%CI: 1.11–18.45). Factors associated with HSIL were self-reported previous STIs (aOR = 4.92; 95%CI: 1.15–21.09) and current syphilis (aOR = 8.12; 95%CI: 1.86–35.39).

Conclusion Low and high grades cervical squamous intraepithelial lesions have different risk factors profile in Malian FSWs.

Disclosure No significant relationships.

P712 **"YOU NEED A CASH BUFFER": MALE SEX WORK AND CONDOM USE IN THE ERA OF HIV PRE-EXPOSURE PROPHYLAXIS**

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Background HIV pre-exposure prophylaxis (PrEP) has reshaped condom use practices in many contexts, but little is known about its impact on commercial sex encounters between men. This study investigated condom use in Australian male sex work.

Methods During 2017–2018, we undertook a mixed-method ethnographic study of male sex work in Australia, working with male sex workers (n=32) and clients of sex work (n=3) to collect online sex work profile data and conduct individual and group interviews. These data were analyzed topically with a focus on condom use.

Results In November 2018, online data were scraped from 236 male sex work profiles: 2.1% expressed an explicit requirement for condom use, down from 14.2% in June 2017

($p < 0.001$). In the interim, PrEP was widely implemented across Australia. Using interview data, we generated two themes describing condom use. Some sex workers and all of the clients we interviewed strictly refused to engage in condomless commercial sex. This strictness, however, extended only to anal sex (several participants laughed at using condoms for oral sex) and commercial encounters (many men were willing to forgo condoms for personal sex). Most male sex workers, however, were highly pragmatic about condoms. They described assessing the commercial risks-benefits of condoms, and while men were aware that condomless sex put them at risk for STIs other than HIV, they balanced that risk against increased earning potential: sex workers consistently reported charging more for condomless sex. This approach was characterized as a 'cash buffer' to compensate for the risk of being unable to work following a STI diagnosis.

Conclusion Although condom use has shifted dramatically among male sex work communities in Australia, to some they remain an important safer sex strategy. HIV PrEP and market forces have increased STI risk among male sex workers, making them ideal candidates for STI antibiotic prophylaxis.

Disclosure No significant relationships.

P713 HIGH PREVALENCE OF CONDOMLESS ANAL INTERCOURSE AMONG FEMALE SEX WORKERS IN IRAN

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Background Condomless sex and particularly anal intercourse (AI) with partners and clients are among the primary drivers of the HIV epidemic among female sex workers (FSW) in Iran. However, little is known about AI prevalence and its correlates among FSW in Iran.

Methods Data were obtained from a bio-behavioral surveillance survey of 1347 FSW conducted across 13 major cities in Iran in 2015. FSW were eligible if they (i) were ≥ 18 years of age, (ii) reported penetrative sex with more than one client in the previous year. Data were collected through one-on-one interviews using a standardized risk assessment questionnaire. A modified Poisson regression model was used to examine the correlates of recent (i.e., past-month) HAS and adjusted prevalence ratio (APR) and 95% confidence intervals (CI) were reported (analytic sample: 1337).

Results Recent AI was reported by 18.5% (95% CI: 13.0, 25.6) of the participants; of whom, 196 (80%) reported inconsistent condom use during their AIs in the previous month. Recent AI was positively associated with younger (≤ 18) age (APR: 1.24; 95% CI: 1.06–1.59), history of group sex in the previous month (APR: 1.62; 95% CI: 1.08–2.44), higher number of clients in the previous month (APR: 2.35; 95% CI: 1.38–4.00), and weekly use of alcohol (APR: 1.62; 95% CI: 1.12–2.34). Conversely, recent AI was negatively associated with being married (APR: 0.52; 95% CI: 0.34–0.80) and having had protected sex with their last client (APR: 0.73; 95% CI: 0.54–0.97).

Conclusion About one in five FSW reported engaging in recent AI; most of which were condomless. AI was more frequent among younger FSW and those with higher number of clients and problematic Alcohol use. Harm reduction and condom promotion efforts in Iran should include effective packages to address high prevalence of unsafe AI and re-emphasize the importance of condom use for both FSW and their partners/clients.

Disclosure No significant relationships.

P714 HIV TESTING AND UNDIAGNOSED FRACTION AMONG ADOLESCENT GIRLS AND YOUNG WOMEN BY ENGAGEMENT IN SEX WORK IN MOMBASA, KENYA

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Background Traditional HIV prevention and testing services are generally designed to either reach female sex workers or to reach adolescent girls and young women (AGYW), but not both. We sought to compare the levels and determinants of HIV testing, and the prevalence of undiagnosed HIV across subsets of AGYW in Kenya.

Methods We used data from *Transitions*, a 2015 cross-sectional survey of 1,299 women age 14–24 years who frequented hot-spots associated with formal sex work in Mombasa, Kenya. We compared the prevalence and frequency of recent HIV testing in the previous year between AGYW involved in sex work (YSW, N=408) versus those who did not sell sex (NSW, N=891), and excluding those diagnosed with HIV ≥ 1 year before the survey. We used logistic regression model to identify univariate determinants of recent testing in each group. We then compared the prevalence of undiagnosed HIV among YSW and NSW living with HIV.

Results Overall, 72% reported a recent HIV test: 85% YSW and 65% NSW ($p < 0.01$), of whom, 42% of YSW and 27% of NSW tested at least twice in the previous year ($p < 0.01$). Shared determinants of recent HIV testing by subgroup included: older age (Odds Ratios [95% Confidence Intervals] for SW: 2.8 [1.6–5.0]; NSW: 2.3 [1.7–3.0]), ever contacted by peers/staff from a non-governmental/community-based organization (5.3 [1.6–32.8]; 1.9 [1.1–3.8]), prior pregnancy (1.8 [1.1–3.2]; 2.6 [1.8–3.6]), and recent STI treatment (6.2 [2.2–25.9]; 1.9 [1.3–3.0]). N=37/365 (10%) of YSW and N=30/828 (4%) NSW were living with HIV, of whom only 27% (N=10/37), and 30% (N=9/30) were diagnosed and aware ($p = 0.79$ subgroup comparison).

Conclusion Shared determinants of testing suggest that reaching across high-risk AGYW via hotspot based strategies could fill gaps left by traditional HIV prevention and testing services.

Disclosure No significant relationships.

P715 **VIOLENCE AND ASSOCIATED FACTORS AMONG FEMALE SEX WORKERS: ANALYSIS FROM A CROSS-SECTIONAL STUDY IN GUANGDONG, CHINA**

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Background Female sex workers (FSWs) are vulnerable to sexual, physical or verbal violence in and outside their workplaces. This study aimed to assess the violence that FSWs experienced and its associated factors from a cross-sectional study in Guangdong Province, China.

Methods A cross-sectional study was conducted in seven cities in Guangdong province in 2017. Venue-based sampling method was used to recruit FSWs who were ≥ 16 years old and worked in mid- and low-end entertainment venues. Data were collected on socio-demographics, sexual behavioral characteristics, as well as types and sources of violence that FSWs had experienced through face-to-face survey. Descriptive analyses and multivariate logistic regression were conducted to assess the prevalence of different types and sources of violence and their associated factors.

Results In total, 1207 FSWs participated in the study with a mean age of 30.7 ± 6.7 years old. 108/1207 (8.9%) women reported having experienced violence by clients or regular partners. Clients were most commonly reported as perpetrators of physical violence (94.4%, 34/36) and sexual abuse (100%, 2/2). FSWs who reported sexually transmitted infection (STI) symptoms in the past 12 months (aOR = 36.8, 95%CI: 14.2–95.9), having regular partners (aOR = 27.1, 95% CI: 8.8–83.1), having oral sex (aOR = 16.7, 95%CI: 8.9–31.3) and having anal sex with clients (aOR = 78.7, 95%CI: 37.8–163.9) were more likely to experience any type of violence from clients during sex work. Having STI symptoms in the past 12 months (aOR = 70.0, 95%CI: 14.9–328.5), oral sex (aOR = 18.5, 95%CI: 8.3–41.5) and anal sex (aOR = 74.7, 95% CI: 30.6–182.3) with clients were also associated with experiencing violence from regular partners.

Conclusion FSWs suffered violence mostly from clients. FSWs who had STI symptoms in the past 12 months, oral or/and anal sex with clients are the most vulnerable to violence. Interventions should address FSWs' sexual health risks and human rights violation at the same time to ensure a safe work environment.

Disclosure No significant relationships.

P716 **HIV PREVALENCE IN AT-RISK ADOLESCENT GIRLS AND YOUNG WOMEN IN KENYA ACROSS LOCATIONS ASSOCIATED WITH SEX WORK**

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Background HIV prevalence is influenced by biological, behavioural and structural factors. We sought to understand HIV prevalence among at-risk adolescent girls and young women (AGYW) in Kenya and the relative importance of location and subgroup.

Methods We conducted a cross-sectional survey among AGYW aged 14–24 years in Mombasa, Kenya in 2015/16. Using probabilistic sampling we recruited participants from hotspots where female sex workers (FSWs) solicit clients, divided into venue-based (bars/brothels/hotels/brew dens) and non-venue-based (streets/public places) hotspots. We measured HIV prevalence using dried blood spot serology testing and examined predictors of risk including subgroup: engagement in formal sex work; transactional sex (TS) (exchange of sex for goods/money without pre-negotiation of price); and casual sex (CS) (did not self-identify as FSW or engaging in TS). We compared determinants of risk in venue-based and non-venue-based participants after adjusting for age.

Results Overall HIV prevalence was 5.6%, with highest prevalence among FSWs (10.1%), compared to those engaged in TS (3.6%) or CS (3.6%) ($p < 0.001$). Daily/almost daily alcohol use was associated with higher prevalence in both venue- (AOR 2.8 (1.3–6.1)) and non-venue-based (AOR 5.3 (1.3–21.1)) hotspots. Venue-based participants were also more likely to test positive if they had ever been pregnant [AOR 1.9 (1.0–3.5)], had their first sexual experience aged < 15 years [AOR 2.2 (1.2–4.1)] or had ever experienced sexual [AOR 3.2 (1.8–5.7)] or physical violence [AOR 2.4 (1.3–4.3)]. Compared to CS and TS, HIV prevalence was higher among FSWs in venue-based hotspots [AOR 3.4 (1.8–6.3)], but not non-venues [AOR 1.1 (0.3–3.8)].

Conclusion We identified a high prevalence of HIV among AGYW congregating in hotspots for FSW, with heterogeneity across subgroups. Determinants of HIV varied by location suggesting that one's environment is an important contributor to risk, and HIV programmes should take this into consideration for designing delivery of interventions.

Disclosure No significant relationships.

P717 **USING ETHNOGRAPHY FOR PLANNING AND IMPROVING THE QUALITY OF HIV PREVENTION INTERVENTIONS FOR FEMALE SEX WORKERS IN NIGERIA**

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Background Female Sex Workers (FSW) and their clients account for half of HIV infections among key populations (KP) in Nigeria. The aim of this study was to better understand sexual behavior patterns and influences related to HIV vulnerability among men and women in venues that facilitates sexual networks in Nigeria as it relates to sex work.

Methods A qualitative approach was employed using participant observations and face-to-face in-depth key informant interviews. Community ethnographers collected information from FSWs, clients of FSWs and key venue staff at venues where FSWs solicited clients. A semi-structured tool guided the interviews and questions explored how connections occur for the sale of sex and probed the power dynamics within connections.

Results In all, 25 women and 25 men were interviewed. The in-depth interviews describe bar staff as vital players in the sex trade who provide financial and security services for FSWs. In exchange for these services FSWs are expected to pay with cash, commodities or sex. Majority of FSWs experienced violence from clients and law enforcement agents. Interviews indicate that there was a lack of governmental or non-governmental organizations involved in addressing cases of violence. Participants reported low condom use with intimate partners compared to paying clients. Top on the list of the problems associated with condom use was condom breakage, which was attributed to dryness, lack of lubricants and lengthy duration of sex. In addition, both male and female participants had power over decision making on condom use. Generally, as noted in transcripts, interactions between FSWs and clients switch between commercial sexual relationships and transactional liaisons.

Conclusion The study provides insight into the structure and operational dynamics occurring at venues facilitating sexual networks. Simultaneously exposing the barriers and challenges to HIV prevention service delivery. A combination of strategies-behavioural, biomedical, structural interventions are required in addressing the needs of FSWs.

Disclosure No significant relationships.

P718 **RISK AND PLACE: THE ASSOCIATION BETWEEN HOTSPOT TYPOLOGY AND DETERMINANTS OF HIV RISK AMONG FEMALE SEX WORKERS IN UKRAINE**

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Background The environmental contexts and interactions between people within that environment impact a female sex worker's (FSW) individual behaviour and likelihood of HIV acquisition. Understanding how the environment shapes HIV risk can provide important information for HIV prevention programs that go beyond behaviour-based interventions and address more distal factors contributing to HIV risk among FSWs.

Methods A cross-sectional survey was conducted among FSWs in Dnipro, Ukraine between September 2017 and January 2018. 560 FSWs aged ≥ 14 years were recruited from "hot-spots" (locations where FSWs meet clients). We compared determinants of HIV risk between six hotspot typologies (e.g., brothels, home-based, massage parlours, bars/restaurants, parks, highways) using chi-squared tests.

Results Age at start of sex work ($p < 0.001$), client volume ($p < 0.001$), and HIV testing in the past year ($p < 0.001$) all differed significantly across hotspot typologies. Mean age at start of sex work was oldest for FSWs recruited from highways (24.1 years) and youngest for FSWs recruited from massage parlours (19.8 years). FSWs from highways had the most clients in the past 30 days (mean 22.1 clients) while those from parks had the fewest (mean 17.5 clients). HIV testing in the past year was the most frequent among FSWs from brothels (mean 2.1 times), followed by home-based (1.8 times), massage parlours (1.1 times), highways (1.0 time), bars/restaurants (0.6 times) and parks (0.4 times). The prevalence of physical and sexual violence perpetrated by clients in the past 3 months was 4.3% and 1.6% overall. Compared to women from other hotspot typologies, the proportion of FSWs from highways who reported experience of physical and sexual violence by clients were highest (26.7% and 10.0%).

Conclusion Understanding the association between HIV risk factors and hotspot typology can help HIV prevention programs tailor interventions, and target linkage and delivery of services to the relevant subgroups of a key population.

Disclosure No significant relationships.

P719 PREVALENCE AND TYPE-SPECIFIC DISTRIBUTION OF ONCOGENIC HUMAN PAPILLOMAVIRUS AMONG FEMALE SEX WORKERS IN COTONOU, WEST AFRICA

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Background Female sex workers (FSW) are at higher risk of Human Papillomavirus (HPV) infections. Yet, few data exist on the prevalence and the types of HPV circulating among them. Baseline data from FSW recruited in a longitudinal study were analyzed to determine the prevalence and type-specific distribution of oncogenic HPV among FSW in Cotonou.

Methods Data from 309 FSW with valid cervical specimens (out of 312 enrolled) were analyzed. Cervical specimens were processed through March 2019, using the Linear Array HPV genotyping test (LA-HPV) (Roche Molecular Systems). Where appropriate, a real-time PCR assay specific for type 52 was performed to control for cross-reactivity with HPV-33, 35 or 58. The overall and type-specific prevalence of oncogenic HPV were estimated according to the level of risk: high risk (HR-HPV) and low risk (LR-HPV).

Results The mean age of the 309 women at enrollment was 34.97 (\pm 10.66) and that at their first intercourse was 17.53 (\pm 2.66). Almost half of them (45.8%) were Beninese and 25.8% were HIV positive. Condom use at the last sex with clients and boyfriend was reported by 97.7% and 14.5% of women, respectively. At least one HR-HPV was detected in 237 women (88.3%) and the ten most frequent were HPV58 (37.5%), HPV16 (36.6%), HPV52 (28.8%), HPV35 (23.3%), HPV68 (22.0%), HPV18 (20.7%), HPV45 (15.2%), HPV33 (11.0%), HPV59 (9.1%), HPV51 (6.5%). LR-HPV were found in 186 women (60.2%): HPV81 (23.6%); HPV61 (23.0%); HPV72 (15.2%); VPH42 (12.0%); VPH70 (8.4%), VHP54 (5.8%); VPH 6/VPH11 (5.5%) and VPH40 (2.6%). HR-HPV presence was not associated with HIV status ($p=0.897$) while that of LR-HPV was ($p=0.037$).

Conclusion To our knowledge, this study is the first to provide HPV data among FSW in West Africa. The high prevalence and atypical distribution of oncogenic HPV among this high risk population might have implications for vaccine design.

Disclosure No significant relationships.

P722 AN UNUSUAL CONSTELLATION OF SYMPTOMS: OUTPATIENT DIAGNOSIS OF NEUROSYPHILIS WITH NO HISTORY OF PRIOR SYPHILIS SYMPTOMS

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Background Neurosyphilis presents in early and later stages of syphilis. Cerebrospinal fluid, meninges and vascular structures

are involved in the early stages of neurosyphilis, while in the late stage; cerebral tissue and spinal cord parenchyma are affected. Neurosyphilis can manifest with many different symptoms. Diagnosis criteria remains ambiguous and treatment options are classified very low quality of evidence by World Health Organization. We present a case of neurosyphilis with progressive sensory loss whose primary and secondary phases were not detected.

Methods 52 year old male initially presented with upper respiratory symptoms, headache, facial swelling, and visual disturbances. 20 pound weight loss, positive candida throat culture, diagnosis of panuveitis, and progressive hearing loss prompted diverse differential workup. Rapid plasma reagin and fluorescent treponemal antibody absorption were positive suggesting syphilis and with neurologic symptoms met neurosyphilis diagnosis. After penicillin treatment, symptoms resolved and labs showed disease resolution.

Results RPR titer high 1:128. In 2 months, WBC count increased from 9.8 to 22.0. CSF analysis showed a neutrophilic leukocytosis with elevated protein. Repeat CSF 6 months post-treatment showed negative VDRL CSF qualitative and titer negative. RPR 1:4. Syphilis antibody \geq 70.0 high.

Conclusion Neurosyphilis can be encountered in sensory, neuropsychiatric and neurologic domains. The incidence of syphilis in Michigan has increased from 365 to 480 cases and with a national 10.5% increase from 2016 to 2017. In this case, neurosyphilis improvement was observed with resolution of sensory deficits with penicillin treatment. Impaired cognition or mood disturbance were not observed throughout the patient's clinical course. Attention should be given to progressive sensory loss because syphilis in its early stages can be overlooked, left untreated and can lead to irreversible manifestations. This case illustrates the need for further awareness on neurosyphilis as this disease can present in forms that are not common to what the current literature shows.

Disclosure No significant relationships.

P724 A CONDITIONAL PAY-FOR-PERFORMANCE PROGRAM TO IMPROVE SYPHILIS SCREENING IN CHINESE STD CLINICS: A PILOT INTERVENTION

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10.1136/sextrans-2019-sti.785

Background Under-screening of syphilis in clinical settings is a pervasive problem, especially in resource constrained settings where heavy patient loads and competing health priorities inhibit health providers' ability to meet screening coverage targets. We piloted a "conditional pay-for-performance (P4P) strategy," which rewarded providers at sexually transmitted disease (STD) clinics a monetary bonus for every confirmed case of syphilis they screened. By tying rewards to the number of cases detected, this strategy seeks to incentivize providers to concentrate their counseling efforts on indicated patients who need it the most.

Methods Five STD clinics in a high syphilis transmission setting of China participated in the 6-month intervention. Data

from the pre-intervention period was abstracted from clinic records. Multilevel logistic regression models with random intercepts to account for clustering within clinics were used to compare rates of syphilis case detection (number of confirmed positive cases over the total number of clinic attendees) in the 6-month periods prior to and during the intervention. Estimates were adjusted for age and sex of clinic attendees.

Results A total of 7900 patients (49.0% male; 17.7% under the age of 25) sought care at one of the five STD clinics over the course of the study. Adjusted odds of a positive syphilis screen were greater during the intervention period compared to the pre-intervention interval (odds ratio, 1.33; 95% confidence interval, 1.14–1.56). Variability in clinic-level effects were substantial given the small number of sites of this pilot study.

Conclusion Results of a conditional pay-for-performance pilot study demonstrate the feasibility and preliminary effectiveness of a conditional P4P strategy to improve syphilis case detection in Chinese clinical settings. Plans are underway for a fully powered randomized trial, findings from which could inform the utility of this approach for improving detection of common STDs in other resource constrained settings.

Disclosure No significant relationships.

P725 FREQUENCY AND CHARACTERISTICS OF BIOLOGIC FALSE POSITIVE TESTS FOR SYPHILIS, REPORTED IN FLORIDA AND NEW YORK CITY, 2013–2017

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Background Biologic false positive (BFP) non-treponemal test results, defined as specimens with reactive non-treponemal (NT) and non-reactive treponemal test results are received and processed by United States public health surveillance programs. Non-treponemal BFPs can be attributed to a variety of infectious and non-infectious diseases. However, little is known about the distribution of BFP NT titers. We describe the frequency, NT titer distribution, and descriptive characteristics of people with BFP NT results reported in Florida and New York City (NYC).

Methods Reactive NTs and BFPs (reactive NT test and ≥ 1 non-reactive treponemal tests from a person with no past or current reactive treponemal test) were extracted from Florida's and NYC's sexually transmitted diseases surveillance systems for 2013–2017. Results were de-duplicated by specimen collection date, test type, and titer value. For individuals, BFPs were stratified by site, patient characteristics, and highest reported titer during study period.

Results A total of 526,540 reactive NTs were reported. Among these were 57,850 BFPs (28,183 Florida and 29,397 NYC), 11% of all reactive NTs, from 39,920 individuals (19,313 Florida and 20,607 NYC). Titers of 1:1 accounted for 55% (n=31,580) of all BFPs, but 5,250 (9%) were $\geq 1:8$, including 654 (1.1%) $\geq 1:32$. Persons with BFP were most often

women 68% (n=27,161/39,920). Individuals 40+ years were at increased odds (OR 2.12; 95% C.I. 1.78–2.55) of having a high titer BFP ($\geq 1:32$ titer).

Conclusion Syphilis BFPs (non-cases) account for a substantial number of reported tests that require processing. Some countries classify titers $\geq 1:8$ as presumptive syphilis without treponemal testing, thus may over-count cases. Areas requiring both treponemal and NT tests for syphilis case reporting may benefit from requiring laboratories to report negative treponemal tests when they are associated with reactive NT tests. Review of patient histories might identify underlying conditions that contribute to high-titer BFP results.

Disclosure No significant relationships.

P726 SYPHILIS – DO WE SEE THE END OF THE STEEP RISE IN CASES IN GERMANY?

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Background The number of reported syphilis cases in Germany doubled between 2001–2004 to over 3,000/year and remained stable until 2009. Between 2010 and 2016, the annual increase was between 7% and 22%. We analysed syphilis surveillance data to assess characteristics of current epidemiological dynamics in order to initiate appropriate prevention measures.

Methods Since 2001, laboratories are required to notify syphilis diagnoses anonymously, physicians complement clinical information. Potential double notifications are identified. Since 2016, HIV-status is reported. We analysed syphilis cases by year of diagnosis, age, sex, area of residence, and transmission category.

Results 7,520 cases were reported in 2017, corresponding to a 4.5% rise compared to 2016. Incidence was 9.1/100,000 inhabitants, with highest incidences in metropolitan cities as Cologne (39.4), Berlin (37.9), and Munich (35.0). From January to June 2018, syphilis cases dropped by 4.3% compared to this period in 2017. Men accounted for 94% of cases in 2017. 83% of cases with information on transmission route were men who have sex with men (MSM), 17% heterosexuals. The proportion of MSM aged 40 years or above was continuously above 45% since 2007. Syphilis reinfection was reported for 27% HIV-negative MSM and 63% HIV-positive MSM. HIV-coinfection was reported for 48% MSM and 7% heterosexuals. HCV-coinfection was reported for 7% HIV-positive MSM and 1% of HIV-negative MSM.

Conclusion Data showed a high burden of disease in MSM in metropolitan cities and higher age groups. Increasing risk behavior due to HIV pre-exposure prophylaxis (PrEP) could impact the syphilis epidemic in Germany in specific groups, considering the high proportion of Syphilis reinfections as well as a distinct rate of HCV-coinfection. To avoid negative effects of PrEP for the Syphilis epidemic, targeted and innovative approaches to foster early screening and treatment, like internet counselling, home sampling, home testing and broadening venue-based (rapid) testing should be discussed.

Disclosure No significant relationships.

P727 **COUNTY-LEVEL FACTORS ASSOCIATED WITH REPORTED CONGENITAL SYPHILIS—UNITED STATES, 2012–2015**

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Background Although preventable through timely screening and treatment, congenital syphilis (CS) cases are rising in the United States. Individual CS risk factors are well-described, but county factors are not. We developed a predictive model that could identify county risk factors and use these to predict counties at highest risk for future CS.

Methods We included all 3,142 US counties. To identify county risk factors, we defined the outcome as a county having ≥ 1 CS case during 2012–2015. Case counts were taken from the National Notifiable Disease Surveillance system; county data were from a 2015 county health rankings analytic file. We used a stepwise logistic regression model to identify adjusted associations between CS and county factors. Retained predictor variables were each assigned a score based on the strength of their association with the outcome. Risk scores were calculated by summing predictor scores for each county. Counties with risk scores ≥ 24 were defined as high-risk for having ≥ 1 CS case. We cross validated the model using coefficients from the final 2012–2015 model to predict high-risk counties for 2016–2017 and compared predicted and actual counties by calculating the area-under-the-curve (AUC) value.

Results Our model identified 721 counties as high-risk for CS (sensitivity: 80.1%; specificity: 83.7%). County predictors included: 2015 Medicaid expansion status, presence of a metropolitan area, population size, income inequality, syphilis among women and men who have sex with men, violent crime rate, and the population proportions that were black, Hispanic, and uninsured. The final model based on 2012–2015 CS data was predictive of 2016–2017 CS counties (AUC: 88.1%).

Conclusion Given the damaging yet preventable nature of CS, enhancing prevention is a priority. The ability to predict counties at highest risk for CS based on county factors may help target CS resources where they are needed most.

Disclosure No significant relationships.

P728 **CORRELATES OF SYPHILIS IN WOMEN LIVING WITH AND WITHOUT HIV IN THE US WOMEN'S INTERAGENCY HIV STUDY (WIHS)**

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Background Population-based estimates of syphilis seroprevalence and risk factors for US women are lacking. The objective of this study was to examine the prevalence of syphilis and associated characteristics among women living with and without HIV in the Women's Interagency HIV Study (WIHS).

Methods Women enrolled in the multisite US WIHS Cohort Study between 1995 and 2016 were screened for syphilis at baseline using rapid plasma reagin (RPR) and confirmatory treponemal antibody testing. Prevalent syphilis was defined by a positive RPR and positive confirmatory test. Baseline characteristics among seropositive participants were compared with and without stratification by HIV status. Chi-square testing was used for comparisons for categorical variables while ANOVA or the Kruskal-Wallis test was used to test continuous variables. Multivariable logistic regression modeling with Firth's bias correction for prediction of syphilis seroprevalence was performed using baseline covariates from the non-stratified characteristics that were statistically significant at $p < 0.05$.

Results Nearly 5,000 women ($n=4,906$) age 16–57 were included in the analysis: 3,622 women with HIV and 1,284 women without HIV. The prevalence of syphilis in women with HIV (7.6%) was higher compared to women without HIV (4.6%), $p < 0.001$. Characteristics associated with syphilis infection at the baseline cohort visit ($p < 0.05$) included positive HIV status [adjusted odds ratios and 95% confidence intervals, OR, (95%CI)], [1.49 (1.09–2.04)], black race compared to white, [3.32 (2.06–5.36)], $< 12^{\text{th}}$ grade education [1.72 (1.24–2.38)], income $< \$12,000$ [1.46 (1.08–1.97)], and history of transactional sex [2.61 (1.98–3.43)].

Conclusion In the midst of a resurgence of syphilis infections in the US, factors associated with syphilis in women can help guide screening practice in clinic. This data from the WIHS cohort highlights the need for providers to consider HIV status, race, transactional sex and socioeconomics in order to identify women in need of routine syphilis screening.

Disclosure No significant relationships.

P729 **TREPONEMA PALLIDUM-PLATELET INTERACTIONS AND RELEVANCE TO TREPONEMAL INVASION**

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Background *Treponema pallidum* ssp. *pallidum* (*Tp*), the causative agent of syphilis, is an invasive pathogen that interacts with host cells during infection. In the bloodstream *Tp* encounters platelets, which are sentinel cells that activate and release specific components to enhance immune cell targeting to the site of infection/inflammation. Tumor cells and invasive pathogenic bacteria can associate with platelets and recognize these same secreted components, to allow for enhanced spread via the bloodstream. We have previously established that *Tp* interacts with platelets: in this study we probe the potential for *Tp* to activate platelets and to recognize specific platelet secretions.

Methods Viable *Tp* and platelets were co-incubated and platelet activation was compared relative to pre-activated (ACT) and resting (REST) platelets. Platelet activation was measured by assessing the median fluorescence intensity (MFI) of the platelet activation receptor CD41a via flow cytometry and fibrin clot formation (a downstream effect of platelet activation) via plate-based assays. A capillary tube chemotaxis assay quantified *Tp* migration towards specific secretions from activated platelets compared to inactive platelets.

Results *Tp* co-incubated with platelets and ACT platelets expressed comparable levels of CD41a, with an almost 150% greater CD41a expression level compared to that seen with REST platelets ($P = 0.0118$). *Tp* co-incubated with platelets and ACT platelets produced similar levels of clotting, at a level that was significantly higher than for REST platelets ($P = 0.0221$). *Tp* migration towards the secretions of activated platelets was over 2-fold higher than migration towards inactive platelets ($P = 0.0030$).

Conclusion *Tp* activates platelets and migrates towards the secretions of activated platelets. Prior investigations have established that platelet activation, and subsequent secretion, enhances the permeability of endothelial cells lining the bloodstream. Taken together, these findings suggest the treponeme-platelet interaction may promote *Tp* entry and exit from the bloodstream and aid in *Tp* spread throughout the body.

Disclosure No significant relationships.

P730 **THE DEMOGRAPHY OF CONGENITAL SYPHILIS ELIMINATION IN THE UNITED STATES**

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Background The absence of reported congenital syphilis cases in 16 states and territories across the United States of America in 2017 may be attributable to changes in prenatal care utilization within these states from 2013–2017. In order to determine whether there is a relationship between rates of reported congenital syphilis cases and prenatal care utilization in the United States, we assessed changes in 16 states and territories with a congenital syphilis rate of 0.0 per 100,000 per live births in 2017. We determined the association between rates of congenital syphilis and utilization from 2013 to 2017,

and explored the association between utilization and changes to state, territorial, and local mandates on congenital syphilis.

Methods We retrieved vital statistic data on congenital syphilis infections; prenatal care; and patient demographics. We retrieved public reports of mandate changes from state, territorial, and local public health agencies. Vital statistic data were collected by the United States Centers for Disease Control and Prevention National Vital Statistic System from 2013 to 2017. Cases included births of Non-Hispanic and Hispanic postpartum patients, who received congenital syphilis testing after live births in 2013, 2014, 2015, 2016, and 2017. We analyzed the incidence rate ratio (IRR) of congenital syphilis cases and prenatal care utilization. We then analyzed mandates to assess whether any changes to congenital syphilis screening could explain suppression or elimination of syphilis.

Results Increases in prenatal care utilization led to a decrease in congenital syphilis rates, and associations were stronger within states with an overrepresentation of Non-Hispanic white patients.

Conclusion While mandates may explain suppression or elimination of congenital syphilis, additional research is needed to determine whether the reduction is predicted by patient demographics, rather than mandated screening.

Disclosure No significant relationships.

P731 **PREVALENCE OF SELF-REPORTED SYPHILIS AMONG BRAZILIAN YOUNG ADULTS: FINDINGS FROM A NATIONWIDE SURVEY**

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Background The number of cases of acquired syphilis are increasing in many countries. In Brazil, a previous official report based on compulsory notifications showed a sustained increase from 2.0 to 58.1 cases per 100,000 inhabitants over the last six years (2010–2017). We aimed to evaluate the prevalence of self-reported syphilis among women and men aged 16 to 25 years who use the public health system in Brazil.

