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CAHR 2014

TURNING THE TIDE ON HIV

23rd Annual Canadian Conference on HIV/AIDS Research

ACRV 2014

ENDIGUER LES FLOTS DU VIH

23e Congrès annuel canadien de recherche sur le VIH/sida

ABSTRACTS / RÉSUMÉS

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MESSAGE FROM THE CAHR PRESIDENT / MESSAGE DU PRÉSIDENT DE L'ACRV

Dr Robert Hogg

Welcome to the 23rd Annual Canadian Conference on HIV/AIDS Research (CAHR 2014).

The Canadian Association for HIV Research (CAHR) is proud to be part of the community of researchers and community groups working tirelessly in the global fight against HIV. With a membership of more than 1,000 researchers and others interested in HIV research, CAHR is the leading organization of HIV/AIDS researchers in Canada. The annual CAHR conference is the premier gathering in Canada for those working in the field of HIV, as well as policy makers, persons living with HIV, and other individuals committed to ending the pandemic. It is a chance to assess where we are, evaluate recent scientific developments, and together chart a course forward.

I congratulate the members of the 2014 Scientific Program Committee for developing such a strong and thematic programme that will present new scientific knowledge and offer many opportunities for structured dialogue on the major issues facing the global response to HIV. A variety of sessions such as abstract-driven presentations, symposia, and plenary will meet the needs of various participants. Other related activities, including ancillary meetings and training workshops, will contribute to an exceptional opportunity for professional development and networking.

CAHR 2014 will be a tremendous opportunity for researchers and community members from coast to coast to share the latest scientific advances in the field, learn from one another's expertise, and develop new ways to treat and prevent HIV. I hope you enjoy the conference, find it to be a worthwhile learning experience, and thank you in advance for your contributions, participation, and continued support.

Bienvenue au 23e Congrès annuel canadien de recherche sur le VIH/sida (congrès de l'ACRV 2014).

L'Association canadienne de recherche sur le VIH (ACRV) est fière de travailler avec le milieu des chercheurs et les groupes communautaires qui œuvrent sans relâche à la lutte mondiale contre le VIH. Comptant plus de 1 000 membres – des chercheurs et d'autres personnes s'intéressant à la recherche sur le VIH –, l'ACRV un organisme canadien de premier plan se consacrant à la recherche sur le VIH/sida. Le congrès annuel de l'ACRV est l'événement le plus important au pays s'adressant aux personnes travaillant dans le domaine du VIH, aux décideurs, aux personnes vivant avec le VIH et aux autres personnes déterminées à enrayer la pandémie. Il offre l'occasion de faire le point sur la situation, d'évaluer les récentes percées scientifiques et d'établir conjointement un plan d'action.

Je tiens à féliciter les membres du comité du programme scientifique de 2014, qui ont su créer un programme riche et thématique présentant les nouvelles connaissances scientifiques et offrant de nombreuses occasions de dialogue structuré sur les principales difficultés rencontrées dans le cadre de la lutte mondiale contre le VIH. Un large éventail de séances, dont des présentations d'abrégés, des colloques et des séances plénières, est prévu afin de répondre aux différents besoins des participants. Des activités connexes, notamment des réunions auxiliaires et des ateliers de formation, s'avéreront d'excellentes occasions de perfectionnement professionnel et de réseautage.

Le congrès de l'ACRV 2014 permettra aux chercheurs et aux membres des collectivités d'un océan à l'autre d'échanger sur les derniers développements scientifiques dans le domaine du VIH, d'enrichir leurs connaissances au contact des autres participants et d'établir de nouvelles stratégies de traitement et de prévention du VIH. Nous espérons que le congrès vous sera agréable et qu'il se révélera pour vous une expérience d'apprentissage utile. Nous vous remercions d'avance de votre contribution, de votre participation et de votre appui soutenu.

Dr Robert Hogg
President / Président
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MESSAGE FROM THE CO-CHAIRS OF CAHR 2014
MESSAGE DES COPRÉSIDENTS DU CONGRÈS DE L'ACRV 2014

We are delighted to welcome you to the eastern edge of North America for the 23rd Annual Canadian Conference on HIV/AIDS Research. While many scientific and socioeconomic barriers remain, recent progress brings us to the edge of a new era in HIV/AIDS research, one in which we can realistically discuss prospects for functional and sterilizing cures. Through focused efforts in all pillars of health research, there is a growing belief that the seminal successes in eradicating HIV in adult chronic infection and neonatal infection can translate into more broadly applicable approaches to truly Turn the Tide on HIV.

Dr Michael Grant and Dr Debbie Kelly

Biomedical cure is only one of many breakthroughs needed to address HIV infection in a socially equitable manner and bring the benefits of health care to the difficult-to-reach, disadvantaged and marginalized populations needing it most. This year's program has been designed from over 400 abstracts covering all aspects of HIV research with local and global significance. Special sessions will facilitate discussion about cure, ethics in community-based research and sharing of ideas to address local challenges with increasing IDU and the associated interactions with HIV and hepatitis C risks, access to testing and treatment.

We are very excited to host the annual CAHR conference for the first time in St. John's, and hope that you will take the opportunity, while brainstorming and socializing with your colleagues throughout the weekend, to enjoy the fresh air, rugged beauty of the local landscape and historic character of North America's oldest city.

Nous sommes heureux de vous accueillir sur la côte est nord-américaine à l'occasion du 23e Congrès annuel canadien de recherche sur le VIH/sida. Même s'il reste encore de nombreux obstacles scientifiques et socioéconomiques à surmonter, les récentes avancées nous ont menés à l'aube d'une nouvelle ère en recherche sur le VIH/sida, où nous pouvons discuter de façon réaliste de possibles traitements qui apporteraient une guérison fonctionnelle ou qui élimineraient complètement le VIH. En déployant des efforts ciblés dans tous les piliers de la recherche en santé, on croit de plus en plus que les réalisations phares dans l'éradication de l'infection chronique et de l'infection néonatale au VIH peuvent se traduire par des approches applicables à une plus grande échelle dans le but de véritablement renverser le VIH.

Les traitements biomédicaux ne constituent qu'une étape parmi les nombreuses grandes étapes à franchir pour aborder l'infection à VIH d'une manière socialement équitable et pour permettre aux populations difficiles à joindre, défavorisées et marginalisées les plus nécessiteuses d'accéder à des soins. Le programme de cette année s'articule autour de plus de 400 abrégés portant sur chacune des dimensions de la recherche locale et mondiale sur le VIH. Des séances spéciales permettront d'échanger sur les traitements et l'éthique en recherche communautaire, et favoriseront le partage d'idées sur l'accès à des tests et à des traitements ainsi que sur l'orientation des efforts devant le nombre grandissant d'utilisateurs de drogues injectables et le risque de VIH et d'hépatite C chez ces derniers.

Nous avons hâte d'animer le congrès annuel de l'ACRV, qui pour la première fois a lieu à St. John's, et espérons qu'outre vos échanges avec vos homologues tout au long du weekend, vous profiterez de l'air frais, de la beauté du paysage local et du caractère historique de la plus ancienne ville de l'Amérique du Nord.

Dr Michael Grant and Dr Debbie Kelly
CAHR 2014 Conference Co-Chairs / Coprésidents du congrès de l'ACRV 2014

Track A: Basic Sciences: Vaccines, Antivirals and Drug Resistance

Volet A: Sciences fondamentales : Vaccins, antirétroviraux et résistance aux médicaments

O001
POTENTIAL ROLE OF HUMAN ENDOGENOUS RETROVIRUS K102 (HERV-K102) PARTICLES IN RESISTANCE TO HIV-1 TRANSMISSION

Laderoute, Marian P[1]; Larocque, Louise J[1]; Giulivi, Antonio[1]; Fowke, Keith R[2]; Plummer, Francis A[2]; Diaz-Mitoma, Francisco[3]
[1]Ottawa, ON; [2]Winnipeg, MB; [3]Sudbury, ON

Accumulating evidence suggests human endogenous retrovirus-K (HERV-K) HML-2 proviruses are commonly activated in HIV-1, and may form particles, but the latter are of unknown significance. We have previously reported HERV-K102 particle production in 75% of HIV-1 patients, but the maximal plasma level was 7 logs lower in HIV-1 patients than in patients harboring other blood borne pathogens. This suggested HIV-1 specifically inhibited HERV-K102 replication in vivo and is consistent with mutual molecular interference in replication reported previously between HERV-K and HIV-1. Accordingly, the aim of the present work was to explore whether or not HERV-K102 replication reciprocally interferes with HIV-1 replication in vivo as this could lead to new interventions. The Nairobi commercial sex worker (CSW) cohort which showed resistance to HIV-1 transmission was examined for evidence of increased integration of HERV-K102 pol in genomic DNA over normal controls and was compared with subjects not resistant to HIV-1 infection. DNA was extracted from plasma samples from the CSW cohort (n=14), normals (n=31) or HIV-1 patients (n=26) and was subjected to real time qPCR ddCt ratio analysis using our novel primer set for HERV-K102 pol and compared with 18S RNA as a control for genomic equivalents. Universal master mix with Amperase-UNG was used to digest cDNA leaving genomic DNA for analysis. A five-fold increased mean gene copy number of HERV-K102 pol was found in the CSW cohort over normals (P=0.0005), which was not detected in HIV-1 groups irrespective of stratification based on current use of antiretroviral therapy. In preliminary in vitro and in vivo experiments, high levels of particle production were found to lead to enhanced genomic copies of HERV-K102 consistent with replication competence. This work may be first to raise the possibility that HERV-K102 particles may play a common role in natural protection against HIV-1 transmission.

O002
AMINO ACID SUBSTITUTIONS IN SEQUENCES SURROUNDING PROTEASE CLEAVAGE SITES ARE DETRIMENTAL TO PATHOGENIC SIVMAC239

Luo, Ma[1]; Tang, David[1]; Capina, Rupert[1]; Yuan, Xin Y[1]; Correia-Pinto, Jorge[2]; Prego, Cecilia[2]; Alonso, Maria[2]; Barry, Christina[1]; Pilon, Richard[1]; Daniuk, Christina[1]; Nykoluk, Mikaela[1]; Pillet, Stephane[1]; La, David[1]; Bielawny, Thomasz[1]; Tuff, Jeffrey[1]; Czarnecki, Chris[1]; Lacap, Philip[1]; Wong, Gary[1]; Tyler, Shaun[1]; Liang, Ben[1]; Yuan, Ze[3]; Li, Qing S[3]; Ball, Terry B[1]; Sandstrom, Paul[1]; Kobinger, Gary[1]; Plummer, Francis[1]
[1]Winnipeg, MB; [2]Santiago de Compostela, Spain; [3]Lincoln, NB, USA

BACKGROUND: HIV-1 protease mediates the cleavage of Gag, Gag-Pol and Nef precursor polyproteins in a highly specific and temporally regulated manner. A total of 12 cleavage reactions are required to generate a mature virion, therefore generating focused immune response targeting the sequences surrounding the protease cleavage sites (PCS) could drive viral mutations to its disadvantage. We have conducted a pilot study to investigate the feasibility and effectiveness of a vaccine targeting the sequences around the 12 PCS using Cynomolgus macaques and pathogenic SIVmac239 as a model.

METHODS: Twelve recombinant VSVpcs were used to immunize 12 Cynomolgus macaques and nanopackaged PCS peptides were used as a boost. The immunized macaques and six controls were repeatedly challenged intrarectally with an increased dosage of SIVmac239. Antibody and T cell responses to the PCS peptides, CD4+ and CD8+ T cell counts and challenge dosage were monitored. 454 Pyrosequencing was conducted to analyze break-through viruses and the viral mutations were correlated with viral load.

RESULTS AND CONCLUSION: Antibody and T cell responses to the 12 PCS protected macaques against higher dosage of SIVmac239 intrarectal challenge (P=0.005; R=0.42). The vaccine group maintained higher CD4+ counts (P=0.0002) than the controls weeks after being infected. Analysis of viral mutations around 12 PCS of 276 samples (14 to 20 sampling points/monkey) detected extensive mutations. These mutations, both conserved and non-conserved amino substitutions around PCS, are correlated with lower viral load (P<0.0001). It demonstrated that the pathogenic SIVmac239 is extremely vulnerable to any amino acid alternations around PCS. Targeting PCS of HIV-1 could be an effective vaccine approach.