Methods This is a cross-sectional, nationwide, multicenter study with 8,581 sexually active young adults recruited from 119 primary care units in all 26 Brazilian capitals and the Federal District. Data on sociodemographic and sexual behavior characteristics were obtained by face-to-face interviews. To evaluate syphilis, we asked the participants if they had ever had syphilis during their lives (current or in the past). We weighted the measures by population size in each capital and by sex.

Results Of all participants (49.17% women), 8,076 provided information about syphilis, and 224 (2.86%, 95%CI 2.29%–3.43%) reported having the disease. The prevalence was similar between genders ($p=0.240$), with frequencies of 3.20% for men and 2.54% for women. The participants who self-reported syphilis were older [22.35 years (22.01–22.70)] than those without the disease [21.38 years (21.32–21.44); $p<0.001$] and had earlier sexual intercourse [14.81 years (14.53–15.09) vs. 15.22 years (15.17–15.27); $p=0.006$]. Syphilis was not associated with income and skin color/race, but it was significantly associated with educational level. Illiterate and elementary students had higher prevalence than other

groups (4.88% among elementary, 2.16% secondary and 2.49% graduate students, $p < 0.001$).

Conclusion Our results showed a high prevalence of self-reported syphilis in young adults of Brazil with significant difference between education level. Income and skin color/race were not associated with syphilis showing a disseminate outbreak. These data reinforce the importance of implementing strategies to combat this disease in young adults, especially among those with low educational level.

Disclosure No significant relationships.

P733 **EVALUATING THE USE OF RAPID SYPHILIS TESTING AMONG PATIENTS IN A SEXUALLY TRANSMITTED INFECTIONS CLINIC IN LILONGWE, MALAWI**

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Background Limited-resource countries, such as Malawi, rely largely on the syndromic diagnosis of genital ulcer disease (GUD) to detect and treat syphilis. However, rapid treponemal tests are available for point-of-care testing and offer inexpensive syphilis serology assessments, though they cannot differentiate between untreated and previously treated syphilis as a stand-alone test. We assessed syphilis seroprevalence in the sexually transmitted infections (STI) clinic at Bwaila District Hospital in Lilongwe, Malawi, in August 2017.

Methods Rapid syphilis testing (RST), with the Alere Determine™ Syphilis TP test or SD Bioline 3.0 Syphilis test, was offered in conjunction with standard opt-out HIV rapid testing. Anyone who tested RST positive was treated with three weekly doses of benzathine penicillin 2.4 MU IM, per Malawian standard of care. Per routine protocol, all patients also underwent a genital examination where GUD was diagnosed as the presence of one or more genital ulcers. We calculated syphilis seroprevalence, and used exact statistics to test for differences in proportions ($\alpha = 0.05$).

Results 848 patients had an RST, HIV test, and a genital exam, with 73 (9%) testing positive by RST. Among the 82 patients (10%) diagnosed with GUD, 26% (95% CI: 17%–36%) had a positive RST, compared to 7% (95% CI: 5%–9%) of patients without GUD ($p < 0.0001$). Of the 89 patients (10%) who tested newly positive for HIV, 19% (95% CI: 12%–29%) had a positive RST, compared to 7% (95% CI: 6%–9%) among those who were HIV negative ($p = 0.0009$). Of the 73 patients who screened positive by RST, 71% (95% CI: 59%–81%) did not have GUD.

Conclusion Syphilis serology was more prevalent among patients who had GUD and who were HIV-infected. Syndromic diagnosis of GUD may not be sufficient to identify patients who require syphilis treatment. However, accurate staging is critical for appropriate treatment, and concerns surrounding over treating previously treated cases should be addressed.

Disclosure No significant relationships.

P734 **WHAT DO GUYS KNOW ABOUT SYPHILIS ANYWAYS?**

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Background Syphilis rates among gay, bisexual, and other men who have sex with men (gbMSM) have increased in Toronto, Canada, since the early 2000s. Half of syphilis cases are co-infected with HIV. Enhanced sexual health resources in the downtown neighbourhoods with elevated syphilis rates (core area) have not brought syphilis transmission under control. Our objective was to explore gbMSM attitudes, beliefs and knowledge of syphilis to inform syphilis intervention strategies.

Methods In-depth interviews were conducted with 31 gbMSM who lived, worked, or socialized in Toronto, Canada, in June and July of 2016. Interviews ran 60 to 90 minutes and had three sections. This analysis uses data from the third section, which explored what participants knew about syphilis and the syphilis epidemic in Toronto. Theoretical saturation for this analysis was reached before interviews were completed. Thematic analysis was used to analyze interviews. Transcripts were read and re-read, then coded. Codes were compared across participants then grouped into categories; categories were grouped into themes.

Results Participants knew little about syphilis and did not realize syphilis was epidemic in Toronto. Syphilis was perceived as a curable inconvenience and dismissed, while HIV was perceived as life-changing. Participants did know something about HIV and some STIs other than syphilis. Participants who lived through the 80's and 90's identified anal sex as a high-risk sexual activity and perceived sex as potentially lethal; consequently, sex was loaded with stigma, burden and shame. In backlash, some participants described a new social expectation that gay men should have a lot of good sex, where good sex is sex without a condom, and having good sex is a greater concern than acquiring an STI that can be cured or lived with.

Conclusion Dismissive attitudes towards syphilis could explain why syphilis epidemics persist. Interventions shifting gbMSM relationship with sex and STI testing should be explored.

Disclosure No significant relationships.

P735 **KNOWLEDGE AND ATTITUDES AROUND SYPHILIS AND SYPHILIS PRE-EXPOSURE PROPHYLAXIS AMONG MEN WHO HAVE SEX WITH MEN IN VANCOUVER**

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Background In British Columbia, Canada, syphilis is at record-high rates, with over 80% of cases in 2017 seen in gay, bisexual, and other men who have sex with men (GBM). The epidemic is of particular concern for those living with HIV, since

syphilis may lead to more serious complications in this population. We sought to inductively explore syphilis-related knowledge, and attitudes around biomedical prevention options for syphilis in an age of HIV pre-exposure prophylaxis (PrEP), with the goal of informing effective strategies to address the syphilis epidemic.

Methods We conducted in-depth, one-on-one interviews with a heterogeneous sample of GBM in Vancouver, including men living with HIV and/or with a history of syphilis. Our interviews focused on participants' knowledge around syphilis and perceptions regarding syphilis PrEP. Interviews were audio-recorded, transcribed verbatim, and analyzed using Grounded Theory.

Results Twenty-five GBM were interviewed (64% white; median age: 43 years). Four overarching themes emerged regarding men's views about syphilis. First, syphilis-related knowledge differed according to HIV and syphilis serostatus. Second, competing ideas emerged regarding men's concerns about syphilis. While our participants expressed concern about getting syphilis, they also described the importance of sexual intimacy and pleasure. Third, many participants said that syphilis was not perceived to be particularly alarming; preventing HIV infection remained a primary concern for many. Finally, although syphilis PrEP was appealing to some, participants were concerned about antibiotic resistance, cost, and side effects.

Conclusion Concern for syphilis appeared low among GBM. Our participants tended to organize their safer sex strategies around HIV, not syphilis. Although syphilis-related knowledge was relatively high among GBM living with HIV and those with a prior syphilis diagnosis, this knowledge did not appear to be associated with safer sexual practices, such as increased condom use. This work highlights the importance of examining other potential acceptable prevention solutions, such as syphilis PrEP.

Disclosure No significant relationships.

P736 EVALUATION OF THE PROVINCIAL INFECTIOUS SYPHILIS PARTNER NOTIFICATION PROGRAM IN BRITISH COLUMBIA, CANADA

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Background Infectious syphilis partner notification (PN) is centrally coordinated at the British Columbia (BC) Centre for Disease Control. Approaches include patient-initiated and provider-initiated PN, and outcomes include the proportion of partners (1) notified of possible exposure to syphilis, (2) tested and/or treated, and (3) diagnosed. Among gay, bisexual and other men who have sex with men (gbMSM) who have the greatest burden of syphilis, we evaluated PN outcomes between patient-initiated and provider-initiated PN.

Methods All infectious syphilis diagnoses in 2016 in BC were included. Syphilis re-diagnosis was defined as a syphilis diagnosis in 2016 with at least one additional diagnosis in 2006–2016, while first-diagnosis was defined as a syphilis diagnosis in 2016 only. PN outcomes were calculated along a cascade-of-care framework, where the numerator is the denominator of the subsequent indicator. Chi-square tests compared PN

outcomes of patient-initiated versus provider-initiated PN, within strata of gbMSM first-diagnosed and re-diagnosed.

Results Of the 759 infectious syphilis cases in BC in 2016, 648 (85%) were among gbMSM, among whom 474 (73%) were first-diagnoses and 174 (27%) were re-diagnoses. A significantly greater proportion of gbMSM first-diagnosed chose patient-initiated PN compared to gbMSM re-diagnosed (62% vs 42%; $P < 0.01$). Among gbMSM first-diagnosed, patient-initiated PN resulted in a greater proportion of partners notified compared to provider-initiated PN (177/199; 89% vs 426/603; 70%; $P < 0.001$). There was no difference in the proportion of partners tested and/or treated, (156/177; 88% vs 380/426; 89%; $P \geq 0.05$), and diagnosed (24/156 15% vs 51/380 13%; $P \geq 0.05$). A similar trend in PN outcomes was observed among partners of gbMSM re-diagnosed.

Conclusion Patient-initiated and provider-initiated PN had similar outcomes among partners of both gbMSM first-diagnosed and re-diagnosed. However, gbMSM first-diagnosed were more likely to choose to notify their own partners. These findings demonstrate that patient-initiated PN have similar outcomes to provider-initiated PN and can increase the overall capacity for PN.

Disclosure No significant relationships.

P737 EVALUATING SYPHILIS PARTNER NOTIFICATION OUTCOMES IN SEVEN JURISDICTIONS

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Background The effectiveness of partner notification services (PNS) for limiting syphilis transmission relies on the ability of disease intervention specialists (DIS) to find and assure treatment of partners. We measured estimates of partners found and treated due to PNS in seven jurisdictions.

Methods We reviewed early syphilis cases (primary, secondary, early latent) reported during 2015–2017 in seven jurisdictions in the United States (Florida, Louisiana, Michigan, North Carolina, Virginia, New York City, and San Francisco). We measured the numbers of: early syphilis (index) cases interviewed by DIS, (sex) partners reported (primary cases: ≤ 3 months; secondary cases: ≤ 6 months; early latent cases: ≤ 1 year), partners with enough locating information to begin PNS, partners treated prophylactically, and infected partners brought in for treatment resulting from PNS. We considered partners to be brought to treatment by PNS if: 1) a DIS-assigned disposition code indicated “brought to treatment” or 2) the partner was treated 0–90 days after the index case was interviewed.

Results DIS interviewed 23,428 index patients with early syphilis (range among jurisdictions 1,106–9,388), representing 78.9% of reported cases (50.1%–99.5%). Of those interviewed, 18,482 (78.9%) reported 78,960 partners, of whom

20,771 (26.3%) had enough locating information to begin PNS. Among these partners initiated for PNS, 5,851 were unlocatable/refused PNS (28.2%, range: 23.9%–38.8%), 5,959 were prophylactically treated (28.6%, range: 2.1%–39.8%) and 5,905 were classified as infected and brought to treatment (28.4%; range: 12.1%–37.3%). After excluding partners treated before ($n=1,436$) and ≥ 90 days after ($n=90$) the index case interview, 4,379 partners were considered infected and brought to treatment (0.15 partners per reported case [range 0.02–0.50] or 0.18 partners per interviewed case [range 0.05–0.60]).

Conclusion For every 5 to 6 index patients interviewed, PNS resulted in 1 infected partner brought to treatment. The success of DIS in finding and bringing partners to treatment varied across jurisdictions.

Disclosure No significant relationships.

P738 NO BEJEL AMONG *TREPONEMA PALLIDUM* ISOLATES DIAGNOSED AS SYPHILIS FROM SURINAM, ANTILLEAN AND DUTCH CLIENTS IN AMSTERDAM

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Background *Treponema pallidum* subsp. *pallidum* (TPA) is the causative agent of syphilis, a world-wide prevalent venereal disease. Bejel is caused by *T. pallidum* subsp. *endemicum* (TEN), which shows similar clinical manifestations and is morphologically and serologically indistinguishable from TPA. The PCR used for syphilis diagnostics, targeting the *polA* gene, does not discriminate between subspecies of *T. pallidum*. Bejel is thought to be restricted to semi-arid areas and its transmission to be non-venereal, but recently, in patients diagnosed with syphilis in Cuba and Japan, sexual transmission of TEN was shown to occur. We therefore performed molecular typing on samples from Surinam, Antillean and Dutch patients to discover bejel causing TEN strains among syphilis cases in Amsterdam.

Methods DNA was extracted from 137 ulcer swabs collected between 2006 and 2018 from male clients attending the Amsterdam sexually transmitted infections (STI) clinic. MLST was performed by partial sequence analysis of the *tp0136*, *tp0548* and *tp0705* genes to generate allelic profiles. In addition, 23S rRNA loci were checked for A2058G and A2059G macrolide resistance mutations.

Results We found 15 distinct allelic profiles from 99/137 (72%) fully typed samples, of which none were TEN, 83% were SS14-like strains and 17% Nichols-like. The most prevalent types were 1-3-1 (44%) and 1-1-1 (19%), in concordance with similar TPA typing studies. There was no association found between TPA types and ethnicity. Five new allelic types and profiles were found adding to the knowledge of TPA strain diversity. The successfully sequenced 23S rRNA loci from 123/137 (90%) samples showed the presence of A2058G and A2059G mutations, 79% and 2% respectively.

Conclusion No misdiagnoses were found within the samples from different ethnicities residing in Amsterdam, the

Netherlands. The strain diversity found in this study reflects the local male STI clinic population which is a diverse, mixed group.

Disclosure No significant relationships.

P739 NOVEL RAPID TEST FOR IMPROVED DIAGNOSIS OF ACTIVE SYPHILIS AT THE POINT OF CARE

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Background Syphilis has been and still is one of the greatest global health concerns. Syphilis can seriously damage the nervous system of infected individuals including infants born to infected mother. Treatment of syphilis is simple and effective with penicillin but diagnosis is challenging, particularly in resource-constrained settings, due to the need for a laboratory-based confirmatory test. Current point of care (POC) tests for syphilis are available but cannot distinguish active infections from past treated infections with a misclassification rate of up to 50% (low specificity). We developed a prototype rapid POC test (IgA Confirm) that can differentiate active syphilis from past treated infections at the point of care.

Methods We conducted a prospective diagnostic accuracy study to assess the specificity (and sensitivity) of the IgA Confirm test in identifying active syphilis infections classified by *Treponema pallidum* Antibody (TPAb) and rapid plasma regain (RPR) laboratory serology. Between June-December 2018, 500 pregnant women attending Rahima Moosa Mother and Child hospital, South Africa were recruited and provided venous blood samples for syphilis testing including the IgA Confirm (index) and laboratory serology (reference) tests.

Results The IgA Confirm demonstrate a sensitivity of 100% (5/5) for identifying samples with active syphilis infections (TPAb positive and RPR positive); 100% (9/9) specificity for identifying samples with past or treated infections (TPAb positive, RPR negative) and, 99.4% (484/487) specificity for samples with no evidence of syphilis (TPAb and RPR negative).

Conclusion This study showed that the IgA Confirm test has the ability to identify active syphilis infection and meet the WHO Target Product Profile for syphilis confirmatory testing. Future study is needed to further evaluate diagnostic performance of the test in high prevalence setting.

Disclosure No significant relationships.

P740 IMPROVING SYPHILIS DIAGNOSIS AND TREATMENT IN AN URBAN POPULATION THROUGH ROUTINE EMERGENCY DEPARTMENT SCREENING

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Background With the recent nationwide increase in syphilis, it is imperative to find novel means of reaching at-risk populations for early diagnosis and treatment. Many urban communities have both high rates of syphilis and frequently utilize the

emergency department (ED) as a primary source of medical care. In late 2018, the University of Chicago Medical Center (UCMC) began a quality improvement project directing providers to screen ED patients for syphilis regardless of presenting complaint. The objective of this study is to evaluate the potential utility of ED screening for syphilis.

Methods A retrospective chart review was performed of all patients with positive syphilis antibody testing from October through December of 2018, and all patients with positive rapid plasma reagin (RPR) or *Treponema pallidum* particle agglutination (TP-PA) testing were included as cases.

Results In the last three months of 2018, a total of 727 patients (average of 242 patients per month) were screened for syphilis in the ED. Of these, 61 (8.4%) tested positive for syphilis, 37 (60.1%) of whom had evidence of active infection, and 24 (39.3%) were late or unknown stage. 40.9% of patients testing positive for syphilis had presented with complaints other than abdominal pain, rash, or genitourinary symptoms. Two (3%) of patients testing positive for syphilis were also newly found to be pregnant and both were referred for antibiotic treatment in the first trimester.

Conclusion Early data suggests that screening of patients for syphilis in the ED regardless of presenting complaint yields high positive rates. ED screening may represent an effective way of combating the syphilis epidemic, particularly in the most vulnerable populations. In the near future, we plan to hold a provider awareness initiative combined with an update to the electronic medical record system with automated ordering reminders to increase the numbers of patients screened.

Disclosure No significant relationships.

Results Between November 2018 and January 2019 we included 45 MSM. Eleven participants had syphilis stage 1, 10 stage 2, 11 early latent syphilis, and 13 did not have syphilis. Among the 11 stage 1 patients, 1 blood sample, 2 pharyngeal samples, 4 rectal samples and 3 urine samples were Tp-PCR positive. Among the 10 stage 2 patients, 2 blood samples, 8 pharyngeal samples, 6 rectal samples and 3 urine samples were Tp-PCR positive. Among the 11 early latent syphilis patients, 1 blood sample, 4 pharyngeal samples, 4 rectal samples and no urine samples were Tp-PCR positive. None of the samples of clients without syphilis were Tp-PCR positive.

Conclusion DNA of *T. pallidum* was frequently detected in various body compartments of 32 MSM diagnosed with syphilis. Tp-PCR on samples from various body locations might have a role in the diagnosis of early syphilis.

Disclosure No significant relationships.

P742 USING LOTTERY INCENTIVES TO ATTRACT SEXUALLY RISKY CHINESE MEN WHO HAVE SEX WITH MEN TO PREVENT SYPHILIS

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Background Individuals with risk-loving attitudes may be more likely to participate in high-risk sex and gambling. We investigated whether a lottery-based financial incentive linked to syphilis testing may attract Chinese men who have sex with men (MSM).

Methods In July/August 2018, an online cross-sectional survey was conducted in China. The survey collected information on socio-demographic characteristics, risk-taking attitude, sexual behaviors and their likelihood to test for syphilis linked with a lottery-based financial incentive where men were eligible if they tested negative for syphilis. We asked about the minimum lottery prize that would attract them to participate. Risk attitude was measured with a validated risk attitude scale, which asked men about their likelihood to take risks in general: scores ranged from 0 (avoids taking risk) to 10 (fully prepared to take risks). Risk behaviours include having multiple sexual partners and condomless sex. Logistic regression analysis was used to examine the association of willingness to participate in the syphilis testing lottery with risk attitude score and behaviors.

Results 699 MSM were enrolled with a median age of 26 years (IQR:23–30). 70% self-identified as gay and 52% reported ever testing for syphilis. 64% stated they were likely/very likely to test for syphilis linked with a lottery incentive. The median amount for the lottery had an expected value of 10 RMB (\$1.50 USD, IQR:5–30 RMB). Being willing to test for syphilis when a lottery was offered was associated with a higher risk attitude score (OR 1.12, 95%CI:1.06–1.18), older age (OR 1.03 per year increase, 95%CI: 1.00–1.06), reported more than one partner in the last 3 months (OR 1.71, 95%

P741 DETECTION OF *TREPONEMA PALLIDUM* DNA AT VARIOUS BODY LOCATIONS

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Background Syphilis is routinely diagnosed based on clinical findings and serological tests. Syphilis may be asymptomatic and in the early stages of infection serology may be false negative. This poses challenges in the diagnosis; missed infections may lead to onward transmission and late sequelae. The aim of this study is to assess the added value of testing various anatomical sites for DNA of *Treponema pallidum* (TP).

Methods The study is conducted at the STI clinic in Amsterdam. Eligible are men who have sex with men (MSM), 18 years or older with clinical signs or symptoms suggestive of syphilis stage 1 or stage 2, and those with serologically demonstrated early latent syphilis. Swabs taken from anus and pharynx, a urine sample, and a venous blood sample were tested using a validated in-house PCR targeting the *po1a* gene (Tp-PCR). We intend to include 285 participants, with similar numbers of stage 1, stage 2, early latent syphilis, and patients without syphilis.

CI:1.25–2.36), and did not use condoms with last sex (OR 1.50, 95%CI:1.05–2.16).

Conclusion Findings indicate that lottery-based incentives might be a feasible approach to increase syphilis testing uptake in Chinese MSM, particularly amongst men with higher risk attitude scores and sexually risky behaviors.

Disclosure No significant relationships.

P743 CLINICAL PROFILES OF 58 HOSPITALIZED HIV-NEGATIVE PATIENTS WITH NEUROSYPHILIS IN A GENERAL HOSPITAL IN CHINA

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Background Patients with neurosyphilis have been increasingly reported from clinics in China. Symptomatic neurosyphilis is more common among HIV-positive than HIV-negative patients. Clinical data of neurosyphilis among HIV-negative patients are limited.

Methods Socio-demographic and clinical data of the patients diagnosed with neurosyphilis and hospitalized at the Suzhou 5th People's Hospital in China during January 2012 to November 2018 were collected and clinical and laboratory characteristics of these patients were analysed.

Results Of the 58 patients enrolled into the analysis, majority (84.5%) were males. Two cases (3.4%) were diagnosed with asymptomatic neurosyphilis by evidence of only increases of protein and white blood cell count in their cerebrospinal fluids (CSF). The clinical characteristics were presented to be meningeal vascular type (defined as presentation of hemiplegia, headache, tinnitus, or epileptic attack) among 6, paralytic dementia (defined as decline in intelligence and memory, decrease of judgement sense and cognition, or mental symptoms) among 30, tabes dorsalis (defined as having manifestation such as walking instability of lower limbs, lightning pain, numbness, abnormal urination, or Arrow pupil) among 8, and ocular syphilis (defined as choroiditis, iritis, retinitis, or optic atrophy) among 12 patients, respectively. Most of the patients (84.5%) had serum RPR titers of $\geq 1:8$ and two-thirds (75.9%) were positive for RPR in CSF (ranging 1:1 to 1:16). Additional CSF evaluations indicated an elevated protein in 55 and leukopenia in 57 patients. Among 30 patients with paralytic dementia, 16 (53.3%) shown a multiple lacunar foci in their brain CT or MRI, and 7 (23.3%) had cerebral atrophy.

Conclusion Symptomatic neurosyphilis is common among HIV-negative patients and clinical features characterized majorly as neurological, psychiatric or phthalmic symptoms have call

for attention of the relevant departments to detect these patients for interventions timely.

Disclosure No significant relationships.

P745 THE PREGNANCY SYPHILIS CASCADE OF CARE: "95-95-95" GOALS FOR REDUCING OF CONGENITAL SYPHILIS IN THE STATE OF SAO PAULO, BRAZIL

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Background Congenital syphilis (CS) is a preventable condition. However, in 2017, 4,039 cases were reported in São Paulo State (SPS), with an incidence rate of 6.6 cases/1,000 live births (LB). In 2018, SPS proposed the "95-95-95" goals to reduce CS: 95% of all pregnant women (PW) with timely diagnosis during antenatal care (ANC), 95% of all with timely diagnosis receiving treatment and 95% of all babies from treated PW-syphilis, born without CS. This study aimed evaluate the pregnancy syphilis cascade of care and the "95-95-95" goals for reducing CS in SPS, 2017.

Methods Ecological study, using reported cases of PW-syphilis and CS. The cascade of PW-syphilis care was estimated considering five columns. First column: number of PW-syphilis, calculated considering an estimated prevalence of 2.1% of syphilis in PW; and for the total population of PW, was considered the number of LB increased by 10% for fetal losses. Second: PW-syphilis diagnosed during ANC or delivery. Third: PW-syphilis linked to ANC with timely diagnosis. Fourth: PW-syphilis properly treated. Fifth: potentially avoided CS cases.

Results Were estimated 14,369(100%) PW-syphilis, of these, 82.6% (N=11,875) were diagnosed during ANC or delivery; 73.8% (N=10,606) linked to ANC with timely diagnosis; 66.1% (N=9,500) treated and 54.5% (N=7,836) CS cases avoided. For the "95-95-95" goals, SPS reached the following levels: 89.3% (N=10,606/11,875) of PW-syphilis with diagnosis during ANC; 89.6% (N=9,500/10,606) were timely treated and 82.5% (N=7,836/9,500) of babies born without CS.

Conclusion Prevention actions should be intensified to improve access and qualification of ANC. Specifically: wide screening coverage, availability of medication for the timely treatment and reproductive planning. These challenges can be overcome with an agenda of priorities and political commitment. The integration of STI/HIV/AIDS and maternal-child health programs, as well as the strengthening of primary care, is essential for the sustainability, duration and success of interventions aimed to the CS elimination.

Disclosure No significant relationships.

P746 **MATERNAL TO CHILD TRANSMISSION PREVENTION PROGRAM FOR SYPHILIS AND HIV IN BRAZIL: MISSED OPPORTUNITIES**

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Background While antenatal screening for HIV and syphilis are part of the national policy in Brazil, screening and treatment coverage remain inadequate in many parts of the country. The goal of this study was to describe missed opportunities of mother-to-child transmission (MTCT) from the point of view of pregnant women, health professionals and health care managers.

Methods A semi-structured interview was conducted in six Brazilian States. Pregnant women, health professionals and unit managers were interviewed focusing on identifying failures in the process of pregnant women care and MTCT of syphilis or HIV. The project's approach was quantitative, but open-ended questions were included to capture the views of participants regarding feasibility of strategies being adopted for controlling MTCT.

Results A total of 109 women, 62 health professionals and 34 health care managers participated in the study. The median age of women was 24 (range 15–46) years old and the median age of schooling was 8 years. Eighty-percent of those interviewed were enrolled in prenatal care. Among those who attend antenatal visits the median was 6.4 (range 1–20) visits. Managers and health professionals had a median of 10 (range 4–25) years of working. Less than 50% of Health professionals and managers had been trained in HIV and syphilis MTCT; 79% reported that they needed to receive more training. In the interviews the managers said they had provided tests and treatment for these infections, but health professionals said they did not had available tests or treatment to offer to and the women complaint about the difficulties to receive treatment. Women complained they were not prepared to talk about the diagnosed infections with their partner.

Conclusion It is a challenge to organize the logistics and breaking down barriers to care in Brazil. Health care system and policy factors can help to eliminate MTCT when they promote knowledge on strategies being adopted for the control of these infections.

Disclosure No significant relationships.

P747 **CHARACTERISTICS OF CHLAMYDIA/GONORRHEA INFECTIONS ASSOCIATED WITH A SUBSEQUENT SYPHILIS DIAGNOSIS IN BRITISH COLUMBIA, CANADA**

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Background Since 2010, infectious syphilis rates have risen dramatically in British Columbia (BC), Canada. We examined whether characteristics of a chlamydia (CT) or gonorrhea (GC) diagnosis were associated with a subsequent infectious syphilis diagnosis.

Methods All CT and GC diagnoses in BC from 2006 to 2017 were linked to infectious syphilis diagnoses in the subsequent 12-month period. A multivariable logistic regression model was used to identify factors associated with a subsequent infectious syphilis diagnosis and adjusted odds ratios (aOR) with 95% confidence intervals (CI) were reported.

Results Of the 133,264 CT/GC diagnoses, 819 (0.6%) linked to a subsequent syphilis diagnosis. Most were male (777/819, 94.9%) with a mean age of 36.1 years (standard deviation=11.2 years) and had ≥ 3 CT/GC diagnoses (419/819, 51.2%). At time of CT/GC diagnosis, 222 (27.1%) were living with HIV which increased to 245 (30.0%) at the time of a syphilis diagnosis. The odds of a subsequent syphilis diagnosis were greater among men (aOR=12.2, 95%CI: 8.4–17.7); older age groups of 25–29 years (aOR=1.5, 95%CI: 1.1–2.1), 30–39 years (aOR=2.4, 95%CI: 1.8–3.2), 40–59 years (aOR=3.7, 95%CI: 2.8–4.9), and ≥ 60 years (aOR=2.6, 95%CI: 1.3–5.0) when compared to age group 20–24 years; those living with HIV at time of CT/GC diagnosis (aOR=9.9, 95%CI: 7.6–12.9); those with a history of lymphogranuloma venereum (aOR=3.4, 95%CI: 2.3–5.2); those with a CT/GC diagnosis from 2012 onward (aOR=4.7, 95%CI: 3.7–5.9); and those with a history of 3 or 4 CT/GC diagnoses (aOR=13.2, 95%CI: 10.6–16.3) or 5+ CT/GC diagnoses (aOR=44.6, 95%CI: 34.8–57.1) when compared to those with 1 or 2 diagnoses.

Conclusion Characteristics of CT/GC diagnoses that were associated with a subsequent infectious syphilis diagnosis included male gender, older than age 24 years, co-infected with HIV, history of lymphogranuloma venereum, diagnosis of CT/GC from 2012 onward, and a history of 3+ CT/GC diagnoses.

Disclosure No significant relationships.

P748 **SYPHILIS DIAGNOSTIC TEST OF STANDARD™ Q SYPHILIS AB USING FINGERPRICK WHOLE BLOOD AND SERUM ON HIGH RISK POPULATIONS**

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Background Syphilis is still a worldwide health problem with 80–90% of new cases occurring in developing countries with little or no diagnostic access. The availability of new diagnostic test such as rapid test or point-of-care test can improve the medical care of syphilis. Most rapid syphilis tests currently available are treponemal tests, one of them is STANDARD™ Q Syphilis Ab. This study aims to assess STANDARD™ Q Syphilis Ab's rapid test capability using serum and fingerprick whole blood specimens compared with *Treponema pallidum* Haemagglutination Assay (TPHA) as the gold standard in detecting syphilis in high-risk populations comprised of trans-genders, men who have sex with men, and female sex workers.

Methods This study is a diagnostic test with a cross sectional study design done in January 2018 in Pasar Rebo Public Health Center, East Jakarta, Indonesia. Samples were selected

consecutively with total of 127 samples. All steps in this research; history taking, physical examination, and blood tests were done blindly.

Results The results of this study using serum specimens were sensitivity of 91.30%, specificity of 97.53%, positive predictive value 95.45%, negative predictive value of 95.18%, and accuracy 95.28. Test results with fingerprick whole blood specimens gave sensitivity of 84.78%, specificity of 98.77%, positive predictive value of 97.50%, negative predictive value of 91.95%, and accuracy 93.70%. Compatibility of rapid test STANDARD™ Q Syphilis Ab results between serum and fingerprick whole blood specimens was very good ($\kappa=0.8223$).

Conclusion Rapid test STANDARD™ Q Syphilis Ab can be used as an option for treponemal test in supporting syphilis diagnosis, either as routine screening or confirmation of non-treponemal test result. The fingerprick whole blood specimen can be used as treponemal test alternative which is faster and easier to do.

Disclosure No significant relationships.

P750 A COMPARISON OF *TREPONEMA PALLIDUM* MOLECULAR TYPING SYSTEMS: MLST VS. ECDCT

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Background Several syphilis typing systems have been proposed. Recent work suggests that multilocus sequence typing (MLST) may be superior to enhanced CDC typing (ECDCT), particularly because ECDCT type may differ among organisms amplified from different anatomical sites in the same person. The goal of this study was to compare the two systems.

Methods DNA was extracted from 20 *Treponema pallidum* isolates propagated in rabbits, 10 oral and 10 genital or non-genital lesion swabs, and 10 blood samples from patients with syphilis. MLST type for *tp0136*, *tp0548* and *tp0705* and ECDCT type were determined according to published methods. Samples were chosen because they were completely typeable by ECDCT. ECDCT types were also determined for samples from different anatomical sites in 7 patients, and from blood and blood isolates (rabbit propagated) in 8 patients.