O003
NOVEL DENDRITIC CELL RECEPTOR-TARGETED MULTI-ANTIGEN HIV VACCINE INDUCES ANTIGEN-SPECIFIC CELLULAR AND HUMORAL IMMUNE RESPONSES

George, Rajan; Thede, Gina; Kostiuk, Morris; Wang, Dakun; Xia, Yun; Luu, HueAnh; Ma, Allan
Edmonton, AB

Chimigen® Platform Technology has been used to design a novel dendritic cell (DC) receptor-targeted HIV vaccine that incorporates multiple HIV-1 antigens. This vaccine is capable of inducing antigen-specific cellular and humoral immune responses and has prophylactic and early intervention therapeutic applications.

Chimigen® Vaccines are chimeric recombinant fusion proteins of selected antigen(s) and specific xenotypic (murine) antibody fragments including the Fc region. These chimeric molecules bind to specific receptors on DCs and other antigen presenting cells for antigen uptake. They are processed through both proteasomal and endosomal pathways and presented through MHC class I and class II pathways to T cells or B cells, generating cellular and humoral immune responses against the chosen antigens.

The Chimigen® HIV Vaccine, containing the HIV-1 Gag, Env, Tat, Rev, Vpr and Vpu antigens, was expressed in Sf9 insect cells using a baculovirus expression system and purified. Immune responses to the vaccine were evaluated by ex vivo binding experiments and antigen presentation assays using human PBMC-derived DCs, T cells and B cells. Chimigen® HIV Vaccine bound to immature DCs in a dose-dependent manner. The vaccine induced CD4+ and CD8+ T cell activation and proliferation. Stimulation with vaccine-loaded DCs increased the production of IFN-γ and TNF-α from both CD4+ and CD8+ T cells (GrB+/Pfn+). Furthermore, B cells stimulated with vaccine-loaded DCs differentiated into terminal plasma cells that produced antigen-specific IgM antibodies. This DC receptor-targeted Chimigen® HIV vaccine elicits humoral and cellular immune responses, and therefore, shows potential for development as a prophylactic/early intervention therapeutic vaccine against HIV infections.

Financial support: National Research Council Canada–IRAP CHTD and Alberta Innovates–Technology Futures.

O004
IDENTIFICATION OF EXTRACELLULAR HISTONES IN CROCODILE BLOOD AS INHIBITORS OF HIV-1 INFECTION

Lai, Eric; White, Norman; C-Havugimana, Pierre; White, Carl; Sakac, Darinka; Emili, Andrew; Branch, Donald R
Toronto, ON

Previously, it was reported that components in the blood from the reptilian order Crocodylia. have anti-microbial properties (Antiviral Res 2005; J Med Assoc Thai 2010). We have now identified a novel inhibitor of HIV infection in the blood of the salt water crocodile. Following animal use approval, whole blood was obtained and plasma isolated from three salt water crocodiles (Crocodylus porosus) housed in the Zoology Department at the University of Toronto. Plasma was found to inhibit HIV-1IIIB

(X4) productive infection using p24 antigen ELISA and the active component was purified by fractionation through protein G, gel filtration column chromatography, two rounds of ion exchange HPLC (high performance liquid chromatography), and reverse phase HPLC. After each successive purification step, fractions were tested for anti-HIV activity via p24 ELISA. Reverse phase HPLC fractions with anti-HIV activity were analyzed via tandem mass spectrometry (LC-MS/MS), and compared against human and chicken proteomes obtained from UniProtKB/Swiss-prot. De novo sequencing was accomplished using MASCOT Distiller and PEAKS software and the sequences were searched against the NCBI database using MASCOT and BLAST to identify homologous peptides in chicken and crocodile species. By LC-MS/MS or de novo sequencing the predominant protein identified was histones. Using human histone H2A, we were able to significantly inhibit HIV-1 infection by 80%. We conclude that extracellular histones found in crocodile blood are strong inhibitors of HIV-1 infection.

O005
NOVEL ACYLGUANIDINE-BASED SMALL MOLECULE WITH ANTI-HIV-1 ACTIVITY

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BACKGROUND: Antiviral drugs with new mechanisms of action are needed to counter emergence of HIV-1 resistance. BIT225 represents a new class of acylguanidine-based small molecules targeting Vpu's putative viroporin function. We investigated the anti-HIV-1 activity of a novel acylguanidine compound, SM111.

METHODS: We compared the activity of SM111, AZT and EFV using NL4-3 and recombinant strains encoding patient subtype B Pol sequences, including four strains harbouring major NRTI- and/or NNRTI-resistance mutations (eg, D67N and/or K103N, respectively) and two strains susceptible to NRTI and NNRTI. Viruses were propagated in a GFP-reporter cell line in the absence or presence of SM111 (0 μM to 100 μM), AZT (NRTI; 0 nm to 100nM) or EFV (NNRTI; 0 nm to 100nM). The proportion of GFP+ (%GFP) cells was monitored by flow cytometry to assess viral spread. Activity was calculated as %GFP+ cells on day 6 in the presence of drug divided by that of media control. Cytotoxicity was evaluated using ViaCount (Millipore).

RESULTS: SM111 was not toxic at concentrations up to 100μM (cell viability >90% was similar to media control). SM111 inhibited NL4-3 in a dose-dependent manner between 10 μM and 100 μM; %GFP+ cells was reduced >98% at 100 μM (44.3% [42.8% to 46.4%] in absence versus 0.64% [0.56% to 0.76%] in presence of drug). SM111 also showed potent activity against viruses encoding Pol sequences harbouring major NRTI and NNRTI resistance mutations (>95% reduction in all cases). The %GFP+ cells for one highly AZT- and EFV-resistant strain was 38%, 27% and 40% in the presence of media, 100 nM AZT, or 100 nM EFV, respectively; but 1.5% [1.37% to 1.72%] in the presence of SM111, indicating a mechanism of action distinct from NRTI and NNRTIs.

CONCLUSIONS: SM111 displayed antiviral activity against NL4-3 as well as NRTI- and NNRTI-resistant HIV-1 strains. This novel compound may represent a promising prototype for further study.

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O006
THE R263K MUTATION IN HIV SUBTYPE C CONFERS RESISTANCE AGAINST DOLUTEGRAVIR

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Dolutegravir (DTG) is a new integrase inhibitor with a high genetic barrier to resistance. Thus far, only four treatment-experienced individuals have been reported to have failed therapy with DTG. Genotyping has shown the presence of the R263K substitution in two of these individuals who were infected with either a subtype B or a subtype C virus. Subtype C viruses account for most of the HIV pandemic.