Results MLST type could be fully determined for 19 (95%) of 20 bacterial isolates, 8 (80%) of 10 bloods, 7 (70%) of 10 lesion swabs, and 5 (50%) of 10 oral swabs. 13 subtypes were identified by ECDCT, and 12 by MLST. While MLST was able to subdivide two common ECDCT types (1.1.1, 1.1.2, 1.1.9, and 1.37.1 within 14d/f; and 1.3.1, 1.38.1, and 6.3.1 within 14d/g), it failed to distinguish among less common ECDCT types. ECDCT type was identical in 5 paired lesion and oral swabs, 1 paired blood and oral swab, and 1 paired blood, lesion and oral swabs. In addition, ECDCT type was identical in 8 paired blood and blood isolates.

Conclusion Compared to ECDCT, determination of MLST was less often successful from isolates and from clinical samples, and it was not uniformly more discriminating. ECDCT was stable among anatomical sites and between direct patient-derived samples compared to rabbit propagated organisms.

Disclosure No significant relationships.

P751 EVALUATION OF A SYPHILIS AWARENESS CAMPAIGN FOR GAY, BISEXUAL AND OTHER MSM (GBMSM): DID WE REACH OUR TARGETED AUDIENCE?

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10.1136/sextrans-2019-sti.809

Background In 2017, we launched a syphilis awareness campaign (“Syphistory”) targeted towards gay, bisexual, and other men who have sex with men (gbMSM). Using data from a study of gbMSM in Vancouver, we describe participants who reported seeing Syphistory and whether it reached gbMSM at higher risk of syphilis.

Methods Participants aged ≥ 16 years who reported having sex with another man in the previous six months were recruited through respondent-driven sampling. We analyzed data collected from September 17, 2017 to August 31, 2018. Characteristics of participants who reported seeing the campaign were compared using Wilcoxon rank-sum and chi-square/Fisher’s exact test. Multivariate logistic regression was used to examine the association between seeing Syphistory and recently being tested for syphilis, controlling for potential confounding factors, namely age, HIV status, place of residence, education level, and recent illicit drug use (IDU).

Results Of the 383 participants who responded, 103 (27%) reported seeing Syphistory. Participants who saw Syphistory tended to be younger (median 30 vs 32 years old, $p=0.03$), live in downtown Vancouver (58% vs 38%, $p=0.46$), had greater than a high school education (97% vs 89%, $p=0.08$), and were known to be HIV-negative (92% vs 81%, $p=0.15$). They reported more male sex partners (median 4 vs 3, $p=0.12$), condomless anal sex (92% vs 81%, $p=0.06$), and IDU (86% vs 72%, $p=0.04$) in the last 6 months. Almost 75% (52/86) of those who saw Syphistory reported a syphilis test within the last 3 months compared with 58% (97/244) who did not see Syphistory ($p=0.01$). Participants who saw Syphistory had a greater odds (aOR=3.63; 95% CI, 1.28–10.27) of a syphilis test within 3 months, versus no or unknown previous syphilis test.

Conclusion Participants who saw Syphistory tended to report behaviours that may increase the risk of syphilis infection and were more likely to have had a recent syphilis test.

Disclosure No significant relationships.

P752 UNDERSENSITIVE NON-TREPONEMAL TESTS: IMPLICATIONS FOR SYPHILIS MANAGEMENT

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10.1136/sextrans-2019-sti.810

Background Syphilis management has traditionally been based on non-treponemal tests (NTT). However, investigations over 3 decades have revealed serious issues with the sensitivity of NTT.

Methods Beginning in the late 1980s, our group in Toronto and Budapest investigated the sensitivity of NTT in over 5000 high-risk gay men, and in an additional 800 men where we could control for HIV status and AIDS. Besides the use of quantified treponemal tests (TT), IgM/IgG screening (in Mardx SDS-PAGE blots), and experimental PCR were employed.

Results The main findings of accelerated screening were undetected and untreated latent cases, not old treated cases as traditionally believed. NTT only detected about 30 percent of cases. Investigators in Houston detected TT IgM in most HIV cases with no NTT reactions, possibly representing latent and chronic cases. Investigators in Vienna showed that aggressive therapy reversed the IgM marker. In Toronto, 557 high risk men were screened with EIA TT and 27 possible latent cases were detected, with negative NTT. 24/27 of these patients had IgM or IgG directed against the main *T. pallidum* proteins. In the 800 men screened sequentially, TT often dropped in titre or reverted to negative *only* in HIV cases - titres in other routine tests did not drop. Syphilis PCR found that 13/183 gay men screened in Hungary had latent syphilis. The PCR found 9 cases negative in both NTT and TT, and identified the four TPHA (+) treated men.

Conclusion NTT is historically unreliable in relapse or reinfection. Syphilis management should always include TT. Syphilis and HIV have an overwhelming association, yet syphilis is never opportunistic. Latent syphilis may be chronically active in many HIV persons. Th-1 \rightarrow Th-2 immunoregulation is the norm in untreated syphilis - many longstanding syphilitics have cutaneous anergy to TB and mitogens. We suggest a syphilis IGRA be developed.

Disclosure No significant relationships.

P753 MONITORING THE EVALUATION OF CONGENITAL SYPHILIS CASES IN THE STATE OF SÃO PAULO, 2007 TO 2017

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Background Congenital syphilis (CS) is still considered a public health problem in the state of São Paulo, Brazil: 4,039 cases were reported in 2017 -incidence rate = 6.6 per 1,000 live births. The objective of this study was to investigate the evaluation of CS cases in 2007 and 2017 in the state of São Paulo.

Methods A descriptive study was carried out with the data of national surveillance system in the period 2007 to 2017. Of the following evaluation tests performed the percentage of non-performed and positive results were calculated: - Venereal Disease Research Laboratory (VDRL) on the serum; - long-bone radiography; -cerebrospinal fluid (CSF) for cell count and protein; - CSF for VDRL.

Results From 2007 to 2017, 21,524 cases of CS born alive were reported: 743 in 2007 and 3,687 in 2017. The percentage of non-performed and positive tests in 2007 and 2017, and the percentage variation (PV) between the two years were: - **non-performed** - VDRL on the serum (4.0% and 1.8%, PV = -56.3%), CSF for VDRL (23.4% and 21.4%, PV = -7.1), CSF for cell count and protein (23% and

21,4%: PV = 7,1%), long-bone radiography (13,7% and 9.9%, PV = -27.9%); - **positive results** - VDRL on the serum (59.1% and 81.1%; PV = 37.3%), CSF for VDRL (1.3% and 3.5%; PV = 157.9%), CSF for cell count and protein (1.6% and 10.1%: PV = 523%), long-bone radiography (2.6% and 3.5%, PV = 36.8%).

Conclusion There was an improvement in adherence to the CS evaluation protocol. In addition, we highlight the increase in the percentage of altered tests of children born alive in the period, pointing to the greater severity of the cases, and the need of improving the monitoring of these children in order to reduce the impact of congenital syphilis.

Disclosure No significant relationships.

P754 QUANTITATION OF CYTOKINES IN RABBITS FOLLOWING TRI-ANTIGEN VACCINE COCKTAIL IMMUNIZATION AND *T. PALLIDUM* CHALLENGE

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Background Immunological analysis of primary and secondary syphilis in rabbits and humans suggests that T helper cells mount a vigorous interferon- γ -dominated immune response (T_H1) to facilitate macrophage-mediated clearance of *T. pallidum*. In this study, we used quantitative reverse transcriptase (qRT)-PCR to evaluate post-challenge rabbit cytokine profiles of primary lesions in unimmunized rabbits and rabbits immunized with a tri-antigen vaccine cocktail.

Methods Groups of 8 male New Zealand White rabbits were immunized with a trivalent recombinant antigen cocktail, (N-term of TprK + N-term of Tpr Subfamily I + Tp 0751, emulsified in either of two custom adjuvants containing Natural or Synthetic TLR4 agonists + a natural Mincle agonist). Unimmunized control and immunized animals were intradermally challenged with 10^5 *T. pallidum* (Nichols) at each of 10 sites. Lesion biopsies were collected at days 2 and 21 post-challenge. Expression of IFN- γ , TGF- β , p40 IL-12/23, IL-4, IL-2, TNF- α , IL-10, IL-17A, IL-17F, and IL-22 was quantified by qRT-PCR using plasmids containing the target rabbit cytokines sequences, and expression levels were normalized to rabbit HPRT.

Results At day 2, transcripts for IFN- γ , IL-2, IL-17A, IL-17F, and TNF- α were significantly upregulated in both immunized groups ($P < 0.01$) compared to controls, a finding consistent with the development of clinical delayed type hypersensitivity and the induction of a T_H1 -type immune response at challenge sites. At day 21, the level of IFN- γ was lower in the Natural adjuvant group ($P < 0.02$), compared to controls, consistent with enhanced treponemal clearance in that group.

Conclusion In the development of a syphilis vaccine, it is important to determine correlates of protection to allow for assessment of the induction of a protective immune response. Our results demonstrate a robust immunization-induced T_H1 and T_H17 proinflammatory response in immunized rabbit groups, which suggests an effective level of resistance conferred by immunization with the trivalent protein vaccine.

Disclosure No significant relationships.

P755 **TREPONEMA PALLIDUM STIMULATED MACROPHAGE-DERIVED EXOSOMAL MIR-146A-5P DECREASED MONOCYTE TRANSENDOTHELIAL MIGRATION**

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Background Exosomes are small vesicles containing a wide range of functional proteins, DNA and RNA. Exosomal RNAs have been implicated in many exosome-mediated biological functions. These cell-derived Exosomes contain numerous miRNAs, which can work locally or can enter the circulation to act at distal sites. Accumulating evidences indicate that exosomal miRNA is linked to the host immune response to infection. In this study, we focused on how *Treponema pallidum* evade immune clearance via exosome-mediated transfer of microRNAs.

Methods We first performed a comprehensive miRNA profiling in exosomes using microarray analysis. Thereafter, RT-PCR was performed to validate the expression of miR-146a-5p in exosome derived from macrophage stimulated by *Treponema pallidum* and syphilis patients. Laser confocal microscopy was used to trace exosomal miR-146a-5p secreted by macrophage into HUVECs. The effect of exosomal miR-146a-5p on monocytes cells transendothelial migration of HUVEC by using migration assay. Luciferase reporter assay were utilized to confirm the binding of exosomal miR-146a-5p to the 3'untranslated region of JAM-C.

Results MicroRNA array was performed and 65 miRNAs were identified. Among the identified miRNAs, miR-146a-5p was one of the most significantly changed miRNAs which high expression in *Treponema pallidum* derived exosomes. We also confirmed that miR-146a-5p was enriched in serum exosomes of syphilis patients. Exosomal miR-146a-5p of macrophages could be transferred into HUVEC and reduce monocyte transendothelial migration by directly targeting the promoter of JAM-C.

Conclusion Our date show that exosomes derived from macrophage stimulated by *Treponema pallidum* expressed high levels of miR-146a-5p which could be delivered to endothelial cells, and decreases monocyte transendothelial migration by targeting JAM-C in endothelial cells, which may enable *Treponema pallidum* evade the host immune clearance.

Disclosure No significant relationships.

P756 **RISK FACTORS FOR PRIMARY AND SECONDARY SYPHILIS AMONG FEMALES IN CHICAGO, 2010–2017**

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Background Trends in congenital syphilis (CS) usually parallel those of primary and secondary (P&S) syphilis in women. Chicago has invested in a multi-pronged approach to address the syphilis epidemic in the city. Between 2010 and 2017, the total number of female P&S syphilis cases in Chicago decreased by 37% (from 87 to 55 cases) in parallel with a decrease in the number of CS cases (from 19 to 11). At the same time, national rates of CS increased 140%, from 9.7 per

100,000 live births in 2010, to a high of 23.3 per 100,000 live births in 2017.

Methods A retrospective analysis of surveillance data from 2010 through 2017 was performed on female cases of P&S syphilis (n=483) reported to the Chicago Department of Public Health.

Results Of 483 cases reported during this time, 382 (79.1%) were non-Hispanic black, 34 (7.0%) Hispanic, 27 (5.6%) non-Hispanic white, and 40 (8.3%) other or unknown ethnicity. Approximately 7% (32) of females were co-infected with HIV. The median age was 27 and did not change significantly over time, ranging from 24 to 32. Overall, 23% of interviewed females reported having sex while intoxicated with alcohol or drugs, and 15% reported having sex with anonymous partners. Only 6.2% of females diagnosed with P&S syphilis reported exchanging drugs for sex or money and <1% reported intravenous drug use or sex with partners using intravenous drugs.

Conclusion Our findings suggest that certain sexual behaviors, in particular anonymous sex and sex while intoxicated, are more frequently reported by women infected with syphilis. To curb the spread of CS further, there is a need to enhance surveillance and collect comprehensive behavioral risk factor data for females. Future interventions should focus on provider and public education, media campaigns targeted towards these sexual behaviors, and expansion of screening programs among females of reproductive age.

Disclosure No significant relationships.

P757 **AN EVALUATION OF THE PROVINCIAL 'SYPHISTORY' CAMPAIGN IN BRITISH COLUMBIA, CANADA**

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Background Infectious syphilis rates have been increasing in British Columbia (BC), Canada, primarily among gay, bisexual, and other men who have sex with men (gbMSM). In response, a provincial syphilis campaign ("Syphistory") was launched in January 2017, and included posters in venues frequented by gbMSM (physical and online) and a campaign-specific educational website. Goals of the campaign were to increase knowledge of syphilis and syphilis screening.

Methods Website metrics were collected and analyzed via Piwik Analytics tool. Pre and post-campaign surveys were conducted to assess knowledge of syphilis using a convenience sample of clients attending STI clinics in the Vancouver area. One-sided t-tests were used to analyze change in knowledge scores. Interrupted time series analysis was conducted to assess the change in syphilis screening rate among males before versus on or after January 2017.

Results During 2017 there were 4,421 unique visitors to the Syphistory educational website, of which 71% were between February and April. Mean survey score pre-campaign was 8.96/12 (n=137) and 9.12/12 (n=266) post-campaign (p=0.223). Those who reported seeing the campaign demonstrated a greater knowledge of syphilis (mean 9.7/12 versus 8.9/12, p<0.001). Provincial syphilis testing volumes among males were 93,311 and 101,967 in the 12 months before and after campaign implementation, respectively. Adjusting for the historical trend of increasing syphilis screening, there was a

statistically significant change in syphilis testing rate among males ($p=0.03$).

Conclusion Our campaign appeared to have reached people living in BC. Syphilis knowledge was high in our pre-campaign sample, which may represent a more educated cohort. Nevertheless, those who saw the campaign scored higher. Syphilis testing rate among males increased significantly after campaign implementation. Work is underway to evaluate the campaign among gbMSM.

Disclosure No significant relationships.

P758 USE OF A RAPID SYPHILIS TEST FOR SYPHILIS DIAGNOSIS AMONG PATIENTS PRESENTING TO AN STI CLINIC IN NORTH CAROLINA, USA

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Background Rapid treponemal antibody-based tests have been utilized for syphilis screening and diagnosis. In the United States (US), the Syphilis Health Check (SHC, Trinity Biotech) is the only FDA-cleared rapid test. However, there is a high proportion of false positives with SHC screening. We evaluated the performance of the SHC for syphilis diagnosis among patients presenting to an STI clinic in Durham, North Carolina (NC), US.

Methods Beginning in September 2017, the SHC was routinely performed for any patient in the STI clinic for whom a stat rapid plasma reagin (RPR) was requested and had no history of prior syphilis. The SHC and RPR were performed at the on-site laboratory using venous blood specimens. Confirmatory treponemal tests (e.g. enzyme immunoassay) were conducted for specimens with discrepant results at the state public health laboratory. We determined the performance of the SHC results in comparison with either a combined positive RPR/treponemal test or positive treponemal test as the standard for a "true positive."

Results Over a 16-month period, 182 unique patients who presented with symptoms and/or as contacts to syphilis underwent testing with a stat RPR and the SHC; the majority were African-American (83%) and male (74%). The SHC was positive in 66 patients; 9 of these cases had nonreactive RPRs but positive treponemal tests. The estimated sensitivity of the SHC was 91.3% (63/69), with a specificity of 97.3% (110/113). Of the 3 specimens with positive SHC but negative confirmatory testing, one was from an asymptomatic patient with contact to syphilis and an RPR 1:1.

Conclusion Rapid syphilis testing can be used to assist in the immediate diagnosis of STI clinic patients with suspected syphilis based on symptoms or exposure. The SHC had an acceptable sensitivity and specificity, with a low proportion of false-positives among a population with a high likelihood of syphilis infection.

Disclosure No significant relationships.

P759 EVALUATION OF THE FULLY AUTOMATED BIO-RAD BIOPLEX 2200 SYPHILIS TOTAL & RPR ANTIBODY DETECTION ASSAY

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Background Laboratory diagnostic of syphilis is based on both treponemal and non-treponemal assays. While automated treponemal assays are available, non-treponemal antibody testing continue to require extensive hands on time. The BioPlex 2200 Syphilis Total & RPR assay by Bio-Rad Laboratories is a fully automated assay that detects both treponemal and non-treponemal antibodies with on board RPR titer capability.

Methods We compared the BioPlex Total & RPR assay with the BioPex IgG assay and with the Wampole Impact RPR card test for the treponemal and non-treponemal antibodies detection respectively. A total of 504 prospective sera sent to our laboratory for syphilis testing were tested with both BioPlex assays to establish agreement of treponemal results. Also, a panel of 52 sera with known titer values was provided by our reference laboratory. These sera were tested with the BioPlex Total & RPR assay and the manual Wampole RPR card to compare titer results, using essential agreement within 1 dilution range and correlation of log₂ transformed titer values with Spearman coefficient.

Results Of the 504 sera tested, 112 were positive for treponemal antibodies with BioPlex Total & RPR and 109 with BioPlex IgG. Positive, negative and overall agreements were 95% (104/109)(95% CI [89%, 98%]), 98% (387/395)(95% CI [96%, 99%]) and 97% (491/504)(95% CI [95%, 99%]) respectively for these sera. Essential agreement within 1 dilution of quantitative RPR titer results for the 52 sera panel was 90% and the Spearman correlation coefficient of titers obtained with the two assays was 0.926 with a $p < 0.001$.

Conclusion The BioPlex 2200 Syphilis Total & RPR assay is a fully automated assay that compares favorably with the BioPlex 2200 Syphilis IgG assay and that yields non treponemal titers that correlates favorably with a traditional manual RPR card test. Reliable automated non treponemal assays are needed.

Disclosure No significant relationships.

P760 SENSITIVITY AND SPECIFICITY OF THE QUANTITATIVE TEST FOR TPPA AND RPR FOR DIAGNOSIS OF CONGENITAL SYPHILIS IN NEONATES

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10.1136/sextrans-2019-sti.818

Background Diagnosis of congenital syphilis in neonates is difficult as TP-specific IgG can be passively transferred from mother to newborn, a reactive serologic test at birth does not

necessarily indicate that the infant is infected. However, if the ratio of titer of TPPA or RPR for newborn-mother at delivery is more than 4 times, the neonate is considered to be infected with syphilis transmitted from mother. To date, it is not clear for sensitivity and specificity of the quantitative test for TPPA and RPR for diagnosis of congenital syphilis.

Methods Quantitative test for TPPA and RPR in 155 pregnant women with syphilis and their neonates were performed at delivery, and the infants were followed up by 18 months and TPPA was qualitatively tested. The positive of TPPA was considered as diagnosis for congenital syphilis at 18 months after birth. The ratio of titer of RPR or TPPA for newborn-mother was calculated, and their sensitivity and specificity were assessed for diagnosis of congenital syphilis.

Results 27 cases with congenital syphilis were diagnosed. The TPPA titer ratio of neonate-mother was greater than 4 times in 14 cases, of which 13 were patients with congenital syphilis. The sensitivity of TPPA titer ratio of neonate-mother for the diagnosis of congenital syphilis was 48.15%(95%CI: 29.30%–67.00%). The RPR titer ratio of neonate-mother was greater than 4 times in 7 cases, of which 6 were the patients with congenital syphilis. The sensitivity of RPR titer ratio of neonate-mother for the diagnosis of congenital syphilis was 22.22%(95%CI: 6.54%–37.90%). The sensitivity of combination of TPPA and RPR titer ratios for the diagnosis of congenital syphilis was 62.96%(95%CI: 44.75%–81.18%). The specificity of the two methods was 99.22%.

Conclusion The sensitivity of RPR or TPPA titer ratio of neonate-mother for the diagnosis of congenital syphilis was low, and the specificity was very high.

Disclosure No significant relationships.

P761 TIP OF THE ICEBERG? AN UNUSUAL SYPHILIS OUTBREAK AMONG YOUNG DUTCH HETEROSEXUALS INDICATING A LARGER EPIDEMIC

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Background In 2016, a syphilis outbreak was detected among young heterosexuals in the South of the Netherlands. Syphilis in young Dutch heterosexuals is very rare since many years. Here, we describe the outbreak investigation.

Methods A case was defined as a laboratory confirmed sexually transmitted *Treponema pallidum* diagnosis between April 2016–December 2017 in individuals reporting heterosexual behavior only, and who were tested in this geographical area. Men having sex with men (MSM), commercial sex workers and swingers were excluded. Outbreak management included raising awareness among GPs and hospitals, extended STI screening, intensified partner notification and enhanced laboratory surveillance. Patients medical records and questionnaires for partner notification were used for analyses.

Results From 2016–2017, 18 cases were identified. Fourteen cases were <25 years of whom 9 were <20 years, 10 were women. Five cases consulted their GP months prior to diagnosis with symptoms indicating infectious syphilis, but were not

diagnosed or adequately treated, causing doctors delay. Two cases were not traceable after diagnosis and not treated. The cases reported 84 sex partners for partner notification, of whom 71% were aged <25. 46%(39/84) of these sex partners were indeed notified, of whom 30%(25/84) were tested, 5 were diagnosed with syphilis. 54%(45/84) of the sex partners could not be notified due to lack of contact information. 10 cases could not be linked to other cases and the remaining cases comprised 4 heterosexual couples. No clear source of infection was identified for 14 cases.

Conclusion This unusual outbreak among young heterosexuals indicates a larger epidemic. Continuous transmission is to be expected because most cases could not be linked or their source of infection was not found; only one third of notifiable sex partners were tested despite intensified efforts of partner notification; doctor and patient delay probably caused prolongation of transmission.

Disclosure No significant relationships.

P762 IS KISSING SAFE? DETECTION OF *TREPONEMA PALLIDUM* IN ORAL SWABS FROM PATIENTS WITH SYPHILIS

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10.1136/sextrans-2019-sti.820

Background *Treponema pallidum* (TP) DNA has been detected in oral swabs from patients with early syphilis. The goal of this study was to determine the frequency of detectable TP DNA in oral swabs from patients with all stages of syphilis, and from appropriate controls.

Methods Blood (N = 131), oral swabs (N = 112) and lesion swabs (N = 72) were collected from 138 patients with untreated syphilis (cases). Controls were oral swabs collected from 89 patients presenting to an STD clinic for a concern other than syphilis, 59 HIV positive individuals, and 108 individuals 3, 6 or 12 months after treatment of uncomplicated or neurosyphilis (194 samples). DNA was extracted and underwent amplification of a portion of the TP *tp0548* gene. Rapid plasma reagin (RPR) tests were performed on serum, and the association between RPR titer and oral TP detection assessed using Mann-Whitney U test.

Results Among those with known syphilis stage, TP was detected in oral swabs from 31/101 (31%) cases: 4/29 (14%) with primary, 20/49 (41%) with secondary, 6/15 (40%) with early latent, 1/7 (14%) with late latent syphilis, and 0/1 (0%) syphilis contact. Oral TP was detected in 18/74 (24%) without detectable blood TP, 6/18 (33%) without detectable lesion TP, and 21/78 (27%) without oral lesions. Oral TP detection was more likely with higher RPR titers (p = 0.002). Oral TP was not detected in any of the 342 control samples.

Conclusion Oral TP is detectable in patients at all syphilis stages, most commonly when serum RPR titer is high. Oral TP can be detected even when undetectable in blood or lesion swabs, and in the absence of oral lesions. While detection of DNA is not the same as detection of virulent organisms, these results suggest that individuals with syphilis could infect their partners solely through oral contact.

Disclosure No significant relationships.

P763 ATTENUATION OF SYPHILIS INFECTION FOLLOWING IMMUNIZATION OF RABBITS WITH A TRIVALENT ANTIGEN COCKTAIL

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10.1136/sextrans-2019-sti.821

Background The bacterium that causes syphilis, *Treponema pallidum* subsp. *pallidum* (*Tp*), elicits cellular and humoral immune responses to numerous antigens during infection. We have identified three recombinant peptide antigens that, when used separately for immunization, show promise in the attenuation of chancre development or dissemination to distant tissues. Here, we report protection induced by a three-antigen cocktail emulsified in either of two custom adjuvants containing Natural or Synthetic TLR4 agonists + a natural Mincle agonist.

Methods Three purified recombinant peptides [TprK (aa37-273), Tp0751 (aa24-237), and Tpr Subfamily I (23-351)] were emulsified in either adjuvant and used to immunize groups of 8 rabbits. The immunized rabbits and 8 Unimmunized controls were challenged intradermally with $10^{5.5}$ *Tp*/site at 10 sites. Lesion development was recorded daily. Treponemal burden was measured by darkfield (DF) microscopy and qPCR of lesion aspirates, and dissemination to distant tissues was evaluated by rabbit infectivity test (RIT).

Results Compared to Unimmunized, treponemal burden by DF in lesion aspirates at Day 19 was lower in both Natural ($P=0.001$) and Synthetic ($P=0.004$) groups; by qPCR, treponemal burden was lower in the Natural group ($P=0.008$). At Days 19 and 30, the proportion of lesions ulcerating was lower in the Natural group, compared to Unimmunized ($P=0.0001$ [d.19] and $P=0.0002$, [d.30]). At day 30, the proportion of lesions ulcerating in the Natural group was lower than in the Synthetic ($P=0.04$) group. Mean lesion volume was smaller in immunized groups versus Unimmunized on days 10–25. RIT indicated the lowest number of disseminated *Tp* in rabbit tissues from the Natural group, followed by the Synthetic group, then the Unimmunized group ($P=0.0247$).

Conclusion Immunization with the three-antigen cocktail significantly attenuates syphilis infection: enhancing *Tp* clearance, promoting lesion healing, and reducing dissemination. In rabbits, Natural adjuvant was more effective than Synthetic adjuvant in inducing protective immunity.

Disclosure No significant relationships.

P764 GETTING TO THE BOTTOM OF IT: SEXUAL POSITIONING AND SYPHILIS STAGE AT DIAGNOSIS AMONG MEN WHO HAVE SEX WITH MEN

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10.1136/sextrans-2019-sti.822

Background Effective syphilis control could be achieved by reducing its duration of infectiousness, for example, by identifying a higher proportion of cases at the primary stage. We hypothesised that men who have sex with men (MSM) who practice receptive anal intercourse (“bottoms”) are more likely to miss the primary stage and present with secondary syphilis, compared to MSM who practice exclusively insertive anal intercourse (“tops”).

Methods This was a retrospective analysis of MSM diagnosed with either primary or secondary syphilis at Melbourne Sexual Health Centre between 2008 and 2017. We analysed associations between the stage of syphilis (primary vs secondary) and sexual behaviour data collected by computer-assisted self-interview (CASI).

Results 559 MSM diagnosed with syphilis provided sufficient behavioural data for analysis, of whom 338 (60%) had primary syphilis and 221 (40%) had secondary syphilis. Among “tops”, 77% (95%CI 69–84) presented with primary syphilis and 23% (95%CI 16–31) presented with secondary syphilis. Whereas among “bottoms”, 54% (95%CI 49–59) presented with primary syphilis and 46% (95%CI 41–51) presented with secondary syphilis. Among those with primary syphilis, 247 (73%, 95%CI 68–78) had a penile chancre and 77 (23%, 95%CI 19–28) had an anal chancre. In multivariate logistic regression, “bottoms” were more likely to present with secondary syphilis than “tops” (aOR 3.90, $p<0.001$), after adjusting for age, HIV status, and condom use.

Conclusion “Bottoms” more often presented with secondary syphilis compared to “tops”, and most MSM who presented with primary syphilis had penile chancres rather than anal chancres. This suggests that MSM who have receptive anal intercourse may be more likely to overlook anal syphilis chancres, perhaps because these are located inside their anal canal. These men may benefit from additional strategies to improve the recognition of anal chancres.

Disclosure No significant relationships.

P765 ADDED VALUE OF *TREPONEMA PALLIDUM* PCR IN DIAGNOSING EARLY SYPHILIS

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10.1136/sextrans-2019-sti.823

Background Diagnosing an infection with *Treponema pallidum*, the causative agent of syphilis, is routinely based on serology. STD clinics routinely screen those with high-risk sexual behaviour, e.g. MSM, for syphilis. In case of an ulcer, swabs taken from the ulcer can be tested for *T. pallidum* by PCR. Here, we assessed the added value of PCR next to serology in primary syphilis.

Methods Retrospective data were analysed from patients of our STI clinic. Samples were taken from the genital ulcer for

T. pallidum PCR and syphilis serology was simultaneously performed. Serology was interpreted positive when seroconversion was detected or when RPR significantly increased in those with a history of treated syphilis. Serology was interpreted as negative when the screening was negative or when no significant rise in RPR was detected in those with a history of syphilis.

Results In total 191 PCR – serology combined results were analysed. In total 70/191 (37%) PCRs were positive. In 24/70 (34%) samples the positive PCR result added to diagnosing primary syphilis, either because the serology was negative (n=5, 7.1%) and the diagnosis would have been missed or the positive PCR result added in staging syphilis (n=19, 27.0%) affecting the treatment regimen. Moreover in 11/76 (14%) serology positive patients the PCR was negative. Six of these patients were clinically diagnosed as primary syphilis, 3 as syphilis latens recens and 2 as syphilis stage unknown.

Conclusion In our setting, the *T. pallidum* PCR is of added value in the diagnosis of primary syphilis as without PCR one in 10 early syphilis would have been missed and about one in 5 would have been possibly overtreated. Importantly, the PCR supports the low-threshold testing policy since patients can present within the window period of serology optimizing public health efforts to minimize transmission.

Disclosure No significant relationships.

P766

SLINGS AND ARROWS OF SYPHILIS SURVEILLANCE: THE DEPARTMENT OF DEFENSE EXPERIENCE WITH ADMINISTRATIVE CASE FINDING

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Background Routine surveillance of Military Health System (MHS) data provides actionable information on STI rates. National increases in syphilis rates led to the publication of a 2015 MHS syphilis analysis demonstrating a significant rise in military syphilis cases between 2010 and 2015. The current study had two objectives 1) validate the current syphilis estimates under the DoD surveillance case definition and 2) evaluate the validity of clinical staging of syphilis cases within the surveillance period.

Methods Of the initial 2976 incident cases identified in the 2015 surveillance review, we sampled 500 cases. We developed and applied a standardized review algorithm for case determination and expert chart review to provide evidence of clinical stage of disease at the time of surveillance case capture.

Results Out of 500 total cases evaluated, 181 (36%) were determined to not be cases of syphilis. Surveillance cases identified through Reportable Medical Events (RME) had a positive predictive value (PPV) of 0.82 compared to those cases identified through administratively available (ICD9-coded) data with a PPV of 0.42. Similarly, surveillance classification of clinical staging of infection was grossly inaccurate with respect to Latent, Primary or Secondary (P&S), or Late infection with accuracy dependent on use of RME (PPV 0.49) vs ICD-9 codes (PPV 0.30) for case identification.

Conclusion A full one third of DoD surveillance case identified cases of syphilis in the Military Health system are not true cases of syphilis. The predominate cause of this misclassification was the reliance on appropriate use of ICDs by providers. The use of administrative data (ICD codes) for incidence and disease stage surveillance should be done with caution due to inappropriate use of coding, misinterpretation of labs, and overly inclusive case definitions. RMEs provide better accuracy (PPV) for correctly identifying incident cases but are still inaccurate with respect to clinical stage.