Here we report the characterization of the R263K substitution in subtype C through tissue culture experiments and cell-free strand-transfer assays. Similarly to subtype B, R263K impaired subtype C HIV replication and integrase enzymatic activity. Integrase maximal strand-transfer activity was decreased by approximately 40% and affinity for target DNA was decreased by approximately 30-fold in subtype C compared to 30% and threefold, respectively, in subtype B. In tissue culture, R263K conferred approximately 10-fold resistance against both DTG and elvitegravir but was mostly innocuous against raltegravir (1.2-fold).

Our results demonstrate that the R263K mutation confers resistance against DTG and elvitegravir in both B and C HIV subtypes. R263K negatively affects HIV replication capacity and infectiousness as well as integrase strand-transfer activity. In both subtypes, R263K did not change raltegravir susceptibility. These observations suggest that patients failing DTG with the R263K mutation may be treatable with raltegravir, provided that treatment adherence is not an issue.

Track B: Clinical Sciences: HIV Prevention and Assorted Other Issues

Volet B : Sciences cliniques : Prévention du VIH et autres questions connexes

O007
MODELING RECTAL MICROBICIDE PREFERENCES AMONG MEN WHO HAVE SEX WITH MEN AND TRANSGENDER WOMEN IN THAILAND: AN INNOVATIVE IMPLEMENTATION SCIENCE APPROACH TO SUPPORT THE EFFECTIVENESS OF NEW PREVENTION TECHNOLOGIES

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BACKGROUND: An explosive HIV epidemic among MSM and transwomen in Thailand signals the importance of implementation science approaches to support the translation of efficacious new prevention technologies into real-world effectiveness. We assessed preferences for future rectal microbicides among a community sample of MSM and transwomen at high risk of HIV exposure.

METHODS: From June to August 2013 we conducted an anonymous 20 min Thai-language survey using Tablet Administered Self-Interviewing. MSM and transwomen were recruited using venue-based sampling among gay entertainment venue staff and community-based organization participants in Chiang Mai and Pattaya. We used discrete choice analysis: participants double-ranked eight sets of five multi-attribute hypothetical microbicide cards by moving cards on an Android tablet screen. Full-rank data were fitted to a multinomial logit likelihood function using the rank-exploded logit model, and coefficients converted to odds ratios. We evaluated trade-offs between other attributes and cost to assess probability of acceptance at any given cost. Marginal willingness-to-pay for each microbicide attribute was estimated using NLOGIT.

RESULTS: Among 408 participants (75% MSM, 25% transwomen; mean age 25 years), efficacy had the greatest marginal effect on choice, with twofold higher odds of choosing a microbicide with 99% versus 50% efficacy. Pericoital use increased odds of choice by 30% versus daily use. Gel formulation increased odds of choice by >40% versus suppository. Participants preferred prescription to over-the-counter microbicides. On average participants indicated willingness-to-pay 1471 baht (approximately $50 CAD) more for a microbicide with 99% versus 50% efficacy, 668 baht (approximately $22 CAD) more for gel formulation versus suppository.

CONCLUSION: Gel-based formulations with pericoital dosing may support the effectiveness of rectal microbicides in preventing HIV infection among MSM and transwomen in Thailand. Prescription preference may reflect mistrust in low-cost over-the-counter products in the Thai healthcare system. Preclinical research engaging end-user preferences to guide product development may promote the success of new prevention technologies.

O008

DISPARITY BETWEEN OBJECTIVE AND SUBJECTIVE HIV RISK MAY BE A BARRIER TO HIV PRE-EXPOSURE PROPHYLAXIS (PREP) AMONG MEN WHO HAVE SEX WITH MEN (MSM)

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BACKGROUND: To benefit from PrEP, potential users must A) be at high objective HIV risk, B) perceive themselves to being at elevated risk, C) be aware of PrEP, D) be willing to use PrEP, E) be able to access it through a prescriber, and F) have drug coverage or be willing to pay privately. Gaps in this "cascade" may undermine its public health impact.

METHODS: We administered a 33-item questionnaire to MSM undergoing anonymous HIV testing at Toronto's Hassle Free Clinic and used results to construct a hypothetical PrEP cascade (ABCDEF). Scoring ≥10 on the CDC's HIV Incidence Risk Index for MSM (HIRI-MSM) was used to define high objective HIV risk and reporting moderate or high risk of acquiring HIV was used to define subjective elevated HIV risk. Characteristics associated with underestimating HIV risk were explored using logistic regression.

RESULTS: Of 426 respondents, only 1.2% met all criteria in the cascade (ABCDEF). The most significant barrier was the large proportion of objectively high-risk individuals who did not perceive themselves to be at elevated risk (81%). Moreover, 13.5% of men scoring ≥10 perceived themselves to be at "no risk at all"; in multivariable logistic regression modeling, these men were more likely to be non-white (adjusted odds ratio [aOR] 2.73 [95% CI 1.35 to 5.52]), have no post-secondary education (aOR 3.94 [95% CI 1.61 to 9.67]), be minimally concerned with their HIV risk (aOR 5.51 [95% CI 2.37 to 12.79]) and report 100% condom use (aOR 2.37 [95% CI 1.18 to 4.74]). However, 45.7% of "high-risk" men who did not perceive themselves at elevated risk were still willing to use PrEP.

CONCLUSION: These data suggest that only a minority of MSM at this high prevalence clinic would be able to benefit from PrEP. Underestimation of HIV risk was the largest barrier identified. Further work is required to decrease the disparity between objective and perceived HIV risk and to maximize the impact of this novel prevention intervention.

O009

HIGH PREVALENCE OF SYNDEMIC HEALTH PROBLEMS AMONG PATIENTS USING HIV POST-EXPOSURE PROPHYLAXIS: IMPLICATIONS FOR PROGRAM DELIVERY

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BACKGROUND: Clinical management of persons reporting recent high-risk sexual exposure to HIV focuses on delivering HIV post-exposure prophylaxis (PEP). However, PEP patient encounters also provide opportunities to address co-existing or 'syndemic' health problems that predispose to HIV risk.