Disclosure No significant relationships.

P767

SEX, DRUGS AND THE INTERNET – THE PERFECT STORM FOR SYPHILIS TRANSMISSION AMONG BLACK GAY AND BISEXUAL MEN (BMSM)

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Background Use of the internet to meet sex partners has increased over time among MSM, and an outbreak of syphilis has been linked to seeking sex partners through an online chatroom. Other studies have shown associations between methamphetamine use (MU), sexual risk behaviors and STIs including syphilis. The objective was to determine the association between syphilis positivity, MU, sexual risk behaviors and sex partner meeting spaces and separately, MU, sexual risk behaviors and sex partner meeting spaces among Black MSM (BMSM) in one mid-Atlantic U.S. city without a known history of these associations.

Methods Data came from an ongoing longitudinal cohort study, the Understanding Sexual Health in Networks Study (USHINE) including MSM 18–45 years of age in Baltimore City. Information on MU and sex partners and meeting spaces in the past 3 months was obtained via an egocentric sexual network survey. Summary statistics, chi-squared tests and t-tests were used for hypothesis testing.

Results 147 MSM were enrolled and 75.5% (111) were BMSM. The mean age of participants was 29.7 years (SD 5.60); 33.3%(34) were syphilis positive. Syphilis positivity was associated with MU (57.1% vs 29.6%, p-value=0.042) and meeting sex partners on Jack'd (42.3% vs 23.4%, p-value=0.046) and Facebook (52% vs 27%, p-value=0.022). MU (vs no use) was associated with anonymous sex (69.2% vs 19.3%, p-value <0.000), higher numbers of sex partners (≥ 3 in past 3 months 76.9% vs 25.7%, p-value <0.001), and meeting sex partners on Jack'd (84.6% vs 47.7%, p-value=0.012), Grindr (69.2% vs 25.7%, p-value <0.001), and Adam4Adam (53.9% vs 15.6%, p-value <0.001).

Conclusion Among BMSM, syphilis infection was associated with MU and specific sex partner meeting spaces, and MU was associated with sexual risk behaviors and specific sex partner meeting spaces. The relationships have not been identified before in this setting and suggest specific meeting spaces may

be important access points for syphilis and drug use prevention.

Disclosure No significant relationships.

P768 THE EVOLUTION OF AN INFECTIOUS SYPHILIS EPIDEMIC IN A CANADIAN URBAN SETTING

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Background Reflecting worldwide trends, an outbreak of infectious syphilis was declared in Winnipeg, Canada in 2012. Initially exclusively an outbreak amongst men who have sex with men (MSM), increases among women were observed in 2014/15. This study compared the characteristics of more recent heterosexual cases of syphilis to those at the start of the heterosexual outbreak.

Methods Data were from infectious syphilis investigations (September 1st, 2011 to August 31st, 2018) from Winnipeg, Canada. Age-standardized rates (2006 Canadian population standard) and 95% confidence intervals (95%CI) are reported. Bivariate analyses (χ^2 tests) and multivariable logistic regression models compared heterosexual cases from 2011/12-2014/15 to 2015/16-2017/18 cases on socio-demographic characteristics and risk factors. Adjusted odds ratios (AOR) and 95%CI are reported.

Results A total of 770 infectious syphilis cases were reported to public health. Rates increased 25-fold, from 1.6/100,000 persons (95%CI:0.8–2.9) to 40.5/100,000 persons (95%CI: 36.1–45.3), between 2011/12 and 2017/18. The proportion of women increased from 8% to 47%; correspondingly, the ratio between male and female rates decreased from 4.5 to 1.3. Amongst men, the heterosexual proportion increased from 9% in 2011/12 to 75% in 2017/18. In bivariate analyses, more recent heterosexual cases were younger ($p < 0.001$); more likely to report crystal methamphetamine (CM) use (30% vs 3%, $p < 0.001$); gonorrhoea (21% vs 3%, $p < 0.001$) and chlamydia co-infection (23% vs 10%, $p = 0.004$); history of incarceration (36% vs 14%, $p < 0.001$); and having no fixed address (15% vs 2%, $p < 0.001$). In multivariable models, CM use (AOR: 7.9; 95%CI:2.4–26.7), gonorrhoea co-infection (AOR: 7.1; 95%CI: 2.1–24.1), and history of incarceration (AOR: 1.8; 95%CI: 1.1–3.5) remained statistically significant.

Conclusion At least two parallel epidemics of syphilis are occurring in Winnipeg. Although MSM cases have declined, control of the heterosexual outbreak remains elusive. Populations with multiple vulnerabilities, including CM use and history of incarceration bear the greatest burden. Public health surveillance should remain vigilant for congenital syphilis.

Disclosure No significant relationships.

P769 A SYSTEMATIC REVIEW ON ALTERNATIVE TREATMENTS FOR MATERNAL SYPHILIS

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Background Maternal syphilis leads to preventable adverse fetal health outcomes. The recommended treatment is

benzathine penicillin, which is challenging due to shortages, drug allergies and inability to administer the injection. We conducted a literature review to identify potential treatment options for maternal syphilis.

Methods We searched PubMed, Embase, and Scopus from January 1, 1970 to December 31, 2018. The search terms “*syphilis*” AND (“*maternal*” OR “*pregnancy*” OR “*congenital*”), AND “*treatment*” NOT (“*screening*”) were used. Additional articles were identified from the references. We included studies in English, with full text, on humans and women. Successful treatment was defined as maternal RPR titer decline and congenital syphilis prevention.

Results Of the 70 articles, 8 case series were included. 11 pregnant women were successfully treated with intramuscular ceftriaxone 250 mg: 7-day course for primary syphilis or 10-day course for secondary syphilis, repeated at 28-weeks gestation. One patient was successfully treated with amoxicillin 6g and probenecid 1g daily for 14 days, and another was successfully treated with a 6-day course of amoxicillin followed by ceftriaxone 2g intravenously for 8 days. In response to ampicillin 2g intravenously intrapartum, one mother and one neonate developed the Jarish-Herxheimer reaction in cases of undiagnosed syphilis. Macrolides failed to prevent congenital syphilis: 5 patients treated with azithromycin 1g orally for 1–10 days, one case report of erythromycin 750 mg orally QID for 12 days and one case report of two failed 15-day courses of oral erythromycin 750–800 mg QID until penicillin desensitization was initiated. One case of clindamycin decreased maternal RPR titers, but failed to prevent congenital syphilis.

Conclusion Overall, 23 patients were treated with penicillin alternatives (15 with beta-lactam antibiotics, 7 with macrolide antibiotics, 1 with clindamycin), and 13 were treated successfully. Clinical research should evaluate amoxicillin and cephalosporins. Our review does not support the use of macrolide antibiotics.

Disclosure No significant relationships.

P770 JARISCH-HERXHEIMER REACTION IN CENTRAL NERVOUS SYSTEM AMONG NEUROSYPHILIS PATIENTS: DISCONTINUATION OF THERAPY OR NOT?

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Background Syphilis has returned to china with a vengeance since the 21st century, and the epidemiology of neurosyphilis has largely paralleled that of active syphilis. Prompt therapy with high-dose intravenous benzylpenicillin is critical to alleviate clinical symptoms of neurosyphilis patients. However, patients may experience an exacerbation of mental and/or neurological symptoms following the initiation of treatment due to a severe Jarisch-Herxheimer reaction (JHR) in central nervous system (CNS). We retrospectively analyzed the incidence, risk factors and prognosis for JHR in CNS in Shanghai Skin Disease Hospital, China.

Methods From July 1, 2017 to December 31, 2018 at our sexually transmitted disease ward, 574 neurosyphilis patients received the high-dose intravenous benzylpenicillin. Patient factors were recorded, including age, gender, neurosyphilis type, serum and cerebrospinal fluid-venereal disease research laboratory test (CSF-VDRL) titer, white blood cell count and protein

level of CSF, accompanying symptoms, clinical management and prognosis.

Results All patients were HIV negative. The total incidence of JHR in CNS was 7.14% (41/574, 95% CI: 5.23–9.65%), being the most frequent among patients with general paresis. The mean timing of JHR after the initial dose of benzylpenicillin was to start at 6 hours (range: 0.5–13), peak at 8 hours (range: 0.5–20), and subside by 17 hours (range: 10–30). Besides fever and chills, the main symptoms were hallucination, paranoia, aggressive behavior, mental depression, cognitive impairment, confusion, urinary incontinence, stupor, convulsion and seizures in descending order. The JHR was significantly related to higher CSF-VDRL titer, pleocytosis, no usage of antibiotics in the last 6 months ($p < 0.05$). The therapy was stopped with a resolution of seizures in two patients. However, benzylpenicillin was reinstated uneventfully 3 days later.

Conclusion Higher CSF-VDRL titer, pleocytosis and no recent usage of antibiotics were associated with an increased risk for JHR in CNS. Therapy of neurosyphilis can be continued with intensive surveillance.

Disclosure No significant relationships.

P771 CLINICAL TRIAL OF CEFIXIME FOR THE TREATMENT OF EARLY SYPHILIS – PRELIMINARY RESULTS

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Background Increasing incidence of syphilis in the United States and penicillin shortages internationally call for research on alternative treatment options. In this randomized, multisite, open-label, non-comparative clinical trial, we are evaluating the efficacy of cefixime as treatment of early syphilis.

Methods Eligible participants are 18 years or older, have laboratory confirmed early syphilis (new Rapid Plasma Reagin [RPR] titer $\geq 1:8$ or 4-fold titer rise in past 12 months), and no concomitant antibiotic use. Patients with HIV infection must have undetectable viral load in the past 12 months and CD4+ count ≥ 350 cells/ μ l. Participants were randomized to receive either 2.4M IU benzathine penicillin G intramuscularly once or cefixime 400 mg orally twice a day, for ten days. Participants return for follow-up at 3, 6, and 12 months post-treatment for laboratory testing. The main outcome is a 4-fold RPR titer decrease at 6 months post-treatment.

Results To date, 27 participants (15 penicillin, 12 cefixime) are enrolled. The majority of the study population is men (26/27), Latino (15/27), and HIV-infected (25/27). Eight participants completed their 3-month follow up (4 cefixime/4 penicillin). In the cefixime arm, 3/4 participants had an equal or greater than four-fold decrease in the RPR titer, and 1/4 had a two-fold decrease. In the penicillin arm, 2/4 participants had an equal or greater than 4-fold decrease in the RPR titer, 1/4 had a two-fold decrease, and 1/4 is missing data.

Conclusion Enrollment is still open and data collection ongoing. Initial results are encouraging.

Disclosure No significant relationships.

P772 GASTRIC SYPHILIS: A CASE OF GASTRIC SYPHILIS DEVELOPED INTO NEUROSYPHILIS

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Background Syphilis caused by the spirochetes *Treponema pallidum*, which transmitted mainly through sexual contact and blood transmission. The spirochetes spread from the damaged skin to bloodstream, at which point any organ may be affected included bone, central nervous system, and visceral organs-the stomach. Therefore, when treating patients with syphilis, the clinician must rule out the involvement of other organs. Gastric syphilis is a rare presentation of infection with *Treponema pallidum*, which has no-specific symptoms. Gastric syphilis may occur in any phase of syphilis, predominantly in the secondary (50%), but rarely in the third(6%). There are no standard recommendations specifically address the treatment of gastric syphilis. The general approach is to treat according to the stage of the disease. However, if the clinician does not have experience the disease will be misdiagnosed. Here, we will describe a case of a patient with gastric involvement, whose symptom repeated after conventional treatment.

Methods The patient's history, clinical examination, biology, cerebrospinal fluid,blood nest PCR findings and treatment are reported. We also discuss the profit treatment options.

Results we described a case of a patient with the complaint of epigastralgia, pyrosis, and regurgitation. The gastroscopy revealed multiple ulcerative lesions at the antrum, gastric angle and duodenal ampulla, in which suspected cancer. Mucosal biopsy revealed an inflammatory infiltrate with multiple mature plasma cells. Immunohistochemistry and a nested PCR showed the presence of *Treponema pallidum* in the gastric tissues. But, with conventional treatment, the symptom repeated.

Conclusion The patient was diagnosed as having neurosyphilis with gastric syphilis.Her epigastric pain improved on the seventh day of the treatment. Follow-up gastroscopic findings tree months after diagnosis showed improved ulcerative lesions on gastric antrum and duodenal ampulla. The CSF examination was negative.

Disclosure No significant relationships.

P773 INCREASED DETECTION RATES OF PRIMARY SYPHILIS BY PCR IN A PROVINCIAL LABORATORY

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10.1136/sextrans-2019-sti.831

Background North America is experiencing an exponential rise in the numbers of infectious syphilis cases. The United States of America had 9.5/100,000 cases in 2017 which is a 10.5% increase from 2016 and a 72.7% increase from 2013. This trend is no different in Canada with Alberta being particularly

afflicted as one of the provinces with higher rates. Alberta had a 250% increase in the number of infectious syphilis cases in 2018 compared with 2017 (1380 vs 535) (Figure 1). It is no surprise that the laboratories are experiencing a similar rise in the volume of syphilis tests. Polymerase chain reaction (PCR) for detection of primary syphilis is a relatively new test method in the armamentarium of diagnostic tests for syphilis and is not widely available mainly due to the lack of commercially available assays.

Methods The Laboratory for Public Health in Alberta offers an in house syphilis PCR assay. It is a multiplex assay targeting both the *tpp47* and *polA1* genes and the B2M human DNA control, using TaqMan primers and probes. The assay has been validated for testing lesion swabs.

Results In concert with the rise in infectious syphilis cases, the lab has seen a 68.6% increase in syphilis test volume in 2018 over that of 2017. The positivity rate increased by 23.8% in 2017 and 264.8% in 2018. Direct testing diagnosed 33% (456/1380) of infectious syphilis cases in 2018. The majority of test requests originate from the two STI clinics, serving the inner city populations of the two major cities in the province.

Conclusion With the technical difficulty and quality control issues of the treponemal Direct Fluorescent Antibody test (DFA) and darkfield microscopy, molecular assays can play an important role in identifying early syphilis cases, when serology has the lowest sensitivity, thereby assisting public health in their efforts to decrease transmission.

Disclosure No significant relationships.

P774

PREVALENCE OF BACTERIAL SEXUALLY TRANSMITTED INFECTIONS AND CO-INFECTION WITH HIV AMONG MSM AND TW IN TIJUANA, MEXICO

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Background Low- and middle-income countries (LMIC) continue to rely on syndromic management of syphilis, *Chlamydia trachomatis* (CT), and *Neisseria gonorrhoeae* (NG) infections, which may exacerbate HIV epidemics among men who have sex with men (MSM) and transgender women (TW) for whom these infections are frequently asymptomatic. To examine the potential for targeted STI screening to curb HIV transmission among MSM and TW in LMIC, we estimated the prevalence of syphilis and urethral, rectal, and pharyngeal CT and NG infections, as well as HIV co-infection with these STIs among MSM and TW in Tijuana, Mexico.

Methods A sample of HIV-negative (N=125) and newly diagnosed HIV-positive (N=98) MSM and TW recruited via respondent-driven and venue-based sampling for HIV testing in a parent study underwent STI testing in this study (2017–2018). Treponemal rapid tests were used at the point-of-care with positives undergoing confirmatory testing following the reverse syphilis-testing algorithm. Nucleic acid amplification testing of urine and swabs (rectal and pharyngeal) was used to detect CT/NG at three anatomic sites. We used chi-squared tests to compare STI prevalence by HIV status.

Results HIV-positive participants had a higher STI prevalence than HIV-negative participants (55.1% vs 29.0%; p-value <0.0001). Among HIV-positive participants, the prevalence of syphilis was 34.7%, CT infection was 25.5% (9 urine; 17 rectal; 4 pharyngeal), and NG infection was 24.5% (7 urine; 20 rectal; 9 pharyngeal). Among HIV-negative participants, the prevalence of syphilis was 12.0%, CT infection was 13.6% (7 urine; 9 rectal; 2 pharyngeal), and NG infection was 10.5% (3 urine; 8 rectal; 7 pharyngeal). In the absence of extragenital screening, most CT (26/42) and NG (27/37) cases would have been missed.

Conclusion The high prevalence of syphilis, CT, and NG infections among MSM and TW in Tijuana suggests STI screening that includes extragenital tests, particularly at HIV diagnosis, may help curb HIV transmission in this setting.

Disclosure No significant relationships.

P775

HEPATITIS C IS NOT A PROBLEM FOR FEMALE TRANSGENDERS IN GOIÂNIA, CENTRAL BRAZIL – PRELIMINARY DATA

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Background It is estimated there are 71 million HCV carriers worldwide, and about 1,032,000 live in Brazil. This infection causes acute and chronic hepatitis and is the top cause of liver cancer. The principal mode of HCV dissemination is parenteral via, though some sexual behaviors may facilitate viral transmission such as anal intercourse and unsafe sex. Many transgender women practice behaviors that may put them at risk for HCV infection. The aim of this study is to evaluate the prevalence of HCV infection among transgender women in Goiania, Central Brazil.

Methods From May to December 2018, a total of 180 transgender women were interviewed and tested for anti-HCV using a rapid test (ALERE HCV, Standard Diagnostics, Republic of Korea).

Results None were anti-HCV positive. Of the total, 34.3% reported no or irregular condom use during anal sex with a steady partner, and 34.3% continue this behavior with occasional sexual partners. Other factors: 82.6% had tattoos or piercings; 67.8% used non-injection illicit drugs; 47.8% put industrial silicone into their body; 48.9% reported previous STI, and 48.3% reported bleeding during sexual intercourse. Whereas only 6.7% reported blood transfusion, and 4.2% had a history of illicit injection drug use.

Conclusion These findings suggest hepatitis C is not a problem for transgender women in Goiânia. The low frequency of blood transfusion and illicit injection drug use play a role in HCV prevalence despite of several opportunities for viral transmission.

Disclosure No significant relationships.

P776 HIV EPIDEMIOLOGY AMONG MEN WHO HAVE SEX WITH MEN AND TRANSGENDER WOMEN IN MYANMAR: DATA FROM COMMUNITY-BASED SURVEILLANCE

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Background Men who have sex with men (MSM) and transgender women (TW) experience a disproportionate HIV burden in Myanmar. Relatively little data characterising HIV among MSM and TW in Myanmar exists, and there are no published estimates of HIV incidence.

Methods We implemented an electronic data management system (eDMS) at two community-based HIV testing clinics targeting MSM and TW. Unique identifiers were used to longitudinally track HIV testing and sexual risk behaviours, and socio-demographic data was captured at first visit. Baseline HIV prevalence, examined correlates of HIV positivity using logistic regression, HIV incidence among clients receiving more than one HIV test over the observation period was calculated

Results 2867 MSM and TW clients were tested over 15 months. At first test, 37% reported a lifetime history of HIV testing, 74% reported sex with casual male partners in the p3months, and 28% reported consistent condoms use with casual partners. 291 clients tested HIV positive at their first test (prevalence=10.4%;95%CI: 9.3–11.6). Positivity was significantly associated with self-identifying as *Apone* (local label describing non-disclosing MSM; aOR 9.1; 95%CI:3.8–22.2) or *Apwint* (local label used describing TW;aOR: 12.0;95%CI: 4.0–36.0), age 26–39 years (aOR 2.9;95%CI: 1.6–5.3) and reporting no lifetime history of HIV testing (aOR:4.6; 95% CI:2.3–9.4). Twelve incident cases were detected among clients receiving more than one test (n=279) and incidence was 10.1 per 100 person years (95%CI:5.73–17.8).

Conclusion To our knowledge, this is the first HIV incidence estimate for MSM and TW in Myanmar, higher than other regional estimates for MSM and TW. A HIV diagnosis at the first test was associated with sexual identification, younger age and testing history, suggest a high level of HIV transmission and protracted periods of undiagnosed HIV. Imperatives for Myanmar's national response include promotion of timely and regular testing behaviours, outreach strategies tailored to age and sexual identity and the ongoing monitoring of HIV trends.

Disclosure No significant relationships.

P777 DIFFERENCE BETWEEN TRANSVESTITES AND TRANSGENDER WOMEN FOR HIV PREVALENCE AND RISK BEHAVIORS

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Background In general, transgender women represent a vulnerable population at high risk for HIV infection. However, within this population, there are several identities which may have different risk behaviors. Transvestites and transgender women are the major of them. The aim of this study is to evaluate the difference between individuals who self-declared being a transvestite or transgender woman, considering HIV infection, sociodemographic characteristics, and risk behaviors.

Methods From May to December 2018, 180 participants were recruited in the metropolitan region of the City of Goiania, Brazil: transvestites (n=74) and transgender women (n=106). All of them were interviewed on sociodemographics and risk behaviors for sexually transmitted infections, and tested for anti-HIV 1 and 2 by rapid test.

Results Transvestites were younger than transgender women, had less education, and were predominantly sex workers. They also reported more sexual partners in the previous week and were younger at sexual initiation. They had more frequent sex with men and women, sex with gay men, and sex with transvestites than transgender women. In addition, they reported more frequent sex with multiple partners, history of STI, illicit drug use and history of incarceration (p < 0.05). On the other hand, more transgender women reported no condom use at their last sexual encounter than transvestites (p < 0.05). The prevalence of anti-HIV1 was 29.7% vs. 17.9% between transvestites and transgender women. The CHAID decision tree analysis identified two variables that differentiated being transvestite and transgender: being a sex worker and a history of STI.

Conclusion These findings highlight differences between subpopulations of transwomen which should be considered for planning and implementation of health strategies to prevent and control STIs in this complex population.

Disclosure No significant relationships.

P778 HIV INFECTION IN TRANSGENDER WOMEN FROM A REGION FAR FROM THE EPICENTER OF THE HIV EPIDEMIC IN BRAZIL – PRELIMINARY RESULTS

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Background High rates of human immunodeficiency virus (HIV) infection in transgender women have been identified worldwide. In Brazil, some studies with this population have been performed, however, the real magnitude of this infection is still unknown in regions far from the epicenter of HIV in the country. Therefore, the objective of this study was to estimate the HIV prevalence and risk factors in transgender and transvestite women in Goiânia, Centre-West Brazil.

Methods Cross-sectional and analytical study. All eligible transgender women were interviewed face-to-face with a questionnaire containing sociodemographic characteristics and risk factors for this infection, and tested for anti-HIV 1 and 2 by rapid test.

Results Of the 180 women investigated, the median age was 24 years (Minimum:17, Maximum:58), education was 11 years of study (Minimum:1, Maximum: 18) and income was

RS\$2,000.00/month (Minimum: 0, Maximum: 12,000). The prevalence for HIV was 23% (41/180, 95% CI: 16.87–29.61). In multiple regression analysis, the following variables were included in the model: history of STI (sexually transmitted infection) ($p = 0.00$); history of forced sexual intercourse ($p = 0.01$); sexual initiation before age 13 ($p = 0.08$); use of crack ($p = 0.02$) and cocaine ($p = 0.12$); relationship with a drug using partner ($p = 0.09$), and prostitution ($p = 0.13$). According to the model, STI history (OR[odds ratio]: 4.4; 95% CI: 1.99–9.70) and forced sexual intercourse (OR: 2.2; 95% CI 1.01–4.27), were independently associated with HIV.

Conclusion It is essential to implement public policies that meet the specific needs of transgender and transvestite women, given their high infection rates and related risk factors.

Disclosure No significant relationships.

P779 PRE-EXPOSURE PROPHYLAXIS USE AMONG TRANS AND GENDER DIVERSE PEOPLE: CHARACTERISTICS AND BEHAVIOUR FROM THE EPIC-NSW TRIAL

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Background Trans and gender diverse (TGD) individuals are at higher risk of HIV than the general population. TGD individuals are under-represented among HIV pre-exposure prophylaxis (PrEP) users, hence little is known about their pill-taking behaviours. We describe demographic characteristics and PrEP adherence by TGD individuals in the EPIC-NSW study.

Methods From March 2016 to April 2018, 9,708 individuals were enrolled in EPIC-NSW. At baseline, then quarterly, participants were invited to complete an optional online behavioural and adherence survey. Factors previously associated with lower PrEP adherence were compared between TGD and non-TGD participants using chi-squared tests.

Results Of the 6,942 EPIC-NSW participants that completed any survey, 96 identified as TGD (1.4%), including 38 trans women and 15 trans men. TGD participants were significantly younger than non-TGD individuals (mean 34 vs 39 years, $p < 0.001$) and less likely to be university educated (44% vs 60%, $p = 0.002$). TGD individuals were more likely to identify as Indigenous Australian (11% vs 2%, $p < 0.001$), although no more likely to have been born in Australia ($p = 0.634$). 52% of TGD individuals reported being paid for sex by a man in the previous three months, compared to 8% of non-TGD participants ($p < 0.001$). TGD participants were as likely as other participants to report using crystal methamphetamine ($p = 0.666$), party drugs ($p = 0.572$), or condomless sex in the previous three months ($p = 0.991$). Taking at least four or seven PrEP pills in the previous week was reported in 87% and 91% ($p = 0.071$) and 77% and 82% ($p = 0.06$) of surveys completed by TGD and non-TGD individuals, respectively.

Conclusion Despite increased levels of HIV-risk and socio-economic disadvantage, TGD participants had comparable levels

of adherence to non-TGD EPIC-NSW participants. Additional services for TGD including counselling and PrEP monitoring within a supportive environment may be warranted to ensure ongoing protection against HIV.

Disclosure No significant relationships.

P781 PATTERNS OF HIV AND STI AMONG TRANSGENDER WOMEN IN EASTERN AND SOUTHERN U.S.: INTERIM BASELINE FINDINGS FROM THE LITE COHORT

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10.1136/sextrans-2019-sti.838

Background Transgender women (TGW) in the U.S. experience a disproportionate burden of HIV and STIs. National HIV/STI surveillance does not report statistics for TGW. We describe the baseline prevalence and characteristics of HIV and STI among a cohort of TGW enrolled across 6 cities in eastern and southern US to-date.

Methods Adult TGW, regardless of HIV status, are recruited and enrolled in a baseline screening visit. Participants complete a socio-behavioral survey, oral HIV screening, urine and self-collected anal and vaginal specimens for *Neisseria gonorrhoeae* (GC) and *Chlamydia trachomatis* (CT) testing, and serum treponemal syphilis testing and rapid plasma reagin (RPR) testing with quantitative RPR titers. Participants with negative HIV antibody test results at baseline and HIV-related risk behaviors are enrolled into the cohort.

Results Enrollment launched in March 2018. As of December 2018, 620 TGW completed baseline. Of these, 30% were identified with HIV at baseline and 63% enrolled into the HIV-uninfected cohort. Forty-percent reported a lifetime diagnosis of any STI. At baseline, 34% of HIV-infected participants and 12% of HIV-uninfected participants had ≥ 1 laboratory-confirmed STI. Baseline prevalence among all participants included: 2% rectal GC, 0% urogenital GC, 5% rectal CT, 1% urogenital CT, and 13% active syphilis determined by RPR and treponemal results. None of the 38 participants with self-reported history of vaginoplasty had GC or CT at the neovaginal site. Active syphilis infection was associated with residence in a southern city (aOR: 3.8, 95%CI:1.7–8.6), identification as Black and/or Latinx (aOR: 3.7; 95%CI:1.1–12.7), concern about safety in transit to healthcare (aOR: 1.9; 95%CI:1.1–3.3), and positive baseline HIV antibody test (aOR: 3.1; 95%CI:1.7–5.7).

Conclusion TGW in this 6-city baseline cohort have a high prevalence of HIV and STI. Study findings highlight demographic disparities, high HIV/syphilis co-infection, and barriers related to safety that may impede prompt diagnosis and treatment of STI and HIV in American TGW.

Disclosure No significant relationships.

P783 FACTORS ASSOCIATED WITH SYPHILIS TESTING IN TRANSGENDER WOMEN IN CENTRAL-WEST BRAZIL

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Background Syphilis, one of the oldest diseases caused by the spirochete *T. pallidum*, has been a major public health problem worldwide. Globally, social inequalities contribute to elevated sexually transmitted infections (STIs) rates among transgender women. High syphilis prevalence has been documented among transgender women in Latin America. **Objectives:** The aim of this study was to estimate the prevalence of syphilis and to analyze the potential predictors for this infection in transgender women in Goiânia, Central-West Brazil.

Methods A cross-sectional study was conducted in 180 transgender women (TGW) in Goiânia-GO, from April 2018 to December 2018. TGW were recruited using respondent-driven sampling (RDS) as a method to obtain a more robust and diverse sample of a hard-to-reach populations, which tends to be particularly sparse and marginalized. After obtaining the consent term, participants were interviewed using a structured form containing questions about sociodemographic characteristics and risk factors for *T. pallidum* infection. Blood samples were collected and tested for syphilis (anti-*T. pallidum*) by rapid test.

Results A total of 180 TGW participated in the study. Of the 180 samples tested by the rapid test for syphilis, 61.7.0% (CI 95%: 54.4–68.4%) were positive. In multiple regression analysis, previous STIs (OR aj: 6.2, $p \leq 0.001$), age (≤ 13 years) of sexual initiation (OR aj: 3.6; $p = 0.009$), number of partners (≥ 15) in the last seven days (OR aj: 5.3, $p \geq 0.0001$) were predictors of syphilis infection.

Conclusion The results of the present study show a high prevalence of syphilis infection in transgender women, with the development of prevention and control strategies, including counseling and testing, as well as the provision of treatment for STIs in the setting street and temporary and/or permanent shelters.

Disclosure No significant relationships.

P784 PREVALENCE OF STIS AND HIV IN TRANSGENDER WOMEN AND MEN: A SYSTEMATIC REVIEW

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Background The transgender (TG) population is under-researched. Despite reportedly high rates of HIV and sexually transmitted infections (STIs) among TGs, prevalence of these in TGs has not been systematically reviewed. Our primary objective was to perform a systematic review of the literature for studies reporting laboratory test proven prevalence data of

HIV and other STIs among male-to-female (MTF) and female-to-male (FTM) TGs. Given the sexual risk factors traditionally associated with MTFs (e.g. commercial sex work), we hypothesized that HIV/STI prevalence would be higher among MTFs compared to FTMs.

Methods A systematic review of the literature on original English-language research involving HIV and/or STI laboratory testing in TG populations within the last 50 years was performed.

Results Of 32 eligible studies, most focused on MTFs, with only 10 (31%) including data on FTMs. MTFs were exclusively investigated in 22 (69%) of studies. The majority of studies including MTFs were focused on sex workers, with 7 (22%) exclusively evaluated sex workers. HIV data was reported in 31 (97%) of studies. Syphilis data was presented in 18 (56%) studies. Regarding gonorrhoea and chlamydia, 15 (47%) studies presented testing data, but only 7 reported urogenital and extragenital results. No studies evaluated trichomoniasis. In MTFs, prevalence of HIV, syphilis, gonorrhoea, and chlamydia ranged from 0%–70.3%, 1.4%–50.4%, 0%–29.4%, and 2.7%–24.7%, respectively. In FTMs, prevalence of HIV, syphilis, gonorrhoea, and chlamydia ranged from 0%–8.3%, 0%–4.2%, 0%–10.5%, and 0–11.1%, respectively.

Conclusion Literature involving STIs in TG people focuses on the MTF community and HIV. Testing patterns for bacterial STIs are variable, especially for gonorrhoea and chlamydia. Per current literature, STIs appear to be more prevalent in MTFs compared to FTMs. Data for STIs in FTMs is limited. These gaps present opportunities for further study involving the epidemiology of STIs in the FTM population and the relevance of extragenital bacterial and parasitic STIs in all TGs.

Disclosure No significant relationships.

P785 SYPHILIS AMONG MSM/TW IN THE AMERICAS: A SYSTEMATIC REVIEW AND META-ANALYSIS (1980–2017)

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Background Although syphilis remains a central public health problem, disease estimates for men who have sex with men (MSM) and transwomen (TW) in the Americas are incomplete. The purpose of this study was to compare the syphilis epidemics of North America (NA) and Latin America/Caribbean (LAC).

Methods We conducted a systematic review of ten databases for studies of syphilis in MSM/TW in the Americas between 1980–2017. Regional and country-specific prevalences were calculated from 2000–17 using 3 analytic frameworks: 1) All MSM/TW; 2) MSM/TW with versus without HIV; and 3) MSM and TW separately. Pooled prevalence estimates were calculated utilizing random effects meta-analysis.

Results 167 studies (NA=84, LAC=83) representing 368,587 subjects were included. Almost no data was available from LAC prior to 2000 and only 8% of studies from either region reported stage of infection (Primary, Secondary, Latent). For

syphilis diagnosis, 42% of studies used RPR, 24% used VDRL, and 18% used FTA-Abs. From 2000–2017, syphilis prevalence among MSM/TW in NA was 6.6% (95% CI: 5.7–7.4%) and 13.3% (95% CI: 11.7–14.9%) in LAC. For TW alone, prevalence was 7.1% (95% CI: 2.3–11.9%) in NA and 31.7% (95% CI: 19.1–44.4%) in LAC. Among MSM/TW with HIV in NA, prevalence was 10.5% (95% CI: 7.4–13.3%) versus 4.0% (95% CI: 1.8–6.1%) in those without HIV. In LAC, syphilis was diagnosed in 15.1% (95% CI: 0–30.3%) of MSM/TW with HIV and 12.9% (95% CI: 9.5–16.2%) without HIV.

Conclusion From 2000–2017, the burden of syphilis in MSM/TW was greater in LAC than NA. Prevalence estimates were higher in certain subgroups, including TW in LAC and MSM/TW with HIV in NA, though these data were limited. Our results suggest a need for additional data on syphilis epidemiology with stratification by key subgroups, classification by stage of disease, and uniform diagnostic criteria to target public health strategies in the Americas.

Disclosure No significant relationships.

P787 **TRICHOMONAS VAGINALIS POSITIVITY RATES BY HIV STATUS AMONG WOMEN IN A CLINICAL STUDY**

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Background Numerous studies have shown that *Trichomonas vaginalis* (TV) infection is related to risk of HIV infection, but fewer studies have compared positivity rates based on HIV status. Further, the majority of studies that have looked at this topic have either been performed outside the US, or in HIV specialized care settings. We performed a secondary analysis of data collected for evaluation of a molecular diagnostic assay for Sexually Transmitted Infections (STI) diagnostics.

Methods Study data from patients with evaluable results obtained using a BD MAX CTGCTV study for detection of *Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (GC) and TV were reviewed for HIV status. These women were recruited from 11 sites in the US that included STID clinics; Family Planning clinics, including Planned Parenthood clinics; OB/GYN clinics and other clinic types. No HIV care specialty clinics participated in recruiting patients into this study. CT, GC and TV results based on HIV were compared status using χ^2 with $\alpha=0.05$.

Results HIV status data from 2339 women were available. Among HIV negative women the positivity rates for CT, GC, and TV were 6.2%, 1.9%, and 10.3% respectively. Among HIV positive women the positivity rates for CT and TV were 2.1% and 27.1% respectively. No GC coinfection was detected among HIV positive women. For TV, the positivity rate among women with HIV [27.1% (13/48)] was significantly higher than that of among HIV (-) women [10.3% (236/2291)] ($p<0.001$).

Conclusion While women engaged in HIV specialty care may be tested for STIs routinely, as services are being pushed to more primary care settings, it is important for clinicians to be aware of the importance of STI screening among HIV (+) women, particularly for TV.

Disclosure No significant relationships.

P788 **COMPARISON OF VAGINAL SPECULUM AND NON-SPECULUM SPECIMENS IN THE DIAGNOSIS OF TRICHOMONAS VAGINALIS**

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Background Trichomoniasis is the most prevalent non-viral sexually transmitted infection worldwide. In Nigeria, prevalence ranges from 5% to 15%. Apart from being a key biologic indicator of sexual activity, it's been associated with the transmission of Human Immunodeficiency virus. The use of vaginal speculum is traditionally required for specimen collection. The limited application of this step in various primary health care facilities in resource-poor settings due to difficulties with sterilization of speculae among others, has grossly reduced the offer of testing for Trichomoniasis. Self-collected vaginal swab could be an acceptable alternative specimen for diagnosis of trichomoniasis in low income settings. We compared the yield of *Trichomonas vaginalis* from speculum and non-speculum based specimens.

Methods 500 women between 18–45 years presenting with abnormal vaginal discharge in two health care facilities in Rivers State, Nigeria, were enrolled. Three specimens were collected from each woman; two non-speculum based/non-invasive and the third, speculum based. Microscopists were trained and the procedure standardized. Wet mount microscopy was performed on all specimens within thirty minutes of collection. Three Microscopists examined each specimen independently. All infected patients were managed according to existing guidelines. Ethical approval was obtained and data analyzed using SPSS version 20.

Results Median age of participants was 31 years. Of the 500 women, 53 were infected giving an overall prevalence of 10.6%. Using the speculum-based specimens, 90.5% (48) of infected women were detected while 83.0% (44) and 30.1% (16) were detected using the self-collected swab and first void urine respectively. Interestingly, first void urine was able to detect five (5) more cases that were not detected by the speculum-based method.

Conclusion In low income settings, use of self-collected swabs in combination with first void urine is likely to increase detection rate of *Trichomonas vaginalis* when compared with the use of vaginal speculum only.

Disclosure No significant relationships.

P789 **BACTERIAL VAGINOSIS MARKERS DETECTED BY BD MAX™ VAGINAL PANEL IN RELATION TO ABSENCE AND PRESENCE OF TRICHOMONAS VAGINALIS**

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Background The three most frequent causes of vaginitis are bacterial vaginosis (BV), vulvovaginal candidiasis (VVC) and Trichomoniasis (TV). Within women presenting with symptoms of vaginitis, the concomitant detection of two or more pathogens is common; however, little is known about the biology of pathogen interactions during co-infections. Using a NAAT

that allows simultaneous detection of organisms associated with BV, VVC and TV, we sought to characterize BV marker combinations in the absence and presence of BV and/or TV co-infections.

Methods The BD MAX™ Vaginal Panel is a sample to answer NAAT capable of simultaneous detection of *G vaginalis*, *A. vaginae*, BVAB-2/*Megaspheara-1*, *L. crispatus*/*L. jensenii*, *C. albicans/parapsilosis/tropicalis*, *C. glabrata*, *C. krusei* and *T. vaginalis*. The data obtained from BD MAX Vaginal Panel runs conducted on 1,740 clinician-collected specimens taken from symptomatic patients was analyzed to determine if any detection patterns emerged. The distribution of BV marker combinations detected in the absence and presence of BV and/or TV were compared.

Results Independent of the BV result (BV+ or BV-), the proportions of samples containing no BV markers and samples containing all BV markers were different in TV- and TV+ samples. TV+/BV- samples displayed a significantly higher number of cases in which only *A. vaginae* was detected or a combination of *A. vaginae* and *G. vaginalis* than in samples found TV-/BV-, TV-/BV+ or TV+/BV+.

Conclusion The BV marker detection patterns vary with the presence of co-infection by TV. The results obtained in this analysis suggest some interplay between BV and TV and warrants further investigation.

Disclosure No significant relationships.

P790

DETERMINING THE ORIGINS OF REPEAT *TRICHOMONAS VAGINALIS* INFECTIONS USING CLINICAL VERSUS GENOTYPE-INFORMED CRITERIA

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Background High rates of repeat *T. vaginalis* infections post-treatment have been reported. It is essential to understand the origin of these infections (i.e. treatment failure or reinfection) to determine the best secondary prevention measures. Self-reported sexual behavior and medication adherence can be subject to bias. The purpose of this study is to examine the origins of early repeat *T. vaginalis* infections in women using clinical versus genotype-informed criteria.

Methods Women with *T. vaginalis* confirmed by culture or nucleic acid amplification test (NAAT), who were randomized to receive 2 g or 7-day 500 mg BID metronidazole (MTZ), were retested 3–12 weeks post treatment at test-of-cure (TOC). Viable isolates from women who were TOC TV+ were genotyped (baseline and TOC isolates) and MTZ susceptibility (TOC only) was evaluated. Sexual and treatment adherence histories were elicited by computer-assisted self-administered survey. Treatment failure was defined using two criteria: 1) clinical (a combination of MTZ adherent per self-report+ no follow-up sexual exposure per self-report + no MTZ resistance), and 2) genotype-informed (concordant

baseline and TOC genotype with no follow-up sexual exposure per self-report).

Results Of 80 repeat positives, 78 were evaluated using clinical and 49 using genotype-informed criteria. Per clinical criteria, 87.2% were treatment failure, 7.7% were reinfection and 5.1% were new infection. Per genotype-informed criteria, 51.0% were treatment failure, 10.2% were reinfection and 38.3% were new infection. In subset analysis, comparing the 49 with both clinical and genotype-informed assessments, 61.2% agreed and 38.8% disagreed (kappa 0.29 indicating poor reliability). Of 44 women who denied having a new partner during follow-up, 14 (31.8%) had a discordant genotype.

Conclusion Using either criteria, most TOC *T. vaginalis* positives were treatment failure rather than re-infections. Clinical and genotype-informed classification were not well correlated. Possible explanations for this will be discussed.

Disclosure No significant relationships.

P791

ASSESSMENT OF URETHRITIS ETIOLOGY AMONG HIV-INFECTED MEN ATTENDING AN STI CLINIC IN LILONGWE, MALAWI

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10.1136/sextrans-2019-sti.846

Background Malawi uses syndromic management for the treatment of sexually transmitted infections (STIs). However, the etiology profile of STIs has been shown to change over time. We conducted a current assessment for etiology of urethral discharge (UD) among men in Lilongwe Malawi to inform development of effective national treatment guidelines.

Methods We enrolled a cohort of HIV infected men with UD who were either ART naïve or on ART for ≥ 12 weeks at Bwaila STI clinic. We collected blood samples and urethral swabs for STI etiologic testing as follows: *Neisseria gonorrhoeae* (GeneXpert, culture), *Chlamydia trachomatis* (GeneXpert), and *Trichomonas vaginalis* (OSOM – Trichomonas Rapid Test). All patients were treated syndromically with gentamicin, doxycycline, and metronidazole, per Malawian standard of care. Clinical and demographic characteristics were also collected. We assessed differences between men on ART for ≥ 12 weeks and men not on ART using chi square tests and exact statistics (alpha=0.05).

Results 189 men were enrolled between January 1, 2017 and December 31, 2018; 87 (46.0%) were not on ART, and 102 (54.0%) were on ART. Participants reported urethral discharge for a median of 4 days (IQR: 3, 7). Among participants, 152 (80.4%) tested positive for gonorrhoea via GeneXpert and 124 (66.7%) via culture; 17 (9.0%) tested positive for chlamydia, 6 (3.2%) tested positive for trichomonas and 30 (15.9%) did not test positive for any of the three etiologies. 15 (7.9%) participants had multiple STIs. There were no differences in distribution of etiologies (individual or multiple) between men on and not on ART ($p \geq 0.10$ for all comparisons).

Conclusion The overwhelming etiology of urethritis among HIV-infected men in Malawi is *Neisseria gonorrhoeae*. Current syndromic management guidelines that treat gonorrhoea, chlamydia and trichomonas seem adequate for treatment of UD but future guidelines must be informed by ongoing monitoring of antibiotic resistance.

Disclosure No significant relationships.

P793 RISK FACTORS FOR INCIDENT NON-GONOCOCCAL URETHRITIS (NGU) IN MEN WHO HAVE SEX WITH WOMEN (MSW) ATTENDING AN STD CLINIC

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Background Incidence and risk factors for NGU remain poorly defined. We conducted a cohort study to estimate incidence and identify associated risk factors in MSW.

Methods We enrolled cisgender male STD clinic patients age ≥ 16 , who reported exclusively female partners. At enrollment and six monthly follow-up visits, men underwent a clinical exam, provided urethral swab and urine specimens, and completed a sexual behavior survey. We tested for chlamydia (CT) and *Mycoplasma genitalium* (MG) using Aptima. NGU was defined as urethral symptoms or visible discharge plus ≥ 5 polymorphonuclear leukocytes per high-power field on a Gram-stained slide. NGU following an NGU-negative visit was considered incident. We estimated incidence of NGU overall, pathogen-associated (MG or CT) and idiopathic NGU using Poisson regression for clustered outcomes. We performed relative risk binomial regression for clustered data to identify characteristics associated with incident NGU.

Results From 08/2014-08/2018, 254 participants had ≥ 1 follow-up visit, contributing 100.6 person-years at risk during follow-up. Median age was 32 (range=17–71), 53% were white and 24% black. Eighty-four (33%) had NGU at enrollment. Forty-five men had 53 cases of incident NGU (incidence=0.53 per person-year (95% confidence interval [CI]=0.39–0.71)). Incidence of pathogen-associated and idiopathic NGU was 0.06 (95% CI 0.03–0.13) and 0.47 (95% CI = 0.34–0.63), respectively. After adjustment for age, condom use and new partners during follow-up, risk of incident NGU was higher among black men (adjusted RR (ARR)=2.2; 95%CI=1.1–4.4), those with a history of NGU before enrollment (ARR=3.1; 1.5–6.5) and more sex partners during follow-up (ARR=1.2 per partner; 1.0–1.5); risk was lower among men who used lubricant at last sex (ARR=0.44; 0.20–0.96).

Conclusion Incidence of NGU was high, predominantly idiopathic, and associated with traditional socio-behavioral characteristics, but not age, condom use, or new partners. The lubricant-use association was unexpected and warrants further exploration. More precise daily diary data may yield additional insights.

Disclosure No significant relationships.

P794 SIGNS AND SYMPTOMS ASSOCIATED WITH SINGLE-PATHOGEN NONGONOCOCCAL URETHRITIS IN MEN

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Background Syndromic management remains the standard non-gonococcal urethritis (NGU) treatment approach. Whether pathogen-specific signs/symptoms inform treatment decisions remains unclear. We identified men with single- and mixed-pathogen NGU and assessed for the presence of pathogen-specific signs or symptoms to improve syndromic management.

Methods As part of an ongoing cohort study (the Idiopathic Urethritis Men's Project [IUMP]), we recruited men with NGU. NGU was diagnosed by signs and/or symptoms of urethritis, and a urethral Gram stain with ≥ 5 neutrophils per high-power field without evidence of gram negative intracellular diplococci. Participants underwent a clinical history and physical exam, which documented specific self-reported symptoms and clinician observed signs. Single- and mixed-infections were identified by NAAT testing of first-catch urine for *Neisseria gonorrhoeae* (NG), *Chlamydia trachomatis* (CT), *Mycoplasma genitalium* (MG), *Trichomonas vaginalis* (TV), and *Ureaplasma urealyticum* (UU); five-pathogen-negative cases were classified as idiopathic urethritis (IU).

Results One hundred fifty-five men with NGU are included in this analysis. The median age was 28 (range 18–63), 101 (65%) were African American, and 135 (87%) self-identified as heterosexual. The most commonly reported symptom was urethral discharge (92%), followed by burning/tingling (37%), and dysuria (28%). Over half of these men reported more than one symptom (58%). Single-pathogen NGU was detected in 99 (64%) men, mixed-pathogen in 14 (9%), and IU in 42 (27%). For single pathogen NGU, 53 (34%) had CT, 26 (17%) had MG, 3 (2%) had TV, and 17 (11%) had UU. We compared single-pathogen NGU, mixed-infection and IU for differences in signs or symptoms and found no pathogen-specific differences.

Conclusion In men with NGU, no pathogen-specific signs and symptoms were identified that could inform treatment decisions. Pathogen-specific point-of-care tests are needed.

Disclosure No significant relationships.

P795 PREVALENCE AND ETIOLOGY OF POST-AZITHROMYCIN PERSISTENT NON-GONOCOCCAL URETHRITIS (NGU) SYMPTOMS IN MEN

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Background Persistent NGU occurs when symptoms persist after empiric NGU treatment and has been associated with *Mycoplasma genitalium* (MG) infection. The prevalence and etiology of persistent NGU in men remains largely unknown.

Methods Within the Idiopathic Urethritis Men's Project cohort study, we recruited men with NGU. NGU was diagnosed by the presence of urethritis signs and/or symptoms and urethral Gram stain with ≥ 5 PMN/hpf. Men were treated with 1 gm azithromycin and returned for a 1-month test-of-cure visit. At the test-of-cure visit, men were asked about post-treatment symptom outcomes and partner treatment. A first-catch urine specimen was obtained at both visits for five-pathogen testing for *Neisseria gonorrhoeae* (NG), *Chlamydia trachomatis* (CT), MG, *Trichomonas vaginalis* (TV), and *Ureaplasma urealyticum* (UU). NG-positive cases were excluded and five-pathogen-negative cases were classified as idiopathic urethritis (IU). Post-treatment symptom outcomes were: (1) resolved, (2) resolved then recurred, or (3) persisted unchanged.

Results One hundred twenty-four men are included in this study. The median age was 28, 52% were African American, and 86% self-identified as heterosexual. All men reported urethral symptoms and 98% had a discharge on exam at baseline. Symptoms resolved completely in 91 (73%) men. Symptoms resolved then recurred or persisted unchanged in 12 (10%) and 21 (17%) men, respectively. Excluding men with untreated partners (N = 9, 28%), a different pathogen was identified in 5 (50%) and 4 (25%) men with recurrent and persistent symptoms, respectively. In men with the same pathogen identified (N = 15), 53% were IU, 33% were MG, 7% were CT, and 7% were UU.

Conclusion Persistent NGU occurs in approximately 25% of azithromycin-treated men and is related to a new infection in up to 50% of cases. In men with persistent symptoms and the same infection identified at the test-of-cure visit, MG and IU comprised 86% of cases, which suggests that MG and IU-associated organisms may be resistant to azithromycin.

Disclosure No significant relationships.

P796 REASSESSING THE GRAM STAIN SMEAR (GSS) POLYMORPHONUCLEAR LEUKOCYTE (PMN) CUTOFF FOR DIAGNOSING NON-GONOCOCCAL URETHRITIS (NGU)

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Background Recommended cutoffs for PMNs per high-power field (hpf) to define NGU vary. CDC treatment guidelines specify ≥ 2 PMNs/hpf. Other guidelines recommend ≥ 5 PMNs/hpf.

Methods From 08/2014-08/2018, we enrolled symptomatic and asymptomatic male STD clinic patients ≥ 16 years with exclusively female partners in the past year. Men with gonorrhea or antibiotic use in the past month were excluded. We collected a urethral swab for GSS and urine for *Chlamydia trachomatis*(CT) and *Mycoplasma genitalium* (MG) testing (Aptima, Hologic). We calculated Youden's Index (J=sensitivity +specificity-1), which maximizes sensitivity and specificity, and calculated the proportions of CT/MG cases missed and cases treated in the absence of CT/MG (test-negative) for three PMN/hpf cutoffs. CT/MG co-infections (N=3) were excluded.

Results Among 369 participants, median age was 32 (range 17–71), 53% were white, and 25% were black. Among all men with 0-1, 2-4, 5-9, and ≥ 10 PMNs/hpf, CT prevalence was 1%, 5%, 11%, and 26%, respectively; MG prevalence

was 5%, 3%, 15%, and 17%. J was maximized at ≥ 5 PMNs/hpf for CT, MG, and CT/MG. Thirteen percent, 17%, and 33% of CT/MG cases were missed at the ≥ 2 , ≥ 5 , and ≥ 10 PMNs/hpf cutoffs, respectively; 45%, 33%, and 21% of test-negative cases were treated. Among symptomatic men (N=166) with 0-1, 2-4, 5-9, and ≥ 10 PMNs/hpf, CT prevalence was 0%, 20%, 12%, and 31%, respectively; MG prevalence was 9%, 0%, 18%, and 19%. J was maximized at ≥ 5 PMNs/hpf for MG, and ≥ 10 PMNs/hpf for CT and CT/MG. Five percent, 8%, and 25% of CT/MG cases were missed at the ≥ 2 , ≥ 5 , and ≥ 10 PMNs/hpf cutoffs, respectively; 72%, 64%, and 43% of test-negative cases were treated.

Conclusion The increase in missed CT/MG cases between the ≥ 2 PMNs/hpf cutoff and ≥ 5 PMNs/hpf cutoff was minimal; the ≥ 5 PMNs/hpf cutoff treats fewer cases without CT/MG. The ≥ 5 PMNs/hpf cutoff appears optimal in this population.

Disclosure No significant relationships.

P797 ANTIBODY RESPONSE TO MYCOPLASMA GENITALIUM IN LONGITUDINALLY INFECTED MEN WITH NON-GONOCOCCAL URETHRITIS

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Background A sensitive and specific serologic test is needed to evaluate the association of *Mycoplasma genitalium* (MG) infection with serious upper reproductive tract sequelae in women. In this study, we compared the ability of immunoblot and ELISA methods to detect serum antibody reactivity with the immunodominant MgpB and MgpC adherence proteins among MG-infected men with nongonococcal urethritis (NGU).

Methods Serum samples collected at two time points (spanning 15–86 days) from 22 MG-infected, PCR-positive men with NGU were assayed for reactivity to MG whole cell lysates by immunoblot, and to the conserved C-terminus of MgpB by ELISA, compared to 19 MG-negative controls. Additionally, we selected six MG(+) men with a variety of immunoblot reactivities and examined their serum specimens for ELISA reactivity to 16 recombinant peptides spanning conserved and variable domains of MgpB and MgpC at two time points.

Results Among men with current MG infection, immunoblot detection of MgpB antibodies outperformed an ELISA assay detecting reactivity to the conserved C-terminus of MgpB with 90.9% and 81.8% sensitivity, and 92.3% and 82.3% specificity, respectively. In contrast to immunoblot results, ELISA-reactivity to individual peptides spanning MgpB and MgpC indicated patient antibodies more frequently targeted the C-terminus of MgpC than the C-terminus of MgpB. As expected, most patient sera reacted poorly in ELISAs to recombinant peptides spanning the MgpB and MgpC variable regions as these sequences corresponded to the G37 type strain rather than the infecting strains.

Conclusion Our findings suggest that an MG ELISA test could be improved by including conserved portions of both the MgpB and MgpC proteins, providing an alternative to the more labor intensive immunoblot. Such a test will be especially valuable for associating current or past MG infection with serious upper reproductive tract disease in women.

Disclosure No significant relationships.

P799 ACCELERATED HIV CASE FINDING AND BRIDGING ENROLMENT GAP FOR KEY POPULATIONS IN WESTERN NIGERIA: A BREAK-EVEN IN THE 90-90-90

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Background The clock is steadily ticking towards 2020 when the UNAIDS 90-90-90 global target in the fight against HIV/AIDS is hoped to be achieved. The hypothesis tested is the significant association between youthful age and HIV test outcome. The aim of the study was to engage in an accelerated HIV case finding and ensure enrolment into care among key populations in Western Nigeria fulfilling the first & second 90 of the UNAIDS targets.

Methods Lay Adhoc Staff/volunteers were purposely selected and trained. Consenting prison inmates had their blood samples taken and tested following the country's HIV serology National testing algorithm, using the recommended HIV testing kits. Those who tested positive went through a retesting process in the laboratory and confirmed positive. Post-test counselling was then conducted.

Results A total of 771 prison inmates were tested across the four prisons (Male 765, Female 6) with a mean age \pm SD is 31.25 ± 9.47 years. Ten of them (Male 9, Female 1) were confirmed new positives with a mean age \pm SD is 31.40 ± 6.24 years, yielding a positivity rate of 1.3%. Eight of the ten positives are in their youthful age (<35 years). Odd's ratio shows that youthful age have higher association with HIV test outcome (OR: 2.81, CI: 0.80-9.79). The linkage rate for the positives is 100% with good escort service while adherence is $\geq 95\%$.

Conclusion This mode of HIV testing service (HTS) has proved to reach a key population yielding more positives in much fewer numbers of people tested and in a short period of time with 100% linkage with better resource/health financing outlook. Community ART Differentiated Service Delivery (DSD) Model is in line for the patients to sustain the gains in the effort to achieve the 90-90-90 fast track UNAIDS targets.

Disclosure No significant relationships.

P800 PREVALENCE OF CURABLE SEXUALLY TRANSMITTED INFECTIONS AMONG REFUGEES: GLOBAL SYSTEMATIC REVIEW AND META-ANALYSIS

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Background The world is witnessing one of the worst refugee crises of all times. Disrupted healthcare systems, limited availability and access to services, poverty, and increased exposure to sexual violence among others increase the vulnerability of populations in humanitarian settings to poor sexual/reproductive outcomes, including sexually transmitted infections (STIs). Our objective is to characterize, for the first time, the epidemiology of curable STIs - *Chlamydia trachomatis* (CT),

Neisseria gonorrhoeae (NG), *Treponema pallidum* (syphilis), and *Trichomonas vaginalis* (TV) - among refugees and internally displaced populations globally, and to estimate their pooled mean prevalence.

Methods We conducted a PRISMA-guided systematic review of literature through PubMed and Embase databases, and of abstracts of international HIV/STI conferences, with no language/time restrictions. Pooled prevalence of current and/or lifetime infection for each STI was estimated using random-effects meta-analyses.

Results We identified 37 eligible studies that contributed 103 STI prevalence measures for 935,191 refugees. The majority of studies were for syphilis (65%), whereas CT, NG, and TV accounted for 14%, 18%, and 4% of total measures, respectively. African and South-east Asian refugees were represented the most. Only one study was conducted among Syrian refugees - currently the largest refugee population worldwide. Pooled prevalence of current infection was 1.6% (95% CI: 1.2-2.1%) for syphilis, 0.6% (95% CI: 0.1-1.4%) for NG, 0.5% (95% CI: 0.2-1.0%) for CT, and 29.3% (95% CI: 21.3-38.0%) for TV. The latter included mostly symptomatic populations. Pooled prevalence of lifetime syphilis infection was 3.3% (95% CI: 1.5-5.8%).

Conclusion Despite the identified studies, there is a large knowledge gap for these infections in this population. Findings suggest overall comparable prevalence levels to the general population. However, further studies are needed to better understand the recent burden of STIs and the sexual health needs of affected populations in different global settings, to inform screening and treatment policy and programming.

Disclosure No significant relationships.

P802 SIZE OF FEMALE INJECTING DRUG USERS IN 10 NIGERIAN STATES AND IMPLICATIONS FOR HIV AND REPRODUCTIVE HEALTH

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Background HIV prevalence is high amongst key population (KPs). People who inject drugs (PWID) are considered as KPs because certain behaviors increase their vulnerability to HIV. To reach PWIDS with interventions, there's need to determine their distribution and size. Previously, gender wasn't considered in PWID size estimation, therefore designing HIV/Reproductive health services for female PWIDS was difficult because their size was unknown. To address this, Nigeria conducted programmatic mapping to provide insight on size of male and female PWIDS and geographical locations.

Methods PWIDS were mapped in all Local Government Areas in 10 states. We employed programmatic mapping approach which involved two sequential data collection steps called level one [L1] and level two [L2]. During L1, information was collected from key informants (KIs) about the geographic locations/spots where PWIDS congregate, the characteristics of the spots (public place, bunk, etc.) and an estimate of number of PWIDS who can be found there. L1 interviews were conducted at markets, parks, streets, etc. During L2, KI interviews were conducted at spots identified in L1. In L2 interviews,

primary KI (PWIDs, bunk owners etc.) validated information collected during L1.

Results The study identified 3837 PWID spots in 10 states. The total size estimate for all PWIDs is 49,876 while the size of female PWIDs is 11,031 across 10 states. Oyo state had the highest number of PWIDs (all) with an estimate of 14,741, followed by Kaduna 9,232, Kano 6,859 and Gombe 6,577. However for female PWIDs, Kaduna state had the highest 3,340, followed by Oyo 2,711, Abia 1,180 and Gombe 1,028.

Conclusion Through this study, Nigeria can plan and implement integrated HIV/Reproductive health services, where female PWIDs are located.

Disclosure No significant relationships.

P803 ASSESSING CORRECT KNOWLEDGE AND POSITIVE ATTITUDE TOWARDS HIV/AIDS TRANSMISSION HOMELESS WOMEN IN INDIA

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Background Despite a significant reduction in the prevalence of HIV in India in the recent past, India's HIV epidemic contributes significantly to the global epidemic. The homeless women are highly vulnerable to risky sexual behavior and its negative health consequences due to adverse conditions of street life. This study attempted to understand the familiarity of term HIV/AIDS, correct knowledge about the modes of transmissions, and ways of prevention.

Methods The study used the data that was collected from 300 homeless women both from those living in night shelter and those are living outside in Delhi in 2015. A structured questionnaire was used to collect various information related to knowledge and attitude towards HIV/AIDS. Correct knowledge was assessed using 8 items, while the attitude towards HIV/AIDS assessed using 6 preventing measure related questions. The score of knowledge index varies from 0 to 8 and categorized as not heard about HIV/AIDS (0), low (1–4), average (5–6) and high (7–8). Similarly, the score of attitude index varies from 0 to 6 and categorized as not heard about HIV/AIDS (0), negative attitude (1–3) and positive attitude (4–6).

Results Majority of the homeless women (64%) are not familiar with the term HIV/AIDS. Of 300 homeless women, 5.3% had high knowledge, while 18% had average and 12.7% had low. Majority of the respondents were not able to report the correct answers on specific questions on HIV/AIDS transmission. Similarly, only 7% had a positive attitude and 29% had a negative attitude towards HIV/AIDS.

Conclusion Though there are already many organizations, Government and donors are working with the homeless women for better development and quality life in Delhi, it is equally important to address the critical issues like knowledge about risky sexual behaviour and the attitude towards prevention of HIV/AIDS as many of the homeless women often indulge in risky sexual behaviour.

Disclosure No significant relationships.

P804 BEHAVIORAL RISK FACTORS FOR SEXUALLY TRANSMITTED INFECTIONS AND HEALTH-SEEKING BEHAVIOR OF HOMELESS WOMEN IN DELHI, INDIA

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Background The homeless women living in street areas especially in metro cities like Delhi are the most vulnerable population groups as they don't have privacy and also don't have self-dignity to express their healthy sexual and reproductive health. There are no explorative studies available in the literature on sexual and reproductive health among homeless women. In this context, this research is attempting to understand the behavioral risks for STIs and health-seeking behaviour among the homeless women in Delhi.

Methods Primary data was collected to explore the sexual and reproductive health among the homeless women above 15 years living in Delhi in 2015. A total of 300 homeless women were interviewed on sexual and reproductive health. As this study is explorative, both quantitative and qualitative methods of data collection was used.

Results About one-third, homeless women had intercourse before the age of 13 years and 85% had before age of 18 years. Two-third women reported the first intercourse happened forcefully and only 12% of women used a condom at that time. About 10% of women had sex with multiple partners in the last six months. Use of a condom during sex is not common women as only 40% ever had used a condom. As reported by the respondents, sex without concern, lack of information and lack of accessibility for a contraceptive method emerge as the major reasons for not using a condom during sex. About 40% were suffered from STI at the time of the survey.

Conclusion This research explored the sexual behavior and condom use to avoid unwanted pregnancy as well as to avoid STI. The treatment-seeking behaviour for RTI/STI was found to be very low. The study suggests that it is necessary to make awareness of the benefits of protected sex and also condoms should be distributed frequently homeless women to have protected and healthy sexual life.

Disclosure No significant relationships.

P808 CORRELATES OF SEXUALLY TRANSMITTED INFECTIONS SYMPTOMS AMONG MALE PRISONERS IN IRAN, 2013: A NATION-WIDE SURVEY

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Background HIV prevalence among prisoners is over eight times higher than that of the general in Iran. Considering that sexually transmitted infections (STIs) increase the susceptibility to HIV infection, this study estimates the prevalence and correlates of STI-related symptoms among prisoners in Iran.

Methods In this cross-sectional study, 27 prisons across 16 provinces were selected using a stratified random sampling approach. Men aged ≥ 18 years who spent at least 1 week in the prison and self-reported having had sex during last year were eligible for this analysis. Participants were asked about their current STI symptoms including penile discharge (PD) and genital ulcers (GU). Demographic variables, HIV/STI-related knowledge, STI care seeking practices, HIV self-perceived risk, as well as history of substance use, incarceration, and sexual behaviours were collected using a face-to-face pilot-tested risk assessment questionnaire. HIV tests were completed using ELISA of dried blood spots. Correlates of having STI symptoms were identified using descriptive statistics and logistic regression models.