METHODS: We administered a battery of validated psychometric tests to screen for syndemic health problems among patients attending their first PEP clinic visit. Scales included the Centre for Epidemiologic Studies-Depression (CES-D), Alcohol Use Disorder Identification Test (AUDIT), Drug Use Disorder Identification Test (DUDIT), Sexual Compulsivity Scale (SCS), and Disengagement Coping with HIV Risk Scale (DCHR). Men who have sex with men (MSM) also completed the Multi-Axial Gay Men's Inventory – Men's Short Version (MAGI-MSV) to screen for internalized homophobia and Benefits of Barebacking Scale (BOBS) to assess attitudes towards intentional unprotected anal intercourse.

RESULTS: The first 27 respondents included 24 MSM, two heterosexual men and one heterosexual woman. Median (IQR) age was 30 years (27 to 39 years) and 89% reported post-secondary education. In the preceding six months, the median (IQR) number of sexual partners was six (two to 20), including one (zero to one) known HIV-positive and one (zero to five) unknown-status partners. Fully 63% screened positive for depression, 29.6% for at-risk drinking, 11.1% for alcohol dependence, 40.7% for drug-related problems and 85.2% for sexual compulsivity. However, median scores on the DCHR sub-scales did not show evidence of fatalistic beliefs about maintaining HIV seronegativity (7 [IQR 6 to 9]), overly optimistic attitudes towards the medical seriousness of HIV (11 [IQR 6 to 14]) or anxiety associated with sexual risk (10 [IQR 6 to 13]). MSM generally did not report evidence of internalized homophobia or high perceived benefits of barebacking.

CONCLUSIONS: These preliminary findings suggest a high prevalence of syndemic health issues among persons accessing PEP. PEP programs should consider routine screening for these problems in all patients. The role of syndemics in mediating HIV risk in PEP users should be further explored.

O010

EXPLORATORY LONGITUDINAL ANALYSIS OF THE ASSOCIATION BETWEEN CIGARETTE SMOKING AND HIV VIRAL LOAD (VL) AMONG PEOPLE RECEIVING ANTIRETROVIRAL TREATMENT (ART): RESULTS FROM THE ONTARIO HIV TREATMENT NETWORK COHORT STUDY (OCS)

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BACKGROUND: The evidence on the association between cigarette smoking and immune function is inconsistent. We explored the association between cigarette smoking and HIV viral load (VL).

METHODS: The OCS is a study of persons with HIV in Ontario. Sample included 2721 individuals who completed ≥2 OCS interviews between 2007 and 2012 (mean 2.9 years/person) and were on ART. Participants reported smoking status at each interview. We obtained VL results from Public Health Ontario Laboratories. We used logistic regression within a GEE framework to estimate the effect of cigarette smoking at time T on VL (high ≥500 copies/mL versus low <500 copies/mL) at time T+1, adjusting for covariates at time T. We report results as odds ratios (OR) with 95% CIs.

RESULTS: Participants are predominantly gay/bisexual men (67%) with median age of 45 years. At baseline, 39% were current smokers and 11% had detectable VL (current smokers, 16%; former smokers, 8%; never smokers, 9%). At second interview, the rate of detectable VL declined to 9% (current smokers, 13%; former smokers, 5%; and never smokers; 6%). In unadjusted analysis, current cigarette smoking status at time T was associated with high VL at time T+1 (crude OR 1.96 [95% CI 1.44 to 2.67). This association lessened but remained significant (adjusted OR 1.59 [95% CI 1.12 to 2.25]) after adjustment for HIV and demographic variables at time T. However, in a subset of people with ART adherence information (n=1032), this association became non-significant (adjusted OR 1.33 [95% CI 0.75 to 2.38]) after adjusting for adherence at time T.

DISCUSSION: Although our initial analysis suggested a relationship between current cigarette smoking and high VL, we found no significant association in a subset of people after adjusting for ART adherence. These findings would be consistent with the hypothesis that adherence mediates the relationship between smoking and VL suppression and highlight the importance of adherence interventions.

O011

FRAILTY AMONG HIV-POSITIVE AND HIV-NEGATIVE OLDER ADULTS IN UGANDA AND SOUTH AFRICA

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BACKGROUND: Older HIV-positive adults comprise a growing demographic in sub-Saharan Africa. Their health status and care needs are not well characterized.

METHODS: Secondary analysis of cross-sectional data from 827 participants 50 to 95 years of age (mean age 63.3±10.4 years, 69% women) in the Well-being Of Older People Study (WOPS) in Uganda and South Africa (2009 to 1010). Participants either were HIV-positive (n=402) or were HIV-negative parents of HIV-positive adults (n=425). HIV-positive WOPS participants were entitled to free medical care. As HIV-positive

WOPS participants are younger, more often male, and better educated than HIV-negative participants, analyses were adjusted for these factors. Frailty was measured with a frailty index, calculated as the proportion of 44 age-related general health deficits individuals have accumulated. Frailty was also defined categorically as a frailty index score ≥0.25.

RESULTS: Frailty index scores ranged from 0.00 to 0.82 (mean 0.27±0.15; median 0.24). Mean frailty index scores were significantly lower among HIV-positive participants than HIV-negative participants (0.24±0.13 versus 0.30±0.16; P<0.001). After adjustment for age, gender, and education level, mean frailty index scores did not differ between groups (0.28±0.13 versus 0.27±0.14; P=0.4). In both groups, women had higher mean frailty index scores than men (P<0.001), and scores increased with age. In the HIV-positive group, frailty index scores increased 0.7% with each year of age, on a log scale. In the HIV-negative group, frailty index scores increased 2.2% per year of age. Categorically, 41% of HIV-positive participants and 56% of HIV-negative participants were frail (P<0.001); after adjustment for age, gender, and education level, this difference was no longer significant (P=0.6).

CONCLUSIONS: HIV-positive and HIV-negative older adults in the Ugandan and South African WOPS cohorts exhibit high levels of frailty. After adjustment for relevant sociodemographic factors, HIV-positive older adults were not frailer than HIV-negative older adults who have HIV-positive adult children.

O012
PROGNOSTIC VALUE OF THE VETERANS AGING COHORT STUDY (VACS) INDEX FOR MORTALITY IN CANADA

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BACKGROUND: The Veterans Aging Cohort Study (VACS) index, comprising routine measures of organ system injury alongside HIV indicators, more accurately predicts mortality compared to an index restricted to HIV markers alone. Evaluation of the VACS index is necessary to validate its generalizability to Canadian patients. We aim to evaluate the prognostic value of the VACS index for mortality compared to an HIV-restrictive index, overall and among subsets of patients reflecting Canada's epidemic.

METHODS: Participants in the Canadian Observational Cohort (CANOC), a cohort of HIV-positive individuals ≥18 years of age who initiated combination antiretroviral therapy (ART) after 1999 in BC, Ontario, or Quebec, were included. Eligibility criteria included having data for all VACS index elements after one year of ART. Previously established weights/cut-offs were used to calculate VACS (age, CD4, viral load, hemoglobin, FIB-4 [AST/ALT/platelets/age], eGFR, hepatitis C) and restricted (age, CD4, viral load) index scores. Cox regression models and C-statistics, along with net reclassification improvement (NRI) were used to test discrimination of the VACS versus restricted index for all-cause mortality.

RESULTS: Of 3443 eligible participants (16% women), the median baseline age was 40 years (IQR 34 to 47 years), CD4 count 220 cells/mL (IQR 120 cells/mL to 327 cells/mL), viral load 73,148 copies/mL (IQR 21,851 copies/mL to 111,339 copies/mL), and 23% (n=795) had hepatitis C. Over a median follow-up time of 56 months (IQR 33 to 91 months), 225 (7%) deaths were reported. At pre-ART baseline, the median VACS and restricted index scores were 53 (IQR 39 to 70) and 30 (IQR 21 to 44), respectively, improving to 37 (IQR 32 to 49) and 10 (IQR 10 to 23), respectively, after one year of ART. Overall, compared to the restricted index the VACS index showed greater discrimination for mortality (C-statistic 0.73 versus 0.63, NRI=23%; P<0.001). The VACS index also demonstrated greater discrimination for mortality among individuals with IDU history (n=680) (C-statistic 0.73 versus 0.63, NRI=39%; P<0.001), and among persons of Aboriginal ancestry (n=199) (C-statistic 0.73 versus 0.61, NRI=34%; P<0.001).

CONCLUSIONS: The VACS index better predicts mortality compared to the HIV-restrictive index within CANOC, with discrimination remaining relatively consistent across certain sociodemographic groups. Our findings lend support for the use of the VACS index in Canadian settings.

Track C: Epidemiology and Public Health: Special Issues in Public Health Ethics and Practice

Volet C : Épidémiologie et santé publique : Questions spéciales liées à l'éthique et à la pratique en santé publique

O013
THE NATIONAL CONSENSUS STATEMENT ON WOMEN, TRANS PEOPLE AND GIRLS AND HIV RESEARCH IN CANADA: IMPLICATIONS FOR EPIDEMIOLOGY AND PUBLIC HEALTH

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INTRODUCTION: The HIV research needs of women, trans people and girls are complex and diverse, and span across legal, cultural, social, political, and economic spheres, requiring a coordinated response from epidemiology and public health. The overrepresentation of particular populations of women as reflected in current surveillance data, for example, suggests that our research approaches need to better understand the dynamics of gender in relation to other key determinants of HIV.

METHODS: Beginning at CAHR 2009, national consultations were held in person and online with a wide variety of stakeholders including HIV researchers, people living with HIV, and ASOs, to discuss the research needs specific to women, trans people and girls as they relate to clinical, social, epidemiological and public health perspectives. An iterative process was used to refine the document and develop a series of research-related recommendations among stakeholders across the country.

FINDINGS: Founded in December 2013, the National Consensus Statement offers 31 recommendations and areas requiring further research attention including: implications of criminalization of non-disclosure and incarceration policies (#17), variability of HIV counselling and testing (#18), need to identify shortcomings in the provision of sexual health services (#19), examine the experiences of women, trans people and girls who have been living with HIV for many years and those who have received a recent diagnosis (#20), and encourage surveillance to understand the prevalence of HIV infection among trans people (#21).

CONCLUSION: Although not meant to be proscriptive, these research recommendations provide guidelines in developing the next generation of HIV research across all four research tracks. To help realize the recommendations identified in this document, it is imperative to recognize and address the structural drivers of HIV infection while at the same time valuing the contributions of women, trans people and girls in all aspects of HIV and AIDS research in Canada.

O014
DEVELOPING A CANADIAN CONSENSUS EXPERT OPINION ON HIV AND ITS TRANSMISSION IN THE CONTEXT OF THE CRIMINAL LAW

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OBJECTIVES: Since the 2012 Supreme Court of Canada decision, HIV non-disclosure before sex can amount to aggravated sexual assault where there is a "realistic possibility of HIV transmission." A poor appreciation of the science related to HIV contributes to an overly-broad use of the criminal law and can lead to miscarriage of justice. HIV physicians

and medical researchers can promote an evidence-informed approach to the application of the law by developing a summary of established evidence related to HIV and its transmission.

METHOD: In April 2013, we put in place a Canadian Expert Team on HIV and its transmission composed of six Canadian medical experts. A literature review of the most relevant and reliable scientific evidence on HIV and its transmission was conducted.

RESULTS: By December 2013, the Team had developed a document that sets out in clear, concise and understandable terms, our consensus expert opinion regarding HIV sexual transmission, HIV transmission associated with biting and spitting and HIV as a chronic manageable condition. Scientific and medical evidence clearly indicate that HIV is difficult to transmit during sex. For the purpose of informing the justice system, the document describes the actual per-act possibility of HIV transmission through sex, biting or spitting along a continuum from low possibility, to negligible possibility, to no possibility of transmission taking into account the impact of factors such as the type of sexual acts, condom use, antiretroviral therapy and viral load.

CONCLUSION: While particular sexual acts are inherently difficult to study and the interpretation of the research related to HIV transmission is complex, there is broad consensus within the scientific community based on more than three decades of research. Such consensus must be communicated to members of the justice system to inform the application of the law. Similar initiatives have been undertaken in other jurisdictions but remained unprecedented in Canada.