Results Out of 2610 male prisoner recruited (Mean age \pm SD: 35.7 ± 0.19), 7% reported symptoms for PD, UC, or both; 45% of whom had not sought STI care inside prisons. Having STI-related symptoms were positively associated with a history of injection drug use (adjusted odds ratio [AOR]: 2.1, 95% CI, 1.4–3.1), condom accessibility inside prison (AOR: 1.7, 95% CI, 1.1–2.8), self-perceived risk of HIV (AOR: 1.5, 95% CI, 1.1–2.2), HIV-seropositivity (AOR: 3.3, 95% CI, 1.3–10.6), while negatively associated with having sufficient STI-related knowledge (AOR: 0.6, 95% CI, 0.4–0.8).

Conclusion STI symptoms are notable among prisoners in Iran with a higher prevalence among specific groups (i.e., those who inject drugs and live with HIV). Our findings call for revisiting current HIV/STI prevention policies across Iranian prisons to help improve prisoners' HIV/STI knowledge and encourage their HIV/STI preventive practices.

Disclosure No significant relationships.

P809 NEGOTIATING SAFER SEXUAL RELATIONS WITH HUSBAND AND ASSOCIATED STI/HIV VULNERABILITIES AMONG MARRIED WOMEN IN INDIA

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Background In India, sexually transmitted infections (STIs) and HIV, take an enormous toll on women's sexual/reproductive health, yet preventive programmes are lacking as married women's risks are frequently underestimated. Husbands continue to be the greatest source of STIs including HIV to their wives. Being able to negotiate safe sex is critical to the prevention of HIV/AIDS and other STIs. Therefore, the present study has mainly focused to analyze the women's attitudes toward safer-sex negotiation if husband has a STI and associated risk of STI/HIV among married women in India.

Methods National Family Health Survey (NFHS-4, 2015–16) collected information from a nationally representative sample of 121,118 women age 15–49 years has been analyzed by using descriptive and multivariate techniques. Women were asked that a wife is justified in refusing to have sexual intercourse with her husband if he has a STI.

Results Overall 78% of women agree that a wife is justified in refusing to have sex with her husband if he has a STI. A higher proportion of women who were agreed that a wife is justified to negotiate sex were from 25–29 years of age,

residing in urban area, those who were higher educated and belongs to highest wealth quintile. Results revealed that the likelihood of a woman holding this belief increased with her autonomy, as measured by participation in household decision making and rejection of wife beating ($p < 0.001$). Women who were away from home for one or more month were significantly less likely to agree. Other significant predictors were knowledge/awareness of STIs (OR-1.13 $p < 0.01$). Those women who agreed towards negotiating sex were significantly less likely to have a STI.

Conclusion Our findings suggest that sexual health education programmes may be more effective if they include strategies to address social norms and cultural practices that limit women's autonomy in society.

Disclosure No significant relationships.

P810 HIV/STI SERVICE COVERAGE AMONG KEY POPULATION IN NIGERIA – LESSONS FROM SIZE ESTIMATION STUDY IN ABIA AND TARABA STATES

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Background Mode of transmission study revealed that 38% of HIV new-infections in Nigeria are attributable to KPs. Abia and Taraba are two states in Nigeria with an HIV prevalence of 3.9% and 5.1% respectively. To ensure KPs receive interventions, estimation study was conducted in both states to provide insight on KP size, distribution and HIV/STI service coverage.

Methods Three KP groups (FSW, PWID, MSM) were mapped in Abia and Taraba. Programmatic mapping was employed which involved two sequential data collection steps known as level one [L1] and level two [L2]. During L1, data was collected from key informants (KIs) on the geographic locations/spots where KPs congregate, the characteristics of the spots, estimate of KPs found there and HIV/STI service availability. During L2, KI interviews were conducted at spots identified in L1. In L2 interviews primary KIs (FSWs, IDUs, MSM,) validated information collected during L1.

Results 1,136 spots (679 FSW spots, 103 MSM spots, 354 PWID spots) were identified in Abia while Taraba had 574 spots (346 FSW spots, 98 MSM spots, 130 PWID spots). The total KP estimate in Abia is 13,527 while Taraba has 6,246. In Abia, condom and HIV testing were only available in 4.4% and 1.6% FSW spots respectively. Also condom and HIV testing were only available in 2.8% and 1.1% PWIDs spots respectively. Both services weren't available at MSM spots while all KPs spots had no STI services. In Taraba, condom and HIV testing were only available in 0.6% and 1.3% FSW spots respectively. Also condom and HIV testing were only available in 4.2% and 3.4% PWIDs spots respectively. Both services weren't available at MSM spots. 0.3% FSW spots had STI service but other KP spots had no STI services.

Conclusion From this study, Nigeria needs to scale up targeted HIV/STI services for KPs in Abia and Taraba states.

Disclosure No significant relationships.

P812 LEVERAGING PEAK DAYS/TIME AT SPOTS TO IMPROVE KEY POPULATION HIV PROGRAMS – SIZE ESTIMATION STUDY OF 10 STATES IN NIGERIA

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Background In Nigeria, HIV prevalence is high amongst key populations (KP). Mode of transmission study revealed that 38% of new-infections in Nigeria are attributable to KPs. To plan KPs interventions, programmatic mapping was conducted to provide insight on locations where KPs are found and peak day/time during which the highest number of KPs visit these locations

Methods Three KP groups (FSW, PWID, and MSM) were mapped in 10 states. Programmatic mapping which involved two sequential data collection steps known as level one [L1] and level two [L2] was adopted. During L1, information was collected from key informants (KIs) on geographic locations/spots where KPs congregate, characteristics of spots and estimate of KPs found there. During L2, KI interviews were conducted at spots identified in L1. In L2 interviews primary KIs (FSWs, IDUs, MSM,) validated information collected during L1.

Results 32,556 KI interviews were conducted in L1. 16,563 spots (8,877 FSW spots, 4,349 MSM spot, 3,837 PWID spots) were identified in 10 states. Peak days are when at least 80% of KPs visit spots. For FSW spots, 8 states have peak days on Saturday and Sunday while in 2 states (Taraba, Gombe states) it is only on Sunday. For MSM spots, Abia, Imo Anambra, Enugu, Kaduna, Oyo states have peak days on Saturday and Sunday while Edo, Kano and Taraba states have peak day on Sunday. PWID spot peak days are on Saturday and Sunday in Abia, Edo, Enugu, Oyo, Anambra, Imo, Kaduna and Kano states while Gombe and Taraba have peak day on Sunday. On peak days, peak time is mostly from 5pm to 12 midnight in all states for FSW and MSM. For PWID, peak time is mostly from 5 pm to 9 pm.

Conclusion With these results, Nigeria can design and implement HIV programs targeting KPs around days and times to achieve maximum reach.

Disclosure No significant relationships.

P813 COMMUNITY-BASED HEALTH SERVICES DELIVERY AMONG KEY AND PRIORITY POPULATIONS – A CASE STUDY IN UGANDA

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Background Freedom and diversity drop in centres (FaDDiCs), also known as safe spaces are gaining momentum in many countries. The initial FaDDiCs in Uganda were co-located within clinics. While clinic-based FaDDiCs offered some tailored services, it was only after the introduction of community-based FaDDiCs that remarkable uptake of services was registered among hidden key populations; particularly sex

workers (SWs), men who have sex with men (MSM), transgender (TG) and people who use and inject drugs (PWUID). MNL established 22 FaDDiCs to provide community-responsive services, offer psychosocial support, health information, condoms, lubricants, referrals and outreach sites for other biomedical interventions.

Methods

FaDDiCs Selection MNL identified sites for FaDDiCs after peer-led planning and preparatory activities including; hotspot mapping and feasibility assessment of each proposed location for safety, security, accessibility and population targeted. Tools and techniques: MNL equipped each FaDDiC with an education set, condom dispensers, tools for data collection and reporting on FaDDiC operations. The attendant peer educators and FaDDiC managers were immediately enrolled into a quarterly training program to equip them with skills and techniques for community-facility linkage. Service Delivery Mode: FaDDiCs open daily and receive and make referrals through a clear networking and linkage pathway.

Results 22 FaDDiCs were selected in Kampala (15) and Wakiso (7) districts; 6 for SWs, 6 for MSM, 5 for TG, 1 for PWUID, 1 for LBQ, 1 for truckers, 1 for fisher-folk and 1 for prison population. In 15 months, FaDDiCs received 6343 clients, provided condoms to 4988 clients, lubricants to 4018 clients and referred 1264 clients to health facilities. FaDDiCs also attracted other interventions such as the roll out of PrEP and HIV self-testing.

Conclusion FaDDiCs offer an alternative service delivery avenue to marginalised populations, decongest the over stretched public health facilities and offer an opportunity for customised care to key populations.

Disclosure No significant relationships.

P814 COMPREHENSIVE HEALTHCARE INTERVENTIONS AT MEKELLE UNIVERSITY STI AND ART CLINICS FOR KEY POPULATION, NORTHERN ETHIOPIA

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Background Reducing the burden of sexual transmitting infections (STIs) among key population group has a considerable role in prevention of HIV to the general population. Ethiopia is one of the sub Saharan African countries with high burden of HIV epidemic. As a response, Mekelle University provided comprehensive health care to prevent STIs/HIV prevention through its confidential STI clinics among 6550 female sex workers on selected hot spot areas.

Methods This study highlighted the experience of MU STI clinics on provision of health care interventions to the key population. Data were obtained from a register of female sex workers recorded for purpose of service provision at confidential STI clinics in Mekelle, Adigrat and Mekoni Ethiopia from April 2015 to September 30, 2018. A descriptive analysis of the services delivered to patients was performed.

Results The prevalence of STIs among the female sex workers increased from 4.5% in 2015 to 6.8% in FY 2018. Of the clients counseled and tested for HIV at the three confidential STI clinics; 77/4826 (1.59%), 42/3843 (1.09%) and 48/2116 (2.27%) at Mekelle, Adigrat and Meknoi were found to be reactive for HIV respectively. The possible reasons for the

increment of STIs prevalence could be explained: a) due to the rapid expansion of the hot spot areas, b) the increased migration of young women from rural to urban, c) engagement of many young girls in many bars and pubs for commercial sex work activity.

Conclusion The overall prevalence of STIs and HIV was reported 6.8% and 1.5% respectively. The prevalence of HIV increased from 0.9% in 2015 to 1.1 in mid-2018 and STIs from 4.5% to 6.8% within the same period. Government in collaboration with the higher institutions and other relevant stakeholders need to further consider strengthening the preventive strategies of STIs and HIV among the key population and other vulnerable groups.

Disclosure No significant relationships.

P817 LONGITUDINAL ASSOCIATIONS BETWEEN RECENT INCARCERATION AND STI/HIV RISK: THE ROLE OF PRIOR TRAUMA IN EXACERBATING RISK

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Background Black men who have sex with men (BMSM) disproportionately report a history of traumatic life events including incarceration. Incarceration, by increasing distress and psychopathology, may increase risk-taking and infection. Pre-incarceration trauma may exacerbate the impact of incarceration on STI/HIV risk among BMSM.

Methods Using data from HIV Prevention Trials Network (HPTN) 061, we used inverse probability of treatment weighted Poisson regression models to estimate risk ratios (RRs) and 95% confidence intervals (CIs) for associations between recent incarceration and incident STI (gonorrhoea, chlamydia, and syphilis) and sexual risk behavior (sex trade defined as selling/buying sex, multiple partnerships, condomless sex) measured six months after incarceration assessment (n=1189). We tested the significance of interaction terms between incarceration and trauma to assess whether associations differed significantly by trauma history (e.g., experiencing a robbery, natural disaster, sexual/physical assault).

Results Approximately 93% reported at least one traumatic event and 14% had been recently incarcerated. Incarceration was associated with STI among those with prior trauma (RR: 1.10, 95% CI: 1.00–1.22) but not among those with no prior trauma (RR: 0.91, 95% CI: 0.75–1.09); associations differed significantly (interaction term $p=0.036$). Incarceration was linked to increased risk of sex trade involvement among those with prior trauma (RR: 1.08, 95% CI: 1.00–1.15) and decreased risk among those with no prior trauma (RR: 0.95, 95% CI: 0.90–1.00) (interaction term $p=0.002$). Incarceration was associated with increased risk of multiple partnerships among those with prior trauma (RR: 1.24; CI: 1.10, 1.40) but not among those with no prior trauma (RR: 0.85, 95% CI: 0.32–2.25), though the RRs were not significantly different (interaction term $p=0.224$). Incarceration was not associated with condomless sex, regardless of prior trauma.

Conclusion BMSM with prior trauma appear to face disproportionate vulnerability to STI/HIV risk after release from incarceration. Trauma-informed STI/HIV care and prevention interventions for BMSM with recent justice involvement are warranted.

Disclosure No significant relationships.

P818 PREVALENCE OF HPV IN TEENAGE HETEROSEXUAL MALES AFTER THE INTRODUCTION OF THE GENDER-NEUTRAL VACCINATION PROGRAM IN AUSTRALIA

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Background Australia introduced a school-based human papillomavirus (HPV) vaccination program for females aged 12–13 years in 2007, with a three-year catch-up to age 26; and for boys aged 12–13 from 2013, with a two-year catch-up to age 15. This study aimed to compare the prevalence of penile HPV between teenage heterosexual males in cohorts eligible or non-eligible for the school-based male vaccination program.

Methods Between 2014 and 2017, sexually active heterosexual males aged 17–19 were recruited from sexual health centres and community sources across Australia. Males provided a self-collected penile swab for HPV genotypes (Roche Linear Array) and completed a questionnaire. HPV prevalence was compared between males in two periods: 2014–2015 (non-eligible for school-based male vaccination) and 2016–2017 (eligible for school-based male vaccination). Self-reported vaccine doses were confirmed with doses reported to the National HPV Vaccination Program Register.

Results Overall, 152 males were recruited in 2014–2015 and 146 in 2016–2017. Numbers of female sex partners and condom use did not differ between the two periods. Prevalence of quadrivalent vaccine-preventable [4vHPV] genotype (6, 11, 16, 18) was low in both periods (2.6% in 2014–2015 *versus* 0.7% in 2016–2017; $p=0.37$). Compared with males recruited in 2014–2015, males in 2016–2017 had a lower prevalence of: any 37 HPV genotype (21.7% *versus* 11.6%; $p=0.02$); and any 13 high-risk genotype (15.8% *versus* 7.5%; $p=0.03$). Prevalence of low-risk HPV genotypes did not differ between the two periods ($p=0.25$). Of the males recruited in 2016–2017, 55% had received ≥ 1 vaccine dose.

Conclusion Prevalence of 4vHPV genotypes among teenage heterosexual males in both cohorts was low, presumably due to herd protection from the female-only vaccination program. The addition of the school-based male vaccination was associated with a lower prevalence of high-risk HPV genotypes other than genotypes 16/18.

Disclosure No significant relationships.

P819 INFLUENCE OF KNOWLEDGE, ATTITUDE, MOTIVATION ON WILLINGNESS OF MOTHERS FOR THEIR DAUGHTERS TO UNDERGO HPV VACCINATION

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Background Cervical cancer is second leading cancer and cause of morbidity/mortality among Filipinas. Human papillomavirus (HPV) is a necessary cause of cervical cancer. A primary mode of prevention is use of vaccines. Before vaccinations are implemented, sociocultural issues should be addressed. The aim was to determine association of knowledge, attitude and motivational factors of mothers on their willingness for their daughters (aged 9–13 years) to undergo vaccination.

Methods This was a cross-sectional study with a pretested and validated survey given to 352 mothers.

Results 97.18% of women were willing to have the vaccine for their children. One-third of mothers had high knowledge on use of vaccines (34.93%). Women who reached college, had youngest child 11 - 13 years, with annual income \geq PHP 60,000, non-Catholic, and who never to a few times/year attended Church had higher knowledge. More believed getting the vaccine would not affect girl's sexual activity. Most agreed they were not viewed as bad parents. There were agreeing responses from positive attitude, and more disagreeing responses in negative attitude ($p = 0.01$). More mothers agreed cost was prohibitive, with giving 2 doses, and were willing to follow doctors' recommendations. There was no difference in agreeing responses between positive and negative motivating factors ($p = 0.79$). Likelihood of willingness on vaccination was twice as knowledge score and scores on positive attitude items increased. Odds of willingness increased as scores on negative attitude decreased.

Conclusion Role of knowledge and attitudes on negative perceptions on the vaccine were important predictors of willingness of mothers toward vaccination. In developing countries such as ours, there is strong need to increase knowledge of HPV, cervical cancer, and prophylactic vaccines to increase willingness of Filipino mothers to have their daughters immunized. Physicians and government agencies should put priority on HPV vaccination, making concerted efforts to decrease negative attitudes.

Disclosure No significant relationships.

P821 SEXUAL BEHAVIOR IN ADOLESCENTS BEFORE AND AFTER INTRODUCTION OF THE HPV VACCINATION IN CANADA

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Background Currently all Canadian jurisdictions have implemented school-based human papillomavirus (HPV) vaccination

into their routine immunization programs. Uptake rates in girls vary from 52.6% to 89.3% between jurisdictions. At the time of implementation, there were concerns that HPV vaccination could lead to riskier sexual health choices among adolescents. This systematic review explores the influence HPV vaccination programs on sexual behavior among adolescent girls in Canada.

Methods A systematic literature review was performed using PubMed, followed by a cited reference search. Studies were included if they reported sexual behaviors or biological outcomes in Canadian participants. We descriptively compared sexual behavior and rates of pregnancy and sexually transmissible infections (STI) in the pre- and post vaccination era or amongst vaccinated and unvaccinated.

Results In total, 38 Canadian articles were identified and four met eligibility criteria. HPV vaccination was not associated with a diagnosis of STI (OR 0.81, 95%CI 0.63–1.04 and 0.91, 95%CI 0.78–1.06, respectively). Being eligible for HPV vaccination was not associated with pregnancy (OR 0.69, 95%CI 0.49–0.98 and OR 1.01, 95%CI 0.93–1.10). One study found that girls eligible for HPV vaccination were less likely to ever have had sexual intercourse (OR 0.89, 95%CI 0.82–0.98). HPV vaccination was not associated with the lifetime number of partners for vaginal or receptive anal intercourse. There was no difference in having had ≥ 3 sexual partners within the past year. Only the lifetime number of partners for oral receptive intercourse was found to be higher among vaccinated (mean 2.50) than unvaccinated (mean 1.51) women. Use of condoms at last intercourse was slightly higher in vaccine eligible cohorts (OR 1.28, 95%CI 1.10–1.49).

Conclusion HPV vaccination has not been associated with riskier sexual behavior, increased STI or pregnancy rates among young Canadian adolescents. These findings are in line with those from an increasing number of international studies.

Disclosure No significant relationships.

P822 FACTORS ASSOCIATED WITH ONCOGENIC HUMAN PAPILLOMAVIRUS PREVALENCE AMONG AUSTRALIAN WOMEN FOLLOWING VACCINE INTRODUCTION

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Background In Australia, high and widespread uptake of the quadrivalent human papillomavirus (HPV) vaccine has led to substantial population-level reductions in the prevalence of HPV16/18 in women aged ≤ 35 years. We assessed risk factors for oncogenic HPV detection among 18–35 year old women in 2015–2018.

Methods Women attending health services across Australia provided a self-collected (vaginal) or clinician-collected (cervical) specimen for HPV genotyping (Roche Linear Array) and completed a questionnaire. HPV vaccination status was validated against the National HPV Vaccination Program Register. Odds ratios (ORs) and 95% confidence intervals (CI) were calculated for factors associated with detection of any oncogenic HPV (HPV16/18/31/33/35/39/45/51/52/56/58/59/66/68).

Results Among 1,643 women, vaccine coverage (\geq one dose) was 61.5% (69.1%, 58.7% and 41.1% among those 18–24, 25–29 and 30+ years, respectively). Oncogenic HPV prevalence was 25.4% (95% CI: 23.2–27.6%). In univariable analysis, risk factors for detection included younger age (p -trend <0.001), being a current smoker ($p=0.05$), and reporting more lifetime (p -trend <0.001) and recent (last 12 months) sexual partners (p -trend <0.001). In multivariable analysis, younger age (adjusted OR=1.33 [1.17–1.52]), more lifetime (adjusted OR=1.33 [1.16–1.52]) and recent sexual partners (adjusted OR=2.37 [1.77–3.16]) remained significant. There were no associations with socioeconomic status, area of residence or vaccination history. HPV16/18 prevalence was 1.4% (0.9–2.1%). In univariable analysis, risk factors for detection included older age ($p=0.05$), being non-Australian born ($p=0.05$), and being unvaccinated ($p<0.001$). In multivariable analysis, being unvaccinated remained the only factor significantly associated with HPV16/18 detection (adjusted OR=8.61 [2.45–30.25]). There were no associations with area of residence, socioeconomic status, or sexual behaviour.

Conclusion Oncogenic HPV was commonly detected among young Australian women; prevalence was influenced by risk factors related to sexual behaviour. In contrast, prevalence of quadrivalent vaccine-targeted types 16/18 was very low and influenced only by vaccination status. Vaccination has changed the epidemiology of HPV infection in Australia.

Disclosure No significant relationships.

HPV28-Assay. Sample cellularity was evaluated with a quantitative real-time PCR detecting human CCR5 gene.

Results Out of 72 urines tested 24 (33.3%) were positive for HR-HPV, 16 (22.2%) for HR+LR, 8 (11.1%) for LR and 24 (22.2%) were negative from both US and CP. Comparable cellularity was present in US and CP with a mean value of $2.09E+06$. Optimal concordance for all HR- HPV genotypes compared to cervical sample was demonstrated for US and CP. HPV 16, 18, 51 and 31 were most frequently HR-HPV genotypes.

Conclusion Data obtained in this study demonstrated that the Copan UriSponge™ detected all HR-HPV positive samples and good cellularity compared to the cervical swab when compared to the Novosanis Colli-Pee™ using the Seegene Anyplex™ II HPV28 assay. The UriSponge™ is easy to use for urine self-collection, it's not bulky, can be conveniently shipped by mail at a relatively low cost.

Disclosure No significant relationships.

P824

ACCURACY OF CERVICAL CANCER SCREENING USING A SELF-COLLECTED VIAL FOR HPV DNA TESTING AMONG ADULT WOMEN IN SUB-SAHARAN AFRICA

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P823

COMPARISON OF COPAN URISPONGETM TO COLLI-PEE FOR THE COLLECTION OF URINE FOR HPV DETECTION WITH MOLECULAR ASSAYS

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Background Urine specimen collection is non-invasive and better accepted by patients for HPV and STI screening. The Copan UriSponge™, a Liquid Based Microbiology device, used for urine collection for culture and molecular assays. It consists of a leak-proof tube with a screw cap containing a plastic stick with sponges attached that absorb and retain the urine sample during transport preventing bacterial overgrowth. The objective of this study was to compare the UriSponge™ (US) to the Colli-Pee (CP) (Novosanis) urine devices for self-collection of first void urine (FVU) for the detection of HPV with the Seegene AnyplexII™-HPV28-assay.

Methods FVU, from 72 patients with a recent diagnosis of cervical dysplasia, attending the Gynecology clinic for colposcopy. 20 ml of first-void urine were collected using Colli-Pee™ and an additional aliquot of urine was collected in sterile containers to saturate UriSponge™. Nucleic acids were extracted by NucliSENS easyMAG (bioMérieux) from US and CP urine. HPV detection was performed using AnyplexII™

Background Cervical cancer is caused by HR-HPV infection. Self-collection of genital specimens and HPV DNA testing are methods increasing screening rates. The GYNAUTO-CHAD study compared the acceptability and HPV DNA diagnostic accuracy of clinician-collected endocervical sample with swab (as reference collection) and genital self-collection method with veil (V-Veil-Up Gyn Collection Device, V-Veil-Up Pharma Ltd., Nicosia, Cyprus) in adult women living in N'Djamena, Chad.

Methods Five of the 10 districts of N'Djamena were randomly selected for inclusion. Peer educators contacted women to participate to the survey by coming to the clinic for women's sexual health 'La Renaissance Plus'. A clinician performed pelvic examination and endocervical sampling using swab. Genital secretions were also obtained by self-collection using veil. Both clinician- and self-collected specimens were tested for HR-HPV DNA using Anyplex™ II HPV28 genotyping test (Seegene, Seoul, South Korea). Acceptability and accuracy of both collection methods were assessed.

Results 253 women (mean, 35.0 years) were prospectively enrolled. HPV prevalence was 22.9%, including 68.9% of HR-HPV (total HR-HPV prevalence: 15.8%), with unusual HR-HPV genotypes distribution and preponderance (70%) of HR-HPV targeted by Gardasil-9® vaccine. Veil-based genital self-collection showed high acceptability (96%), feasibility and satisfaction. Self-collection by veil was non-inferior to

clinician-based collection for HR-HPV DNA testing, with 'good' agreement between both methods, high sensitivity (95.0%; 95%CI: 88.3–100.0%) and specificity (88.2%; 95% CI: 83.9–92.6%). Remarkably, the rates of HPV DNA and HR-HPV DNA positivity were significantly higher (1.67- and 1.57- fold, respectively) when using veil-based collection than clinician-collection.

Conclusion These observations highlight the unsuspected high burden of cervical oncogenic HR-HPV infection in Chadian women. Self-collection of genital secretions using the V-Veil-Up Gyn Collection Device constitutes a simple, highly acceptable and powerful tool to collect genital secretions for further molecular testing and screening of oncogenic HR-HPV that could be easily implemented in the national cervical cancer prevention program in Chad.

Disclosure No significant relationships.

P825 **HPV SEROPREVALENCE AND SEROCONVERSION AMONG HIV-POSITIVE MEN: COHORT STUDY IN SOUTH AFRICA**

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Background The HPV seropositivity following natural infection can provide data on cumulative exposure to HPV. Studies evaluating seropositivity prospectively among men living with HIV (MLHIV) are few. We aimed to determine HPV type specific seroprevalence and seroconversion among MLHIV following natural HPV infection.

Methods We enrolled 304 sexually-active MLHIV ≥ 18 years from Johannesburg. We collected socio-behavioral data, blood (CD4+ counts, HIV-1 plasma viral load [PVL] and serology), and genital swabs (HPV genotyping with Roche Linear Array and HPV 16/18 Viral Load [VL]) at enrolment and 6-monthly follow-up visits for up to 18 months. At enrolment and 18 months later, type-specific serum antibodies to 15 HPV types (HPV6/11/16/18/31/33/35/39/45/52/56/58/59/68/73) were measured using HPV pseudovirions. Logistic regression evaluated factors associated with HPV seroconversion.

Results At enrolment, median age was 38 (IQR: 22–59) years, 25% reported ≥ 1 sexual partners in the past 3 months and 5% reported ever having sex with other men. Most participants (65%) were on ART, with median CD4+ count 445 cells/ μ L (IQR: 328–567). Serology results were available for 99% of the 304 and 257 men who completed enrolment and 18 months visits. Seroprevalence of any HPV type was 66%. Seropositivity for any HPV types of the bivalent (HPV16/18), quadrivalent (HPV6/11/16/18) and nonavalent (HPV6/11/16/18/31/33/45/52/58) vaccines were 19%, 37% and 60% respectively. Among 59 men with genital HPV-DNA but seronegative for the same type at enrolment, 12 (22%) had type-specific seroconversion at month 18. Among these men, the risk of type specific seroconversion was higher among men with detectable PVL (aOR=2.78, 95%CI: 1.12–6.77), and HPV 18 VL ≥ 5.3 log₁₀/10⁶cells (aOR=3.32, 95%CI: 1.42–7.74).

Conclusion MLHIV have high HPV seroprevalence rates implying that prevention of HPV infection is required. There is evidence of seroconversion in response to detectable DNA infection at baseline, which was associated with both high HIV and HPV 18 viral loads.

Disclosure No significant relationships.

P826 **HIGH PREVALENCE OF CERVICAL HR-HPV IN IMMIGRANT WOMEN ORIGINATING FROM SUB-SAHARAN AFRICA AND LIVING IN ORLÉANS, FRANCE**

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Background We herein assess the HPV detection and HPV-related cervical lesions in immigrant African women living in France.

Methods In 2018, immigrant African adult women attending for sexual health and HIV care a French healthcare facility, were included and subjected to endocervical swabs and Pap smear. HPV DNA was detected by multiplex real-time PCR (AnyplexTM II HPV28, Seegene, Seoul, South Korea).

Results 50 African immigrant women (mean age, 41.7) residing in France for an average of 10.7 years (range 1–32), including 74.0% of HIV-positive and 26.0% of HIV-negative, were prospectively included. HPV prevalence was 68.0%, with 56.0% of HR-HPV and 24.0% of multiple HPV. Unexpectedly, the non-vaccine HR-HPV-68 (20.0%) was the predominant genotype, followed by the Gardasil-9[®] vaccine HR-HPV-58 (14.0%). HPV-16 and HPV-18 were respectively detected in 6.0% and 10.0%. HIV-infected women were more infected with HR-HPV (62.2%) and multiple HR-HPV (16.2%) than HIV-negative women (38.4% and 7.7%, respectively), (P=0.19 and P=0.66, respectively). Most women (84.0%) showed normal cytology, but 16.0% exhibited cervical abnormalities, including 6.0% of Low-grade Squamous Intraepithelial Lesions (LSIL) and Abnormal Squamous Cells with Unknown Significance (ASCUS), and 4.0% of High-grade Squamous Intraepithelial Lesions (HSIL). HPV-16 and HPV-18 were detected in one woman with HSIL. Finally, 87.5% of the study women with cervical abnormalities were HIV-positive, while only one HIV-negative woman showing cervical abnormalities.

Conclusion These findings highlight the unsuspected high burden of cervical HR-HPV infections often associated with cervical abnormalities in the first-generation immigrant women originating from sub-Saharan Africa and residing in France. These observations also point out the atypical epidemiological profile of cervical HPV infection with a rare and non-vaccine high-risk genotype being the most detected HPV, raising thus a concern about the low predictive efficacy of the Gardasil-9[®] vaccine in the prevention of the main genotypes circulating in these specific population residing in France.

Disclosure No significant relationships.

P827 A VERY HIGH PREVALENCE OF HUMAN PAPILLOMAVIRUS IN HIDDEN POPULATION OF SWINGERS: A DUTCH CASE-CONTROL STUDY

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Background Swingers are at high risk for acquiring sexual transmitted infections (STI). The prevalence of human papillomavirus (HPV) in this population is unknown. This information is necessary to assess whether this high risk population should be included in the HPV prevention strategies. In this case-control study the prevalence of HPV in female swingers was tested.

Methods Vaginal swabs were collected from 94 female swingers (median age 45 years), visiting an STI clinic between October 2010 and December 2013 in South Limburg, the Netherlands. Ninety-three vaginal swabs from women visiting their general practitioner in this region, were matched in age and time of visit. Broad-spectrum HPV DNA amplification and mucosal HPV genotyping were performed using the highly sensitive SPF10 DEIA-LiPA25 system (DDL Diagnostic Laboratory, Rijswijk).

Results In 98% of swingers HPV was detected compared to 18% of the matched controls. Of these HPV positive swingers, 75% carried at least one high risk type (hr-type). Twenty-eight percent carried hr-types only, 25% carried low risk types (lr-types) only and 47% carried one or more concurrent hr-types and lr-types. There were no significant differences between the control group and the swingers in type of carriage (hr-type, lr-type, mixed). Hr-type 52 was most prevalent in swingers, followed by hr-types 31 and 53 (23%). Hr-types 16 and 18 were detected in 15%, respectively 11% of swingers. In the control group most prevalent were hr-types 16, 51 and 53, detected in 18% of HPV positive women.

Conclusion In this study an unprecedented high HPV prevalence of 98% was found in female swingers, which was 5 times as much as in matched controls. Of the HPV positive swingers, a worrisome 75% carried at least one hr-type, detected with this highly sensitive detection method. These prevalence rates suggest a potential high HPV disease burden in this population and therefore targeted HPV prevention strategies are necessary.

Disclosure No significant relationships.