O015
HIV HEALTH LITERACY FOR RACIALIZED HIV-POSITIVE WOMEN: WHAT WE KNOW AND WHAT WE NEED TO KNOW

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Capacity building around health advocacy and self-empowerment for immigrant, refugee, and non-status women living with HIV/AIDS (IRN-WPWA) is a stated priority of community based agencies providing services to IRN-WPWA. With increased capacities and skills, IRN-WPWAs will be better able to make informed choices to improve their physical and mental health and become more actively engaged managers of their health care services. Despite the existence of numerous capacity-building initiatives for people living with HIV/AIDS (PHAs), there remain gaps in knowledge in relation to evidence-based interventions focusing on the context-specific health literacy needs of IRN-WPWA. A CIHR funded scoping review of the literature on HIV health literacy in relation to IRN-WPWA was conducted based on standardized procedures. The research team systematically searched seven peer-reviewed and grey literature databases including Medline, PSYCInfo, and CINAHL and limited the search to English language articles published between 1980 and November 2013. We also hand-searched websites, references lists and key journals for relevant material. A total of 1309 articles were identified through systematic searching of the literature databases and hand searches. After the first round of exclusion, 128 articles were deemed relevant for further investigation. These articles were categorized into one of four categories: health literacy and health outcomes in PHAs, IRN-WPWAs and health literacy, health care access/provision/ medication adherence in IRN-WPWAs and sexual health knowledge programs and interventions for IRN-WPWAs. A clear research gap exists both for IRN women and for HIV-positive women, as the majority of the literature examined HIV-positive racialized women who were not IRN, or interventions for high-risk groups who were not HIV-positive. A summary of current knowledge and directions for future research and interventions for IRN-WPWAs is presented.

O016
"ETHICAL PICKLES": HOW CANADIAN HIV CBR RESEARCHERS NAVIGATE TRICKY TERRAIN

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BACKGROUND: The HIV sector was one of the earliest health movements to adopt the use of collaborative approaches to research, and the direct involvement of people living with HIV and AIDS in decision making. HIV/AIDS community-based participatory research (CBPR) studies are presenting distinctive ethical issues for both researchers and research ethics boards (REBs). Surprisingly little information documenting the perspectives of what HIV CBPR practitioners identify as key ethical issues exists.

METHODS: We interviewed 55 funded HIV/AIDS CBR practitioners and funders from across Canada (academics, researchers housed in community settings, service providers, clinicians, graduate students, and funding agency staff) about 1) their training and experience, 2) how they became involved in their respective project(s), 3) how the ethics review process unfolded, and 4) what kinds of issues emerged over the life of their projects. Interviews were professionally transcribed verbatim, imported into NVivo 9 and thematically coded, using a consensus coding approach to increase the trustworthiness of the data. Coded data were then summarized into thematic categories and discussed collectively with our research team.

RESULTS: HIV/AIDS CBPR researchers in Canada identified a broad range of ethical dilemmas facing them in their daily work. These included: managing disclosure/discovery of illegal activity in projects, issues related to maintaining confidentiality in CBPR, minimizing possible coercion when recruiting through services, challenges associated with triggering reactions to past trauma, and difficulties determining appropriate compensation.

CONCLUSION: Our data illuminate the complexities involved in collaborative research with marginalized communities. It suggests that HIV CBR practitioners are not being adequately prepared by their research and practice training, or by research ethics boards, for the kinds of ethical challenges they encounter. Many are responding ad hoc to complex ethical issues and identified the need to find forums to discuss these issues and learn from each other. As the HIV/AIDS sector becomes more and more sophisticated in this approach to research, challenging ethical tensions are emerging that command discussion, debate and thought beyond what traditional research ethics frameworks offer.

O017
RESEARCH DONE IN A GOOD WAY: THE IMPORTANCE OF INDIGENOUS ELDER INVOLVEMENT IN HIV COMMUNITY BASED RESEARCH

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[1]Toronto, ON; [2]Victoria, BC; [3]Dartmouth, NS; [4]Vancouver, BC

BACKGROUND: The HIV Community Based Research (CBR) movement in Canada was one of the earliest health movements to institutionally support collaborative approaches to research, and the direct involvement of people living with, and impacted by, HIV and AIDS in decision making. For Aboriginal communities, adopting a CBR approach has assisted in implementing decolonizing research practices and has promoted research activities that are consistent with self-determination. In this presentation, we examine the role of Elders in HIV CBR with Aboriginal communities. We sought to explore the range of anticipated and unanticipated ethical issues that occur in HIV/AIDS-related CBR through the experiences of (community-based and academic) researchers engaged in the process.

METHODS: In this qualitative study, we interviewed 55 participants representing 25 studies. The final sample is comprised of academics, researchers housed in community settings, service providers, community advocates, clinicians, graduate students, and funding agency staff.

RESULTS: Our findings suggest that Elder engagement is essential for respectful community protocol and building bridges. In particular, Elders have long been recognized for their important roles as ethical gauge, with the skills to provide culturally safe counselling and support. We highlight many of the important process pieces around culturally

appropriate protocols for approaching Elders and finding the right "fit" for any given project. We also want to reiterate that Elder engagement should not be seen merely as instrumental. Wilson (2008) eloquently argues that research is ceremony, and should be approached with appropriate respect and care.

CONCLUSIONS: Our findings are relevant for the many Indigenous communities that are developing their own research councils that are demanding more inclusive research practices who may seek out institutional policies and protocols for approaching and involving Elders. We are optimistic about future possibilities for honouring more diverse knowledges in ethical public health research and practice.

O018
IS THERE A RELATIONSHIP BETWEEN MENTAL HEALTH CONCERNS AND HIV STATUS FOR ABORIGINAL WOMEN?

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BACKGROUND: Chronic stress and mental health concerns are prevalent in the lives of many Aboriginal women living with and affected by HIV and requires innovative continuity of care solutions such as the Indigenous perspectives of health. The study objectives are to: 1) characterize stressors, 2) measure stress levels and 3) determine stress management strategies among Aboriginal women living with and affected by HIV.

METHODS: Sixty HIV-negative and 26 HIV-positive Aboriginal women older than 18 years old completed questionnaires measuring sociodemographic characteristics, stress, depression, post-traumatic stress disorder (PTSD), wellbeing and social support. Categorical variables were presented as frequencies and proportions and continuous variables as medians and interquartile ranges (IQR). P values were calculated with the Fisher exact test for categorical variables and Mann-Whitney U test for continuous variables. The *t* test and Mann-Whitney U test were done to evaluate differences between HIV-negative and HIV-positive participants.