P828 USE OF HORMONAL CONTRACEPTIVES AND GENITAL HUMAN PAPILLOMAVIRUS INFECTION: A NATIONAL MULTICENTER STUDY

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Background Available data suggest mixed evidence of hormonal contraceptives (HC) on the association with high-risk human papillomavirus (HPV) types, the main cause of cervical cancer. Therefore, we aimed to analyze the use of HC and the prevalence of HPV in unvaccinated Brazilian women aged 16–25 years.

Methods We analyzed cross-sectional data collected from 5,268 sexually active women who participated in the National Survey of Human Papillomavirus Prevalence (POP-Brazil). This survey enrolled participants from all 26 Brazilian capitals and the Federal District. Professionals from primary care units were trained for specimen and data collection. All participants answered a face-to-face questionnaire and provided biological samples for genital HPV analysis. HPV genotyping for HPV types was done using the Roche PCR-based Linear Array Genotyping Test. Sampling weights by sex and age were applied to the data.

Results The majority of the participants use any type of contraception [76.58% (95% CI 74.82 - 78.35)], being 2,577 [47.59% (45.54% - 49.63%)] on hormonal contraceptives. The use of HC was more frequent in older women (≥ 22 years), with higher education, married or living with a partner, and those with less than two sexual partners in the last year. No significant difference was found between the prevalence of high-risk HPV types and the use of HC: 38.57% among users of HC vs. 38.56% among don't users of HC ($p = 0.994$). Multivariate analysis showed that HC was not associated with high-risk HPV even after adjusting for age, educational level, presence of partner, smoke, and number of partners.

Conclusion Use of HC was not associated with HPV DNA detection. Even so, more studies are necessary evaluating the type of hormonal contraceptive, as well as length and dose of use.

Disclosure No significant relationships.

P829 HUMAN PAPILLOMAVIRUS TYPES DISTRIBUTION IN HEAD AND NECK: A META-ANALYSIS FROM INFECTION TO CANCER

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Background Human papillomavirus (HPV) has been shown to be involved in the carcinogenic mechanisms of non-genital malignancies such as head and neck cancers. Particular HPV types may preferentially progress from infection to cancer of head and neck. However, prospective data on the carcinogenesis process of head and neck cancer remain limited. We aimed to assess data on the relative carcinogenic potential of HPV that can inform head and neck cancer prevention through vaccination and screening.

Methods We systematically reviewed relevant literature in MEDLINE, Embase and Cochrane Library to identify studies published before April, 2018, which reported type-specific HPV prevalence at head and neck. We pooled type-specific HPV prevalence across the full spectrum of head and neck diagnoses, from normal cytology to head and neck cancer, stratifying anatomical site, gender, region and HIV status.

Results A total of 150 studies were included in our review, contributing 6985 cases of normal cytology, 1782 cases of head and neck lesions, and 13587 cases of head and neck

cancer. In HIV-negative individuals, pooled HPV prevalence was 6.42% (95% CI: 4.13–9.18%) for normal cytology, 18.86% (95% CI: 10.84–28.49%) for head and neck lesions, and 28.86% (95% CI: 24.26–33.70%) for head and neck cancer. Pooled HPV 16 prevalence increased with diagnosis severity, from 2.14% (95% CI: 0.86–3.94%) in normal cytology to 20.47% (95% CI: 16.58–24.65%) in head and neck cancer in HIV negative individuals. HPV prevalence varied by diagnosis, subsite, region, but not by gender. Data for HIV-positive patients were too limited to analyze.

Conclusion In HIV negative individuals, HPV prevalence increased with diagnosis severity. And HPV 16 was the most carcinogenic HPV type in head and neck, with enrichment from normal cytology to head and neck cancer.

Disclosure No significant relationships.

P830 FEASIBILITY OF AN ONLINE HPV SELF-COLLECTION SCREENING PROGRAM IN CANADA: DIGITAL HEALTH LITERACY IN SOUTH ASIAN WOMEN

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Background Women who do not regularly attend cervical cancer screening are at increased risk for cervical cancer. In British Columbia (BC), approximately 30% of women aged 21–69 years are under-screened. As cervical cancer screening in BC moves towards the use of primary HPV testing, there is an opportunity to address screening barriers women face through self-collected, rather than clinician collected specimens. Cervix-Check is an internet-based program for HPV self-collection being piloted in communities across BC with low screening rates. To inform the implementation of CervixCheck, we investigated digital health literacy (DHL) in South Asian women.

Methods A cross-sectional anonymous survey was administered July–August 2018 through collaborating primary care clinics in predominantly South Asian communities in the Fraser Health Region of BC. The study population was a convenience sample of women 30–65 years of age, presenting at a primary care clinic. Women were administered the survey on a tablet, which collected demographic, screening history, and internet use information. DHL was measured using the validated eHEALS and Digital Health Literacy Instruments.

Results 51 women participated from four family practices where 30% of women were 50 years or older. 29.4% of women self-reported not having had a Pap test in the last 3 years. English (86%) and Punjabi (58%) were the most common languages participants reported reading and speaking. Majority of women reported using the internet daily (82.4%), with mobile phones being the most common device (72.6%). DHL was higher in under-screened women. Over 80% of women responded that they would be likely to very likely to participate in self-collected screening using CervixCheck.

Conclusion The survey revealed CervixCheck is a promising digital health platform to increase cervical cancer screening uptake among under-screened South Asian women. Findings were used to inform CervixCheck website design and program resources in preparation for its launch.

Disclosure No significant relationships.

P831 CHARACTERISTICS ASSOCIATED WITH HPV-RELATED EXTERNAL GENITAL LESIONS AMONG YOUNG ADULTS IN BRAZIL

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Background HPV-related external genital lesions are the most common outcome of HPV infection, a sexual transmitted disease responsible by low-grade squamous intraepithelial lesion (LSIL) and 99% of cervical cancer. The aim of this study was to assess the prevalence of HPV-related lesions and associated factors in the Brazilian young adult population.

Methods We included 7,694 unvaccinated people from 16 to 25 years recruited from primary care units and submitted to interview, genital examination and cervical/penile sampling. Linear Array® Test (Roche) was used for HPV detection and genotyping.

Results The prevalence of HPV-related lesions was 4% (234), being more frequent in men (5.8%) than women (2.3%). From those, 63% (p<0.03) were positive to HPV. The HPV genotyping distribution comprised all the 37 HPV types tested. However, the more frequent types were the 16 (12.5%), 6 (9.2%), 11 (8.8%), 62 (8.7%), 58 (8.4%), 52 (8.2%) and 51 (8%). Number of sexual partners in the last year (p=0.0005), multiple HPV infection (p<0.0247), smoking (p=0.04), use of hormonal contraceptives (p=0.04) and presence of other STIs (p<0.0001) were associated with the presence of lesion.

Conclusion We found a high prevalence of genital lesion in this young adult population. As expected, most participants were HPV positive. Although HPV 16 was not usually related to external lesions, it was the most frequent HPV type found followed by HPV 6 and 11. Sexual behavior, smoking and hormonal contraception were the main factors associated with genital lesions. Increase awareness about healthy sexual behaviors and immunization coverage should be used as a target to prevent HPV infection and related lesions in the young Brazilian population.

Disclosure No significant relationships.

P832 EFFECTIVENESS OF THE QUADRIVALENT HPV VACCINE AGAINST HSIL AND CIN: A DATA-LINKAGE STUDY

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Background Although originally approved for three-doses, two doses of the HPV vaccine are now approved for 9–14 year olds in British Columbia (BC), Canada. Post-hoc analyses have shown similar efficacy compared to three-doses even after

one-dose. Vaccinated cohorts that include incompletely vaccinated individuals offer the opportunity to evaluate the effectiveness of reduced dosing schedules. We aimed to estimate effectiveness of one-dose of quadrivalent vaccine against high-grade squamous intraepithelial lesion (HSIL) and cervical intraepithelial neoplasia grade 2 or higher (CIN2+).

Methods Data-linkage was performed between the population-based Cervical Cancer Screening Program and immunization registries in BC. Occurrence of HSIL and CIN2+ were compared in a screening cohort of YW born between 1994–2005 who were either (a) unvaccinated; (b) completely vaccinated per-schedule (2-doses 150 days apart or 3-doses) between 9–14 years of age; or (c) vaccinated between 9–14 years of age with one-dose. Relative incidence rates (RR, (95%CI)) were calculated using Poisson regression and adjusted for birth year and age at first screening.

Results Overall, 19,496 women were unvaccinated, 14,130 were completely vaccinated (mean age at vaccination 13.3 ±1.2), and 471 vaccinated with one dose only (mean age at vaccination 13.4±1.1). We found significant protection among completely vaccinated compared to unvaccinated women. The adjusted RR for HSIL was 0.52 (0.43–0.64) and for CIN2+ 0.42 (0.31–0.57). No significant protection after one dose against HSIL and CIN2+ was observed compared with unvaccinated women, respective adjusted RR 0.69 (0.27–1.41) and 1.21 (0.43–2.86).

Conclusion In this observational study, no evidence of protection of one-dose against HSIL and CIN2+ was observed, while protection was found amongst completely vaccinated. The small sample size and the potential for administrative data biases may have impacted this preliminary analysis. This methodological approach provides a platform for further analyses, with larger numbers, to determine the potential impact of single dose HPV vaccination.

Disclosure No significant relationships.

P833 HSV-2 SEROSTATUS AND HPV INCIDENCE, PERSISTENCE, AND PRECANCEROUS LESIONS IN A COHORT OF HPV-VACCINATED WOMEN LIVING WITH HIV

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Background In understanding HPV oncogenesis, several co-factors have been proposed including co-infection with HSV-2. We assessed the relationship between HSV-2 serostatus and HPV-related outcomes in a cohort of quadrivalent HPV-vaccinated women living with HIV (WLWH).

Methods In this multi-site study of immunogenicity and efficacy of the qHPV vaccine in WLWH, three doses of qHPV vaccine were offered. Visits were at months -3, 0, 2, 6, 12, 18, 24, and annually thereafter. Participants provided clinical data and cervico-vaginal swabs for HPV DNA detection (Linear array assay) at each visit; baseline serum was tested for HSV-2 type-specific serology (Focus EIA). We used non-parametric statistics to compare the HPV-related outcomes

(including 37 high and low-risk HPV types) according to HSV-2 serostatus.

Results 151 women aged ≥16 provided baseline serum samples for HSV-2 testing. The predominant regions of origin were Canada (51%) and Africa (30%). At baseline, median age was 39 years (IQR: 34–45), median CD4 count was 500 cells/mm³ (IQR: 382–692), and 70% had an HIV viral load <50 copies/mL. Baseline seroprevalence of HSV-2 was 76.2%, and median years of follow-up was similar for HSV-2 positive (6, IQR: 5.0–7.8) and negative (6, IQR: 5.2–7.9) participants. HSV-2 positivity was significantly associated with increased age. HSV-2 seropositive and seronegative participants had similar frequencies of HPV persistence (86/115 vs 27/36, p=1), clearance of incident HPV infections (88/115 vs 26/36, p=0.8), number of HPV types detected during the study (4.5 vs 5.7, p=0.1), HSIL cytology during the study (11/115 vs 2/36, p=0.7), and CIN2+ histology ever (15/115 vs 5/36, p=1). Results were similar in sensitivity analyses in which HSV-2 seropositivity was defined as an index value ≥3.5.

Conclusion HSV-2 seropositivity was common in this cohort of WLWH in Canada, but was not associated with multiple measures of HPV incidence, persistence, and precancerous lesions.

Disclosure No significant relationships.

P834 EPIDEMIOLOGY OF HUMAN PAPILLOMAVIRUS AMONG WOMEN IN GUANGDONG, CHINA 2008–2017

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Background Human papillomavirus (HPV) infection is the major etiological factor for cervical cancer. Data on the prevalence and genotype distribution of HPV infection in Guangdong Province in southern China are limited. Our study aimed to analyze genotype-specific, age-specific prevalence and year-on-year trend of HPV detection among women in Guangdong 2008–2017.

Methods Exfoliated cervical cells were harvested from women attending gynecological department or medical examination center at Guangdong Women and Children Hospital. Twenty-one HPV subtypes were tested. Chi-squared test and the linear-by-linear association test were applied.

Results A total of 199,963 women attending gynecological department and 11,999 women attending medical examination center were included. HPV was detected in 20.16% of gynecological outpatients, with 17.67% positive for high risk (HR) HPV and 4.43% positive for low risk (LR) HPV. HPV was detected in 17.25% of women receiving physical examinations, with the prevalence of HR HPV and LR HPV being 14.88% and 4.05%, respectively. HPV prevalence significantly differed among these two populations (P<0.001). The five most prevalent genotypes were HPV 52, 16, 58, 81 and 53 among gynecological outpatients and 52, 81, 58, 53 and 16 among women receiving physical examinations. The distribution of any HPV, HR HPV, LR HPV and 9-valent HPV infections showed a bimodal pattern across age groups among both populations. A quasi-V-shaped prevalence curve was observed over the 10-year period among gynecological outpatients for any HPV, HR HPV subtype, LR HPV subtype and 9-valent HPV, while a quasi-reversed V-shaped curve was observed among

women receiving physical examinations for any HPV subtypes, HR HPV subtypes, 9-valent HPV and 4-valent HPV.

Conclusion Our study delineated the distribution and trend of type-specific HPV among both gynecological outpatients and women receiving physical examinations in Guangdong, which may provide valuable data to inform cervical cancer screening and HPV vaccination programs for women in this province.

Disclosure No significant relationships.

P835 QUANTITATIVE ORAL HPV16 AND HPV18 DETECTION IN PATIENTS ATTENDING DENTAL CLINICS

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Background The incidence of HPV-associated oropharyngeal cancer is increasing substantially, especially among men. Our goal was to assess quantitative HPV16 and HPV18 detection in oral rinses obtained in dental offices in Seattle, Washington.

Methods We evaluated 15,313 oral rinses collected for during routine dental visits from 11/2016 to 11/2018. Multiplex Taq-man qPCR was utilized to determine HPV16 and HPV18 viral load (VL).

Results In persons with a single sample, oral HPV was detected in 152(1%) persons: 127(0.83%) were HPV16 positive and 25(0.16%) were HPV18 positive. HPV16 was detected in 1.4% of men; the median age was 55 and median VL was 39.7 (range 0.1 - 589855.2 copies/mL). Only 0.4% of samples were HPV16 positive in women (median age 48, median VL 1.08, range 0.01 - 825 copies/mL). HPV18 was detected in 13(0.18%) men and 12(0.14%) women. A second oral rinse was collected in 628 persons (mean 6 months apart): 581 were HPV negative at baseline and only one became HPV16 positive at second rinse, 39 were HPV16 positive at baseline and 13 remained HPV16 positive at the second rinse, and 8 were HPV18 positive at baseline and 2 remained HPV18 positive at subsequent rinse. Patients with consecutive positive tests were all men and had higher baseline median VL (385 vs 0.90 HPV16 copies/mL; 24 vs 0.80 HPV18 copies/mL) compared to those with first positive and second negative samples.

Conclusion Oral rinse is an acceptable method of HPV testing and patients seen for routine dental care are interested in testing. Comparable to published studies, oral HPV was more frequent among men than women, especially at higher VL levels. HPV16 persistence was more common in those with high VL at baseline test. Future studies are needed to evaluate the feasibility of an effective primary and secondary screening strategy for oropharyngeal cancer using quantitative oral HPV detection.

Disclosure No significant relationships.

P836 TRENDS IN ANOGENITAL WARTS SINCE INTRODUCTION OF HUMAN PAPILLOMAVIRUS VACCINES IN CONNECTICUT, USA

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Background HPV vaccines have been available in the US since 2006 and have the potential to prevent $\geq 90\%$ of anogenital warts (AGW). Monitoring trends in AGW is important to assess progress of immunization programs.

Methods Two datasets for Connecticut (population 3.6 million) were used. Data for residents with private insurance were available for 2012–2017 from a multi-payer claims database (~1 million covered individuals per year). Data for residents with Medicaid insurance were available for 2009–2013 (~512,000 individuals per year).

Results Among privately insured women, the annual incidence rate (IR) of AGW declined from 104 to 68 per 100,000 during 2012–2017. Significant declines were observed for women aged 15–19 (p for trend=.03, average annual percent change (AAPC) -11%), 20–24 ($p < 0.001$, AAPC -13%), 25–29 ($p < 0.001$, AAPC -7%), and 30–34 ($p < 0.01$, AAPC -2%). Similar patterns were observed among men, with an overall decline from 179 to 105 per 100,000, and $p < 0.001$ for trends in each age group and AAPCs ranging from -16% to -3%. Among Medicaid-insured women, the overall IR of AGW declined from 175 to 145 per 100,000 during 2009–2013. Significant declines were observed for women up to age 29 years ($p < 0.05$ and AAPCs from -13% to -3%). Rates in Medicaid-covered men did not decline in any age group.

Conclusion In Connecticut, significant and substantial declines in AGW have occurred in women during both periods (2009–2013 and 2012–2017). In men, declines occurred during 2012–2017 but not during 2009–2013, perhaps due in part to the later routine recommendation for males in 2011 compared to females in 2006. Greater declines in younger populations are consistent with HPV vaccine impact. These reductions have been achieved in a setting of moderate HPV vaccine uptake and could be further reduced with higher coverage.

Disclosure No significant relationships.

P837 HPV16/18 VACCINE: INFLUENCE ON THE SYSTEMIC AND LOCAL TH1/TH2 CYTOKINE PROFILE

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Background The immunological mechanism of the vaccines acts systemically in order to prevent a specifically infection. Although HPV-antibodies levels have been studied in serum and cervicovaginal (CVC) samples of vaccinated women, the TH1/TH2 cytokines levels has not yet been adequately characterized. In our study, we investigated the effects of the

Human Papillomavirus (HPV-16/18) AS04-adjuvanted vaccine (Cervarix[®]) on the serum and cervicovaginal microenvironment, characterizing the TH1/TH2 cytokines profile.

Methods A subset of 20 women between 18 and 40 years old without genital coinfections (bacterial vaginosis, Herpes virus, *Candida* sp *Neisseria gonorrhoea* or *Chlamydia trachomatis*) were selected to receive the three doses of the HPV-16/18 AS04-adjuvanted vaccine (Cervarix[®]). Blood and cervicovaginal samples were collected before the first dose and 30 days after the third dose. TH1 (INF- γ , IL2, IL-12p70, TNF- α , GM-CSF) and TH2 (IL-4, IL-5, IL-10, IL-13) cytokines were determined by Immunology Multiplex.

Results In the blood samples there were no statistically significant differences in the level of cytokines before or after the three doses of the vaccine, except for TNF- α (INF- γ : $p=0.797$; IL2: $p=0.735$, IL-12p70: $p=0.881$; TNF- α : $p=0.011$, GM-CSF, $p=0.721$; IL-4, $p=0.223$; IL-5, $p=0.860$; IL-10, $p=0.473$; IL-13, $p=0.913$). However, for the CVC samples, there was a tendency to decrease the cytokine level after the three doses of the vaccine. This decrease was significant for the INF- γ ($p=0,010$), IL-5, ($p=0,005$), IL-12p70 ($p=0,002$) e IL-13 ($p=0,002$).

Conclusion TH1/TH2 cytokines were detected in serum of women who received the HPV-16/18 AS04-adjuvanted vaccine, but there were no significant differences before and after the three doses. In the vaginal samples there was a significant decrease of INF- γ , IL-12p70, IL-5 and IL-13. Understanding the clinical significance of these modifications is a very relevant issue and future studies that address the network of inflammatory and anti-inflammatory cytokine effects should be considered.

Disclosure No significant relationships.

P838 ASSOCIATIONS OF THE VAGINAL MICROBIOTA WITH HPV INFECTION AND CERVICAL DYSPLASIA IN SOUTH AFRICAN WOMEN LIVING WITH HIV

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Background Fifteen longitudinal studies have shown associations between bacterial vaginosis and high risk human papillomavirus (hrHPV) acquisition and/or persistence, and/or cervical dysplasia. However, few studies assessed the vaginal microbiota (VMB) comprehensively, and none controlled the dysplasia association for persistent hrHPV.

Methods 623 women attending HIV outpatient clinics in Johannesburg, South Africa, were examined for hrHPV (Inno-LipA HPV Genotyping Extra Assay), cervical dysplasia (histology), and vaginal microbiota (VMB; V3-V4 Illumina HiSeq 2x300bp with Swarm OTU-picking) at baseline and endline, a median of 16 months after baseline. VMB research questions were addressed in two nested case-control designs.

Results Hierarchical clustering resulted in seven VMB types: *L. iners*-dominated (Li; $n=214$ samples), *Lactobacillus crispatus* or *L. jensenii*-dominated (Lcj; $n=68$), *Bifidobacterium*-dominated (BD; $n=2$), lactobacilli + bacterial vaginosis (BV)-

anaerobes (L+A; $n=208$), BV-like (BV; $n=303$); BV-anaerobe dominated (AD; $n=56$); and pathobiont-characterised (PB; $n=19$). Women with new or persistent hrHPV during follow-up were less likely to have an Lcj VMB type (compared to Li) at endline, and persistent hrHPV was associated with vaginal anaerobic dysbiosis at baseline (decreased lactobacilli, increased BV-anaerobes, and increased Nugent score). Women who developed CIN2+, compared to women with persistent hrHPV but no CIN2+, were more likely to have vaginal anaerobic dysbiosis at endline (decreased lactobacilli, increased BV-anaerobes, and increased diversity), but not at baseline. These associations persisted after controlling for age, hormonal contraception, and CD4+ count; several additional potential confounders (HIV plasma viral load, antiretroviral therapy, sexually transmitted infections, sexual risk-taking, among others) were evaluated.

Conclusion Frequent hrHPV exposure (and/or increased sexual risk-taking) likely causes vaginal dysbiosis, but a bilateral relationship cannot be ruled out. Women with vaginal dysbiosis are not at increased risk of CIN2+ development when hrHPV status is taken into account, but vaginal dysbiosis does develop when CIN2+ lesions develop. These results should be confirmed in even larger longitudinal studies.

Disclosure No significant relationships.

P839 A CHEMICALLY MODIFIED β -LACTOGLOBULIN (JB01) IS EFFECTIVE IN TREATING HPV INFECTION AND PREVENTING SEXUAL TRANSMISSION OF HIV

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Background More than 90% of the new HIV infection in China occurred through sexual transmission, particularly among the men who have sex with men (MSM). Cervical cancer, the second most common cancer among women, is caused by sexually acquired infection with high-risk types of HPV, such as types 16 and 18. We previously have shown that a chemically modified bovine milk protein, β -lactoglobulin (3HP- β -LG, also known as JB01), is effective against infection by a broad-spectrum of HIV (*Nat. Med.*, 2:230,1996) and HPV entry inhibitor. Therefore, we intended to develop topical formulations containing JB01 against HIV and HPV infections.

Methods A pseudotyped HPV particles expressing HPV L1 and L2 proteins were used for testing the inhibitory activity of JB01. A randomized open-label clinical trial of a JB01 biological dressing (JB01-BD) administered intravaginally was performed to evaluate its *in vivo* safety and efficacy. Both pseudotyped and live HIV-1 strains with different subtypes and tropisms were used for evaluating the *in vitro* efficacy of JB01 and a non-human primate (NHP) model was used for testing the *in vivo* efficacy of JB01.

Results The trial of JB01-BD administered intravaginally demonstrated that JB01-BD is safe and effective. About 60.5% and 13.5% HPV-positive women in the treatment and non-treatment groups, respectively, became HPV-negative ($P < 0.001$). *In vitro* study suggests that JB01 exhibits broad-spectrum antiviral activity against divergent HIV-1 strains, including those resistant to the current antiretroviral therapeutics. Rhesus macaques monkeys pretreated with a topical formulation were protected against rectal challenge with SHIV-SF162P3.

Conclusion JB01-BD is safe and effective against HPV and HIV infections, and was approved by China Food and Drug Administration (CFDA) for treating cervical HPV infection with the potential to reduce morbidity of cervical cancer. A lubricant formulation containing JB01 has recently been approved by CFDA as an auxiliary strategy to prevent sexual transmission of HIV.

Disclosure No significant relationships.

P840 THE HPV SCREENING AND VACCINE EVALUATION (HPV-SAVE) STUDY IN MEN LIVING WITH HIV: EARLY PATHOLOGIC AND ACCEPTABILITY OUTCOMES

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Background Anal cancer caused by oncogenic, high-risk (HR) human papillomavirus (HPV) is emerging as a leading cause of non-HIV-related death in HIV-positive MSM. Anal cancer rates in HIV-positive MSM are up to 100-times higher than the general population. There are no universally-accepted guidelines for anal cancer screening, even in high risk populations, due to a paucity of evidence to support its effectiveness. We assessed the acceptance rate to invitations for anal cancer screening, and describe preliminary pathology results.

Methods The HPV-SAVE Study is an ongoing Canadian study on screening and treatment of anal cancers and pre-cancers in HIV-positive MSM. Participants were invited to have anal cytology and HPV testing in their physician's office. Those with abnormalities were referred for high resolution anoscopy (HRA) and anal biopsies. Cytology was graded as per the Bethesda classification, and histology was described per the Lower Anogenital Squamous Terminology (LAST) nomenclature.

Results Out of 2241 invitations as of 01/2019, 617 men (27.5%) agreed to be screened. Cytology results from 518 satisfactory Pap tests were: 246 negative (47.5%), 62 LSIL (12.0%), 9 LSIL-H (1.7%), 14 HSIL (2.7%), 174 ASCUS (33.6%), and 13 ASC-H (2.5%). In 116 participants referred for HRA, 247 biopsies were done, yielding HSIL in 62 (53.4%) unique individuals, and one invasive carcinoma. In a sample of 127 participants, 111 (87.4%) had any HPV type, 82 (64.6%) had multiple HPV types, 78 (61.4%) had at least one high-risk HPV type, and 39 (30.7%) had HPV-16.

Conclusion MSM living with HIV had moderate acceptance of anal cancer screening invitations, with over half of screened men having abnormal cytology. A majority of those undergoing HRA had high-grade histology diagnosed, and most participants had HPV anal canal infection, with nearly two-thirds having anal canal infection with HR-HPV. These early results highlight the enormous HPV burden in this high-risk population.

Disclosure No significant relationships.

P841 BARRIERS TO HPV VACCINATION AMONG GAY, BISEXUAL, AND OTHER MEN WHO HAVE SEX WITH MEN (GBMSM) IN CANADA: A CIRN STUDY

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Background Internationally, Canada was one of the first countries to offer free HPV vaccination to young gbMSM. The provinces of British Columbia (BC), Ontario (ON) and Quebec (QC) implemented HPV vaccination programs in 2015–2016 for gbMSM aged 9–26. We explored HPV vaccine initiation and among unvaccinated men, potential barriers to uptake.

Methods Engage is a sexual health study among gbMSM aged 16+ in Vancouver BC, Toronto ON, and Montreal QC, the largest urban centres in each province. Men are recruited via respondent driven sampling (RDS). We estimated the proportion that had initiated HPV vaccination and among unvaccinated men, compared proportions to responses on HPV vaccine knowledge and willingness, healthcare access and sexual orientation disclosure by age (eligible for free vaccination: ≤ 26 and ineligible for free vaccination: ≥ 26 years old). Proportions were RDS unadjusted.

Results From 01/2017 to 31/12/2018, 2099 men enrolled (542 Vancouver, 378 Toronto, 1179 Montreal). Their median age was 33 years (IQR 27–46). In Vancouver, Toronto, and Montreal, 48.6%, 44.1% and 44.2% of men aged ≤ 26 and 24.9%, 30.3% and 7.1% of men aged ≥ 26 had 1+ dose of the HPV vaccine, respectively. Among unvaccinated men, more men aged ≥ 26 versus ≤ 26 accessed healthcare (family doctor/sexual health/HIV care) (87.2% vs 78.9%, $p=0.0008$) and disclosed their sexual orientation to their family doctor (86.2% vs 64.4%, $p<0.0001$). A similar proportion of unvaccinated men from each age group had heard of the HPV vaccine ($\geq 26=67.5\%$ vs $\leq 26=69.0\%$, $p<0.0529$). Among unvaccinated men aware of the HPV vaccine, more men aged ≥ 26 versus ≤ 26 were willingness to get vaccinated if the vaccine were free and required disclosure of same-sex activity (80.3% vs 61.5%, $p=0.0259$).

Conclusion Preliminary analyses indicate that HPV vaccine initiation in this population remains suboptimal. Among unvaccinated gbMSM ≤ 26 , accessing healthcare, not disclosing sexual orientation and willingness to get vaccinated may be barriers to vaccine uptake.

Disclosure No significant relationships.

P842 HEALTHCARE ENGAGEMENT AND HPV VACCINATION AMONG GAY, BISEXUAL, AND OTHER MEN WHO HAVE SEX WITH MEN (GBMSM): A CIRN STUDY

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Background Canada was one of the first countries to offer publicly funded programs providing HPV vaccine free of charge to gbMSM. In 2015–2016, the provinces of British Columbia (BC), Ontario (ON), and Quebec (QC) implemented programs for gbMSM aged 9–26 years. We sought to explore where men received the HPV vaccine and the influence of healthcare engagement on vaccination.

Methods Engage is a sexual health study among gbMSM aged 16+ in the largest urban centres in each province: Vancouver, BC; Toronto, ON; and Montreal, QC. Men are recruited via respondent driven sampling (RDS). We compared proportions (non-RDS adjusted) to questionnaire responses on healthcare engagement among vaccinated (1+ doses) versus unvaccinated in the subset of men aged ≤26 years old at enrolment.

Results From 01/2017 to 31/12/2018, 477 men aged ≤26 enrolled (144 Vancouver, 84 Toronto, 249 Montreal). Their median age was 24 years (IQR 22–25). In Vancouver, Toronto and Montreal, respectively, 48.6%, 44.1%, 44.2% had initiated HPV vaccination with 58.6%, 56.8% and 48.2% of vaccinated men having received all 3 doses. Popular venues for vaccination included a: sexual health clinic (50.7%), medical clinic not specializing in sexual health (14.8%), community health centre (10.6%), and doctor's office (7.4%). Compared to unvaccinated men, more vaccinated men had a family doctor (65.9% vs 52.3%, $p=0.0047$), had a different provider/clinic for sexual health care or had a HIV care provider (66.8% vs 51.8%, $p=0.0022$), had a STI/HIV test in the past year (90.8% vs 68.6%, $p<0.0001$), and were diagnosed with a STI in the past year (39.6% vs 20.0%, $p<0.0001$).

Conclusion Compared to unvaccinated men, vaccinated men were more engaged in healthcare. It is unknown whether men requested the vaccine or providers offered it. Nevertheless, our findings suggest opportunistic HPV vaccination when men receive other services, particularly those related to sexual health.

Disclosure No significant relationships.

P843 THE TRANSMISSION OF HPV IN THE SEXUAL NETWORKS OF SWINGERS, A MULTILEVEL NETWORK APPROACH

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Background Swingers, i.e. heterosexual couples who, as a couple, have sex with others within the swingers' subculture, are a subpopulation at risk for Sexually Transmitted Infections (STI). Human papillomavirus (HPV) has proven to be highly prevalent in female swingers (unpublished data). The aim of this study is to assess how the different HPV genotypes are distributed within the sexual networks of swingers and whether certain HPV genotypes cluster.

Methods We build a sexual network of swingers based on the network data given by 115 swingers who participated in our prospective cohort network study on swingers between April 2011 and March 2012. The vaginal samples of all female swingers in the network and known in our STI clinic were tested for HPV. HPV genotypes were identified by the highly sensitive SPF₁₀-LiPA₂₅ method detecting 25 different genital HPV genotypes. The multilevel transmission network consisted of the one-mode sexual network of the swingers and the two-mode network of swingers and the HPV genotypes. Distribution and clustering of HPV genotypes in the sexual network was assessed using multilevel network analysis.

Results The sexual network contained 1231 individual swingers of whom 556 female swingers. The sexual network consists of 38 separate components. Of 103 female swingers known in our STI clinic and tested for HPV, 96 (93%) were positive for at least one of the 25 HPV genotypes. All 25 HPV genotypes were present, but not equally distributed throughout the network. Some genotypes clustered together in specific components of the sexual network.

Conclusion All assessed genotypes of HPV were prevalent in the sexual networks of swingers. Despite the incomplete data in our study, multilevel network analysis turns out to be useful for studying transmission networks. Clustering of highly prevalent HPV could be used as a marker for sexual behaviour, potential STI risk and transmission in swingers.

Disclosure No significant relationships.

P844 THE BURDEN OF HPV AND HSV-RELATED ANOGENITAL DISEASES IN A SOUTHEASTERN US URBAN HIV CLINIC

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Background Although HPV- and HSV-related conditions (HPVCs, HSVCs) have increased in PLWH, incidence, racial, and gender disparities of the conditions are unclear. We

examined the public health burden of anogenital HPVcs and HSVcs among PLWH from a southeastern US HIV clinic.

Methods Electronic health records from the HIV Clinic at University of Alabama, Birmingham (01/2006–03/2018) were reviewed. Patients ≥ 18 years at HIV diagnoses with ≥ 2 clinical visits were analyzed. Incidence rates of HPVcs (cervical and vaginal/vulvar low and high grade squamous intraepithelial lesion (LSIL, HSIL) and cancers in women, penile cancers in men, warts, anal LSIL, HSIL, and cancers in both) and herpetic ulcers were calculated. Each condition was counted only once at its first diagnosis in the period. We used Joinpoint regression to estimate average annual percentage changes (AAPCs).

Results There were 1038 HPVcs, 546 HSVcs, and 3191 both condition-free, with mean ages: 38.3, 39.6, and 41.3 years, and median nadir CD4 counts: 243, 283, 323 cells/ μ L, respectively. Incidence of warts, anal LSIL, HSIL, and cancer were different between men (189, 252, 44, 26 per 10,000 PYs) and women (68, 15, 6, 0 per 10,000 PYs) ($p < 0.0001$ for each). Racial disparities were observed in anal LSIL and cancer, cervical HSIL and cancer among whites (rates: 284, 28, 162, 50 per 10,000 PYs) and blacks (rates: 142, 14, 94, 15 per 10,000 PYs), respectively ($p < 0.05$ for each). Incident ulcers were higher among women than men (260 vs 163 per 10,000 PYs) and blacks than whites (192 vs 183 per 10,000 PYs). Warts, anal HSIL and cancer, cervical LSIL and cancer increased significantly over time (AAPCs: 19.1, 25.3, 24.9, 13.0, 15.1%, $P < 0.0001$ for each, respectively).

Conclusion HPVcs and HSVcs are common in the southeastern US PLWH, with substantial increases of warts, anal and cervical lesions and cancers. Better screenings are warranted in the high-risk population.

Disclosure No significant relationships.

P846 BIOMARKERS OF HIV EXPOSURE AND CONDOMLESS RECEPTIVE ANAL SEX IN MEN WHO HAVE SEX WITH MEN USING SELF-COLLECTED RECTAL SWABS

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Background Biomarkers of HIV exposure could help identify subpopulations at highest risk of HIV acquisition, to focus public health interventions and prevention strategies. This study assessed Y-chromosome single tandem repeat (YSTR) mixtures as biomarkers of receptive anal intercourse without condoms (RAIWC) among men who have sex with men (MSM). We also evaluated the feasibility of self-administered rectal swabs for detection of HIV virions to assess exposures.

Methods Thirty 18-to-50-year-old sexually active, HIV-seronegative MSM were enrolled in New York City. Participants answered daily sexual behavior questions via a mobile phone for 60 days, and were randomized to collecting self-administered rectal swabs daily or after every receptive anal intercourse (RAI) event. Blood collections, rapid HIV diagnostics,

and counselling were performed at beginning and end of the study. YSTR mixtures were assessed in DNA from blood and 233 swabs from 20 participants reporting at least one RAIWC event. HIV exposure was measured by virion PCR in 171 swabs linked to reports of RAIWC.

Results As markers of partner's DNA, YSTR mixtures were found in 41/138 (29.7%) of self-collected swabs linked to mobile reports of RAI. 15/83 (18%) swabs collected after reporting abstinence, insertive sex or RAIWC had YSTR mixtures. No participant became HIV infected during the study, yet exposure to HIV was detected in six rectal swabs corresponding to two different participants. For one participant on pre-exposure prophylaxis (PrEP), rectal HIV virions were found after RAIWC with two different HIV positive partners not on antiretroviral therapy. For the second participant, rectal HIV exposures were identified after RAIWC with two different partners disclosing HIV negative status.

Conclusion YSTR mixtures in self-collected rectal swabs demonstrated 82% specificity but only 30% sensitivity to assess RAIWC. Detection of HIV exposure in self-collected swabs from two uninfected participant indicates it was possible to measure rectal HIV exposures in MSM.

Disclosure No significant relationships.

P848 REVISITING ENFUVIRTIDE'S MECHANISM AND DESIGNING ITS ANALOG WITH IMPROVED ACTIVITY BY TARGETING TRIPLE SITES IN GP41

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Background In the early of 1990's, several peptides overlapping gp41 CHR region, including SJ-2176, T20, and C34 were reported to have potent HIV-1 fusion inhibitory activity. T20 (generic name: enfuvirtide) was approved by the U.S. FDA as the first HIV-1 fusion inhibitory peptide-based anti-HIV drug. However, its clinical application is limited because of its low potency and low genetic barrier to resistance. Furthermore, its mechanism of action is still elusive. Therefore, it is essential to define T20's mechanism of action, based on which a new analogous peptide with improved antiviral activity can be designed.

Methods The inhibitory activity of peptides on 6HB formation was tested in a temperature-controlled cell-cell fusion assay by flow cytometry using 6HB-specific mAb 2G8; on HIV-1 infection and fusion was assessed by p24 and cell-cell fusion assays. Interaction between different peptides or peptide and antibody was evaluated by ELISA.

Results T20 could inhibit 6HB formation at early, but not late, stage of HIV-1 fusion, while T1144 was effective at both stages. T20-SF is much more effective than T20 in binding to FP-P and inhibiting infection of HIV-1, including T20-resistant strains, and FP-P-mediated hemolysis.

Conclusion In the early of 1990's, several peptides overlapping gp41 CHR region, including SJ-2176 (residues 630–659), T20 (residues 638–673), and C34 (residues 628–661) were reported to have potent HIV-1 fusion inhibitory activity. T20 (generic name: enfuvirtide) was approved by the U.S. FDA as

the first HIV-1 fusion inhibitory peptide-based anti-HIV drug. However, its clinical application is limited because of its low potency and low genetic barrier to resistance. Furthermore, its mechanism of action is still elusive. Therefore, it is essential to define T20's mechanism of action, based on which a new analogous peptide with improved antiviral activity against divergent HIV-1 strains, including those resistant to T20.

Disclosure No significant relationships.

P850 GENDER IDENTIFY AND SELF-REPORTED HPV VACCINATION AMONG YOUTH LIVING WITH OR AT HIGH-RISK FOR HIV

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10.1136/sextrans-2019-sti.892

Background Human Papillomavirus (HPV) is common and is linked to cancer in both males and females. Efforts are underway to increase uptake of the vaccine (Gardasil) that is now recommended for youth and adults up to age 45. However, little is known about the role of gender identify on vaccination, particularly among youth at increased risk for contracting and spreading the virus.

Methods We analyzed data (N=1070) from a longitudinal study of high-risk HIV negative youth and youth living with HIV aged 12–24. Data were collected in Los Angeles, CA and New Orleans, LA from clinic and community settings. We examined self-reports of HPV vaccination as well as predictors of vaccination.

Results Cis-gender females (CGFs) had the highest proportion of youth reporting vaccination (52.7%) followed by transgender youth (45.9%), gender non-conforming youth (44.2%), and MSM (39.0%). Cis-gendered, heterosexual males (CGHMs) reported the lowest proportion (32.9%). However, 18.8% of youth did not know if they had received the vaccine. In our multivariate logistic model examining predictors of vaccination, gender identity was only significant for CGHMs. Other significant variables included age, some education higher than a high school diploma or completing higher education compared to less than high school, ever being tested for Hepatitis C, currently having a healthcare provider, always using condoms, and Latino or other race/ethnicity compared to African-American.

Conclusion Results suggest that despite national efforts to increase the uptake of the vaccine, many youth at high-risk for HPV have not received it or did not know if they had. CGFs appear to have the highest uptake, but CGMs are a group for whom increased efforts targeting vaccination are needed. Demographic and health care factors may also impact vaccination rates. Research is needed on barriers to vaccination and new interventions that go beyond education and promotion such as policy initiatives.

Disclosure No significant relationships.

P851 PERFORMANCE DISK DIFFUSION METHOD IN IDENTIFYING GONOCOCCAL RESISTANCE

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10.1136/sextrans-2019-sti.893

Background Because of their simple and cost-effective characteristics, many products of disk diffusion tests are commonly used by microbiological laboratories and hospitals world-wide to determine the gonococcal susceptibility and guide clinical treatments. To evaluate the reliability of routine detection of antimicrobial susceptibility of *Neisseria gonorrhoeae* by disk diffusion method, six kinds of discs targeted at the specific antibiotics (penicillin, ceftriaxone, cefixime, tetracycline, ciprofloxacin and spectinomycin) from two domestic and one foreign manufacturer were included into the evaluation using agar dilution method as a reference method to validate the concordance between the two methods.

Methods According to CLSI 2018 (M100, 28th ed) standard, the antimicrobial sensitivity results of more than 100 clinical isolates and 6 reference strains were interpreted. The coincidence rates of the two methods were analyzed by calculating four indicators: categorical agreement (CA), very major errors (VME), major errors (ME), minus errors (MIE). In addition, the correlation between agar dilution and disk diffusion methods were analyzed by using breakpoints established by linear least-squares regression.

Results The results showed that the MIC values of the 6 antibiotics on reference strains determined by the two methods were within the reference ranges. No very major or major discrepancies were detected in the 6 antibiotics. The performance of disk diffusion method to detect gonococcal susceptibility indicated that 1) the coincidence rates in spectinomycin and ciprofloxacin were high (CA \geq 98%); 2) disk dilution method could miss some penicillin-resistant strains; (3) the coincidence rate of ceftriaxone and cefixime was low (CA<80%), in which agar dilution method is needed to confirm the detection of non-sensitive strains.

Conclusion The domestic products for ciprofloxacin, tetracycline, spectinomycin, cefixime and ceftriaxone were as satisfactory as foreign ones but the domestic for penicillin was relatively poor in quality.

Disclosure No significant relationships.

P852 EVALUATION OF PLEXPCR® VHS FOR DIAGNOSIS OF GENITAL LESIONS

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10.1136/sextrans-2019-sti.894

Background Genital lesions can be caused by herpes simplex virus types 1 and 2 (HSV-1 and HSV-2), varicella zoster virus (VZV) and *Treponema pallidum* (TP). Clinical presentations

can be indistinguishable, and correct identification of the etiology is essential for patient management. PCR is the gold standard for identification of herpes viruses, and PCR can also be used for direct detection of TP from genital lesions. Given the recent global resurgence of syphilis, early diagnosis using PCR is an important tool to supplement serology-based diagnosis of syphilis.

Methods The PlexPCR[®] VHS assay (SpeeDx) has been developed to detect and differentiate HSV-1, HSV-2, VZV and TP. 211 samples (157 positive and 54 negative) were collected from Melbourne Sexual Health Centre (Victoria, Australia) from January-April 2018. Samples consisted of genital, anal/rectal, oral and non-genital swabs. The performance of the assay was evaluated at the Victorian Infectious Diseases Reference Laboratory (Victoria, Australia) and compared to reference results from in-house qPCR tests (HSV-1/HSV-2/VZV/CMV multiplex and TP singleplex). TP detection was also compared to serology results.

Results The sensitivity/specificity of each target compared to in-house qPCR was 100%/99.4% for HSV-1, 96.0%/98.8% for HSV-2, 100%/100% for VZV and 100.0%/100.0% for TP. Analysis of TP PCR results compared to serology are still pending.

Conclusion Molecular diagnosis of genital lesions using PlexPCR VHS allows rapid identification of pathogens with high sensitivity and specificity, enabling appropriate patient management.

Disclosure No significant relationships.

P853 HUMAN FACTORS ENGINEERING TO DRIVE THE DEVELOPMENT OF A NEXT GENERATION COLLI-PEE HOME-BASED FIRST-VOID URINE COLLECTION

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Background The first-void urine (first 20 ml of the urine flow) is being used for the detection of sexually transmitted infections (STIs), in particular for the detection of (1) *Chlamydia trachomatis*, (2) *Neisseria gonorrhoeae*, (3) *Mycoplasma genitalium* and (4) *Trichomonas*. Novosanis' Colli-Pee is an innovative device for standardized, volumetric and hygienic self-collection of first-void urine.

The aim of the study was to design a next generation of the Colli-Pee device optimized in architecture and right materials for postal mailing.

Methods Co-creation sessions by living labs Happy Aging (BE) and EIZT (NL) were organized with 20 volunteers to score four 3D-printed designs. Additionally, at home-based testing allowed assessment of the usability of the new generation Colli-Pee in 120 healthy volunteers; 60 in BE and 60 in NL. Volunteers provided feedback via an online questionnaire on the ease of use, the process of an online urine self-test: from requesting and receiving the Colli-Pee urine collection system to the collection of urine to the returning of the sample by postal mail. The returned samples were checked for leakage and collected volume; as well as return conditions.

Results The prototype with a flexible funnel scored best for time of sampling (8.3), user-friendliness (8.3), and choice of material (8.6). The first results from 38 Belgian participants showed no difference between collected volume for the different pee positions used ($p=0.996$, Kruskal Wallis Test; mean (SD) in mL: standing position 10.21 (0.34), forward sitting position 10.00 (0.86), backward sitting position 10.34 (0.55)). From 50 Belgian participants, 20% of the volunteers mentioned that they did not use the instructions to assemble the Colli-Pee and 92% would recommend the Colli-Pee to others. Furthermore, all returned boxes with a urine sample were intact upon arrival.

Conclusion The next-generation Colli-Pee was well-accepted and offers a solution for home-based collection.

Disclosure No significant relationships.

P854 INTERSPECIES CHIMERAS: A TOOL TO IDENTIFY CHLAMYDIAL VIRULENCE FACTORS

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Background *Chlamydia trachomatis* is an obligate intracellular bacterium and is the most common notifiable infection in the United States. It spends its entire developmental cycle in a membrane bound cytosolic vacuole termed the inclusion, which protects it from otherwise deleterious host innate immune responses. Interferon gamma (IFN γ) plays a critical role in the clearance of *Chlamydia in vitro* and *in vivo*, at least in part by inducing cell-autonomous immunity in infected epithelial cells. *Chlamydia muridarum*, a rodent pathogen with high genomic synteny to *C. trachomatis*, is completely susceptible to human cell-autonomous immune responses *in vitro*. In contrast, *C. trachomatis* is highly resistant to these IFN γ -induced responses. In published coinfection experiments, inclusions coinhabited by these species are resistant to recognition by cell-autonomous immunity, suggesting that *C. trachomatis* has evolved active mechanisms to evade recognition by host cytosolic immune surveillance. These mechanisms are completely unknown.

Methods To identify chlamydial genes that may be involved, we have taken advantage of a previously generated library of interspecies chimeras, each of which has a genome that is predominantly *C. trachomatis* serovar L2 with discrete regions of *C. muridarum* genes recombined in (range = 12–113 recombined genes in each individual chimera). We have used these chimeras in an initial screen looking for ubiquitin recruitment to inclusion membranes—an established marker of cell-autonomous immunity recognition.

Results We have identified four chimeras that are ubiquitinated following IFN γ stimulation. These four have zones of recombination overlapping with one another, providing us with 11 candidate genes.

Conclusion This outcome highlights the utility of our chimera library, especially when used to identify genetic factors underlying phenotypes for which *C. trachomatis* and *C. muridarum* are disparate. Future characterization of the candidate genes in this screen will identify chlamydial virulence factors that aid in immune evasion of IFN γ -induced host responses, and may inform design of future vaccines.

Disclosure No significant relationships.

P855 MULTI-PEPTIDE ELISAS OVERCOME CROSS-REACTIVITY AND INADEQUATE SENSITIVITY OF *CHLAMYDIA TRACHOMATIS* AND *C. PNEUMONIAE* SEROLOGY

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Background *Chlamydia* spp. serology is compromised by cross-reactivity of classical antigens. For specific detection of anti-*trachomatis* (Ctr) and anti-*C. pneumoniae* (Cpn) antibodies, we developed and validated novel peptide ELISAs.

Methods Strongly reactive peptide antigens of 24 Ctr- and 48 Cpn-specific B-cell epitopes of multiple immunodominant chlamydial proteins were used in this study. For specific detection of anti-Ctr and anti-Cpn antibodies, 185 human sera were tested in colorimetric ELISAs with mixtures of 12–24 Ctr or Cpn peptide antigens using polyclonal anti-human IgG-HRP conjugates. For comparative evaluation, these sera were tested with 4 Ctr and 4 Cpn commercial IgG ELISAs.

Results In commercial ELISAs, Ctr and Cpn individual serum reactivity was 54% biased towards positivity for both species (co-positivity), but unbiased in Ctr and Cpn peptide antibody assays. This finding suggested a severe specificity problem (cross-reactivity) of commercial ELISAs, but not peptide assays. Using hyperimmune mouse sera against each of 11 *Chlamydia* spp., we confirmed that commercial Ctr and Cpn ELISA antigens are cross-reactive among all *Chlamydia* spp., but Cpn and Ctr peptide antigens react specifically only with antisera against the cognate chlamydial species. By comparison at 90% specificity to a Ctr-peptide composite reference standard (CRS) for human anti-Ctr antibody status, the Ctr mixed peptide assays showed 86–83% sensitivity, significantly higher than the 59–34% sensitivity of 4 commercial anti-Ctr ELISAs. Relative to a Cpn-peptide CRS, the Cpn mixed peptide assay showed 86–80% sensitivity at 90% specificity, significantly higher than the 48–25% sensitivity of 4 commercial anti-Cpn ELISAs.

Conclusion For detection of anti-Ctr and -Cpn antibodies, commercial ELISAs are not suitable due to cross-reactivity. In contrast, mixed peptide assays are accurate with simultaneous high specificity and sensitivity, and reliably determine anti-Ctr and anti-Cpn antibody prevalence. With convenient use for non-specialized laboratories, these peptide ELISAs will improve Ctr and Cpn serodiagnosis.

Disclosure No significant relationships.

P856 PRIVACY AND TECHNOLOGY FOR YOUNG BLACK MEN WHO HAVE SEX WITH MEN IN THE SOUTHERN US RELATED TO SEXUAL CARE AND RESEARCH

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Background Technology, such as text messaging and mobile apps, has been integrated into health care. Technology preferences of underrepresented young black men who have sex with men (YB MSM) remain unknown but likely influence the use of health care services. The objective was to query the preferences of YB MSM related to technology regarding sexual health care and research. We hypothesized that YB MSM

would prefer the use of social media and mobile applications (apps).

Methods We recruited YB MSM in Birmingham, Alabama to participate in a discrete choice analysis of sexual health preferences. Participants were given a link to an electronic survey, which queried their sociodemographic status and preferences for STI testing and research. We specifically queried the use of technology to notify of STI results and recruit for research in addition to privacy concerns.

Results 33 YB MSM met criteria: median age was 28, most were homosexual (n=27, 82%) and the remaining bisexual, 17 (52%) had HIV, 24 (73%) reported a prior STI, 16 (48%) live below the state federal poverty level, and 11 (33%) were uninsured. When asked, the best and worst way to be contacted with STI testing results, 21/33 (64%) preferred phone notification. Further, (52%) and (39%) said texting and email were the worst option, respectively. When asked the best way to recruit YB MSM for sexual health research, 16/33 (48%) reported social media. The most frequently recommended social media sites were Facebook (33%) and Instagram (27%). When asked their greatest concern about STI testing, 8/33 (24%) reported privacy concerns. None expressed concerns about limited access to technology.

Conclusion YB MSM in the Southern U.S. prefer social media and mobile apps for research recruitment but not for communication about personal health. When it comes to STI testing, privacy remains a significant concern for YB MSM.

Disclosure No significant relationships.

P857 PENILE MICROBIOME AND URINARY CYTOKINES OF KENYAN MEN WHO HAVE SEX WITH MEN AND MEN WHO HAVE SEX WITH WOMEN

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Background MSM are disproportionately affected by HIV and STIs compared to men who have sex with women (MSWomen). This may be due in part to different burden of mucosal inflammation. We compared penile microbial composition between MSM and MSWomen and association with mucosal inflammation.

Methods In this cross-sectional study, we enrolled 43 MSM and 43 MSWomen, who were HIV negative and matched on age and circumcision status. The penile microbiome was assessed via meatal swab, with 16S rRNA gene amplicon sequencing. Urinary cytokine concentrations (TNF- α /IL-1 β /IL-8/IL-10/IP-10) were measured using Luminex. Random Forest (RF) identified genus-level taxa differing between MSM and MSWomen. Taxa from RF were regressed on cytokine outcomes, with multiple testing correction and information criterion model selection.

Results Men were median age 24 and 77% circumcised. There were substantial differences in educational attainment, employment, alcohol and drug use, condom use, and number of sexual partners, with MSM having greater behavioral risks. Microbiome composition differed markedly between MSM and MSWomen: RF discriminated between MSM and MSWomen with 84% accuracy. Taxa with greatest

discriminating influence were *Lactobacillus*, *Anaerococcus*, and *Staphylococcus*. In crude analysis, cytokines TNF- α /IP-10/IL-10 were elevated among MSWomen ($p < 0.05$, each); IL-8 did not differ by group; IL-1 β was higher among MSM ($p = 0.03$). Cytokine concentration increased in response to *Corynebacterium* (IL-8/TNF- α /IP-10/IL-1 β), *Gardnerella* (IL-8/IP-10/IL-1 β), *Veillonella* (IL-8/IP-10/IL-1 β), and *Peptoniphilus* (IL-8/IL-1 β). Microbiome composition did not account for the difference in TNF- α , IP-10, or IL-10 between groups; the difference in IL-1 β became non-significant after accounting for taxa. Among MSWomen, IL-1 β ($p = 0.01$) and IL-8 ($p = 0.05$) were elevated if the female partner had BV.

Conclusion To our knowledge, this is the first comparison between MSM and MSWomen of penile microbiome and urinary cytokines. Future studies should examine whether microbiome and mucosal inflammation differences between MSM and MSWomen cause differential risk of HIV/STI acquisition or differential impact on efficacy of HIV/STI interventions.

Disclosure No significant relationships.

P858 2018/2019 SURVEILLANCE UPDATE ON NEISSERIA GONORRHOEAE ISOLATES

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Background The global prevalence of antimicrobial resistance (AMR) in *Neisseria gonorrhoea* (GC) is increasing and of specific concern is the emerging resistance to third generation cephalosporins worldwide. In Africa, exceedingly limited AMR data is available. The study determined the AMR in GC isolates a public referral clinics offering HIV and STI testing and treatment to people living in Nairobi and the region

Methods The survey on men presenting with urethral discharge at the special treatment Clinic (STC-Casino Clinic) collected samples from symptomatic men, inoculated on modified Thayer martin media (MTM) and identified by standard bacteriological methods. The MICs of five antibiotics Azithromycin, Gentamycin, ciprofloxacin, cefixime and ceftriaxone are determined by the Etest method (AB Biodisk, Solna, Sweden) and results defined as susceptible, intermediate and resistant. WHO reference strains were used as controls.

Results A total of 153 samples have been collected with 96 samples having tested culture positive, giving a 62.7% prevalence on samples collected from 25th June 2018 to 5th February, 2019. The mean MIC of 0.016 was recorded for Azithromycin, cefixime, while a mean MIC of 1.41 and 2.0 was recorded for Ciprofloxacin and Gentamycin respectively. The MIC range for Ciprofloxacin and Gentamycin was from 0.004 to 6 and from 0.125 to 8 respectively.

Conclusion This is a continuous study on the Gonococcal surveillance program to describe antimicrobial resistance profiles of antibiotics used in the region. It confirms that *N. gonorrhoea* isolates from Nairobi in 2018 possessed high level resistance to Ciprofloxacin an antimicrobials previously recommended for the treatment of gonorrhoea. Cefixime, ceftriaxone and azithromycin are still useful drugs for treatment of gonococcal infections in Kenya. The outcome of this study together with other additional studies will enable revisions of the gonorrhoea treatment guidelines in Kenya and support in antimicrobial resistance in the region.

Disclosure No significant relationships.

P859 GENOTYPING *gyrA* AND *penA* FROM REMNANT NEISSERIA GONORRHOEAE POSITIVE CEPHEID XPRT® CLINICAL SPECIMENS

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Background *Neisseria gonorrhoeae* (NG) has developed resistance to most antibiotics, making it increasingly difficult to treat. Molecular methods have been used to predict antimicrobial susceptibility based on the *gyrA* codon serine 91 and the mosaic XXXIV allele on the penicillin-binding protein 2 (*penA*) gene using Roche Cobas and APTIMA clinical specimens. We aimed to determine if the same methods could be successfully used on remnant NG-positive Cepheid Xpert® specimens.

Methods We tested NG-positive pharyngeal, rectal, and vaginal/urine specimens from adolescents aged 14–24 years. We extracted 100uL DNA from each sample using the Roche® MagNA Pure. The Roche LightCycler® 480 was used to genotype *gyrA* and *penA* in a multiplex PCR using high resolution melt curve analysis. The fluorescent labels of the detection probes for the *penA* mosaic XXXIV target (Cyanine-5 dye) differed from that of *gyrA* (LightCycler® 640 probe) so that both genes could be detected simultaneously at various wavelengths. We used isolates with previously confirmed presence of the NG mutant *gyrA*, NG wild type *gyrA*, and mosaic *penA* XXXIV allele for internal controls.

Results Of the clinical specimens, 62% (38/61) were successfully genotyped. Urine specimens were most likely to be genotyped (5/6, 83%) followed by rectal (19/26, 73%), pharyngeal (12/24, 50%), and vaginal specimens (2/5, 40%). Of the 38 genotyped specimen, 8 had the *penA* XXXIV allele (2/26 rectal, 6/24 pharyngeal) and 16 had a mutated *gyrA* (10/26 rectal, 3/24 pharyngeal, 2/6 urethral, 1/5 vaginal). Of the 8 *penA* XXXIV positive specimens, 6 were *gyrA* indeterminate, 1 was *gyrA* wild type, and 1 was *gyrA* mutant. Of the 30 specimens without the *penA* XXXIV mosaic allele, 15 were *gyrA* wild type and 15 were *gyrA* mutant.

Conclusion Genotyping specific NG genes from Cepheid Xpert® clinical specimens was feasible. Our study was limited by its small sample size and lack of concurrent antimicrobial testing.

Disclosure No significant relationships.

P861 NOVEL MUTATION CONFERRING HIGH-LEVEL AZITHROMYCIN RESISTANCE IN NEISSERIA GONORRHOEAE

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Background Azithromycin resistance in *Neisseria gonorrhoeae* has been attributed to several resistance-associated mutations

including mutations in the 23S rRNA genes conferring varying levels of azithromycin resistance. Here, we report the emergence of a novel A to G mutation at the 2058 nucleotide residue (A2058G) in the 23S rRNA genes, in two gonococcal isolates, that confers high-level resistance to azithromycin (HLAziR; ≥ 256 mg/ml).

Methods The collection and antimicrobial susceptibility testing of *N. gonorrhoeae* isolates were performed as part of the Gonococcal Isolate Surveillance Project (GISP). Isolates with elevated minimum inhibitory concentration to azithromycin (≥ 2 mg/ml) were subjected to molecular analysis using Sanger PCR sequencing and/or whole genome sequencing analysis. Etest[®] was performed to confirm azithromycin susceptibility level and to determine the hetero-resistance phenotype (a concentration-dependent response to antibiotic) of the reported isolates.

Results Molecular analysis of GISP isolates from 2014–2018 revealed two isolates collected from two patients having the A2058G mutation in the 23S rRNA genes. One isolate had the HLAziR phenotype and A2058G mutations in all four 23S rRNA. The second isolate had the A2058G mutation in three of the four alleles and displayed a hetero-resistance phenotype (azithromycin MIC ranging from 4 mg/ml to ≥ 256 mg/ml). The wild-type allele was very conducive to A2058G conversion and resulted in a complete HLAziR phenotype. This mutational nucleotide conversion occurred in less than twenty hours after exposure to azithromycin using Etest[®].

Conclusion HLAziR in *N. gonorrhoeae* had largely been confined to isolates harboring a point mutation at nucleotide residue A2059G of the 23S rRNA genes. The newly discovered A2058G mutation further illuminates the genomic plasticity in *N. gonorrhoeae* when responding to antibiotic exposure and suggests a rapid recombination frequency between the 23S rRNA alleles at this nucleotide residue.

Disclosure No significant relationships.

P862 FEMALE SEX WORKERS AND THEIR ATTITUDE TOWARDS ORAL PRE-EXPOSURE PROPHYLAXIS

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Background Pre-exposure prophylaxis (PrEP) provides protection to sexually active persons at risk of acquiring HIV. Eligible female sex workers (FSWs) are a key population in which oral PrEP is indicated. The aim of this study was to evaluate knowledge levels of oral PrEP and the likelihood of its use among FSWs.

Methods A cross-sectional study in HIV uninfected FSWs was conducted. Interviews assessing awareness and intention to use PrEP were conducted initially. A description of PrEP as an HIV prevention strategy would be given after assessing awareness. Relative importance index was used to assess levels of knowledge, likelihood and barriers to PrEP use. A bivariate logistic regression model was utilized to identify predictors of PrEP use.

Results One hundred and thirty-one FSWs with a median age of 25 years (IQR: 21 – 31) participated. Most participants were single (78%), 10% being married, and 11% being either divorced or widowed. FSWs reported a median 5 (IQR: 3 – 6) daily sexual partners. Fifty-three (40%) participants reported having at least one encounter of unprotected casual sexual intercourse within the preceding three months. Only 71 (54%) participants had ever heard about PrEP. Of the FSWs that had heard about PrEP, 46 (35%) had adequate knowledge on its use. A total of 102 (78%) of the participants revealed that they would be willing to always use oral PrEP if it was provided to them for free. Likelihood of PrEP use increased among participants who had unprotected sex in the last 3 months ($r = 0.0448$, $p = 0.026$). Participants that were more knowledgeable about PrEP had an increased likelihood for PrEP use ($r = 0.21$, $p = 0.0153$).

Conclusion Knowledge of PrEP among FSWs in Zimbabwe was low. To increase uptake of PrEP as an HIV prevention strategy there will be need to further sensitize FSWs on this intervention.

Disclosure No significant relationships.

P863 TRANSGENDER WOMEN IN LEBANON: A QUALITATIVE STUDY TO UNDERSTAND HIV/STIS RISK

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Background In the Middle East and North Africa region, there is a scarcity of studies that focus on transgender individuals. Not only this group is regarded as one of the most at risk for HIV infection, but the burden of social stigma in this area of the world regarding transgender persons is very high. A single study by Kaplan et al. that focused on HIV related risk and resilience among 10 transgender women (TW) in Lebanon reported 0% HIV rate. The aim of this study was to characterize TW, a hard-to-reach population, and to understand HIV/STIs risky behavior in a sample in Lebanon.

Methods Interviews were conducted with 18 Lebanese TW using an STI clinic and checkpoint in Lebanon. Data were analyzed using Qualitative Thematic Analysis.

Results Three principal themes were raised: social issues; stigma, discrimination/trauma and mental health issues; health-care access. High risky behavior as condomless sexual intercourse were mentioned due to social and family rejections, difficult to access healthcare services, and stigma with discrimination. However, according to the findings, access to HIV/STIs services was considered better when compared to other health services.

Conclusion This qualitative study investigated HIV/STIs risk behaviors of TW in Lebanon. Our findings about social and family issues, discrimination and stigma, health care access difficulty even from LGBT community should help local programs to better understand the TW population in Lebanon and their needs. Special services addressing TW in non-medical and medical issues, taking into consideration an overall comprehensive and multi-disciplinary intervention appears to be the most useful.

Disclosure No significant relationships.

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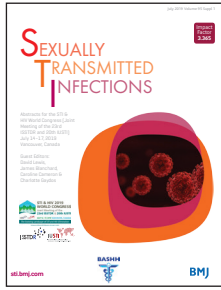
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