RESULTS: The median age for 60 HIV-negative and 26 HIV-positive women was 37 years (IQR 28 to 46 years) and 40 years (IQR 36 to 48 years), respectively. Co-morbidities including mental health issues were reported by approximately 80% of HIV-negative and HIV-positive women. Severe depressive symptoms were reported by 60% of HIV-negative women and 70% of HIV-positive women. Among HIV-negative women, very high perceived stress levels were reported by 62% in contrast to 42% of HIV-positive women. Severe levels of PTSD were reported by 86% of HIV-negative women compared to 83% of HIV-positive women. Importantly, 70% of HIV-negative women and 80% of HIV-positive women made lifestyle changes and were practicing stress management approaches which included culture. Differences in the mental health variables between HIV-negative and HIV-positive women were not observed.

CONCLUSIONS: Aboriginal women living with or affected by HIV report similar elevated levels of chronic stress and mental health concerns. Culturally-appropriate stress-reducing and mental health interventions are required for improving health and wellbeing.

Track D: Social Sciences: Moving Beyond At-risk and Hidden Populations: Prevention and Intervention Grounded in Local Realities

Volet D : Sciences sociales : Au-delà des populations à risque et caches : prévention et intervention fondées sur les réalités locales

O019
INUIT SPECIFIC COMMUNITY-BASED HIV PREVENTION: RESEARCH GROUNDED IN INUIT QUJIMAJATUQANGIT (IQ)

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BACKGROUND: The limited available data suggests that the number of Inuit living with HIV/AIDS is low. However, rates of sexually transmitted infections (STIs) are staggeringly high compared to Canada's national average. High rates of STIs are often associated with elevated rates of HIV infection. Additional factors associated with northern life, such as limited access to health services and extreme remoteness of communities, may contribute to the "vulnerability" of Northern peoples and communities to HIV infection. To date, there has been very little research into the development of culturally safe and community-based HIV and STI prevention interventions for Inuit (communities). In this presentation we explore experiences of participating in a community-based participatory research (CBPR) project grounded in IQ (Inuit traditional knowledge) and the development of a long-term researcher-community relationship. This research project is based in Nunavut and examined Inuit women's perceptions of what is needed for community-based HIV and STI prevention.

DESCRIPTION: The research process was guided by the principles of IQ and CBPR, these two sets of principles aligned to create a safe research environment that encouraged women to be engaged throughout each phase of the process. Women participated in the initial planning, storytelling sessions, participatory analysis, and ongoing knowledge translation and exchange (KTE). The long-term researcher-community relationship ensured an open and trusting partnership from the beginning. The research design considered local conditions and Inuit ways of knowing in order to create a research process relevant to participants.

IMPLICATIONS: The grounding of research in local knowledge systems and values is an important approach to Inuit HIV research. With the relative infancy of HIV prevention research in Nunavut, this example of a successful CBPR project grounded in IQ and long term researcher-community relationship has utility across the North, and perhaps throughout Canada for the development of research and policy focusing on health disparities. In order for research to be relevant, and for knowledge gained to be a useful tool for change, research must take into account local realities.

O020
GETTING' F.O.X.Y.: EXPLORING THE DEVELOPMENT OF SELF-EFFICACY AMONG YOUNG WOMEN IN THE NORTHWEST TERRITORIES USING AN ARTS-BASED SEXUAL HEALTH INTERVENTION

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The sexual health of Northwest Territories (NWT) youth is a serious public health concern as rates of sexually transmitted infections are extremely high. Thus, a social arts-based intervention that uses body mapping and drama techniques, named FOXY (Fostering Open eXpression among Youth) was developed to address the sexual health needs of young women in the NWT. This doctoral research project is grounded in the theoretical perspectives of social cognitive theory and social ecological theory and uses a community-based participatory research approach, developmental evaluation methodology, and the grounded theory method to develop a theory of how FOXY influences sexual behavior expectations among young women in the NWT, considering determinants that contextualize sexual health outcomes. The first aim of this study explores

the intrapersonal and interpersonal contexts that influence the efficacy expectations and outcome expectations of female youth in the NWT. The second aim determines if and how a social arts-based intervention influences individual efficacy expectations regarding sexual behaviors among female youth in the NWT. Finally, the third aim determines if and how a social arts-based intervention influences individual outcome expectations regarding sexual behaviors among female youth in the NWT. In Phase I, pilot testing occurred with six female youth to improve design of the semi-structured interview guide. Phase II entailed semi-structured interviews with 41 female youth 13 to 18 years of age selected via purposive sampling (those who had completed the FOXY workshop within the previous three days). Data collection occurred until saturation of new themes was reached at six study locations across the NWT. Interview recordings are being transcribed verbatim and a multi-stage thematic analysis using memoing and coding using the grounded theory method will occur. Results are currently in process and will be presented at this conference. Front-line workers and researchers can use these results to inform arts-based intervention programs and research among other rural and Arctic populations.

O021
COMPARING THE DEMOGRAPHICS OF AND INFORMATION SOUGHT BY MSM EXCLUSIVELY SEEKING SEX ONLINE WITH THOSE ALSO SEEKING SEX THROUGH PHYSICAL VENUES: RESULTS FROM ONTARIO'S COMMUNITY-BASED CRUISING COUNTS STUDY

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BACKGROUND: MSM are increasingly using the Internet for sociosexual purposes and seeking sexual health information. There is little/no information indicating the differences between MSM who may be reached exclusively through online sites/apps compared with traditional venues (eg, sex-on-site venues, gay bars, Pride festivals). The objectives of this analysis were to investigate the differences in sample demographics and sexual health information sought online between MSM who seek sex exclusively online (ooMSM) and those who also seek sex via physical venues (opvMSM).

METHOD: Data were drawn from the online questionnaire of the community-based Cruising Counts study conducted across Ontario from December 2013 to January 2014. Participants were recruited through online sites and mobile apps (eg, Squirt.org, Grindr). Eligibility criteria included being >15 years of age, living in Ontario, and having had sex or interest in having sex with another man. Multivariable logistic regression analyses, controlling for sample demographics, were conducted using SPSS 21 to investigate differences in information sought between ooMSM and opvMSM. The sources MSM used to access information online were also explored.

RESULTS: Of the 1651 MSM who completed the entire questionnaire, 484 were classified as ooMSM and 978 as opvMSM. Compared with opvMSM, less ooMSM were gay-identified (75.2% versus 81.1%; P<0.02), HIV-positive (2.9% versus 9.8%; P<0.001), and from Toronto (23.3% versus 35.9%; P<0.001). MSM did not differ by age, ethnicity, nor education. Compared with opvMSM, ooMSM were less likely to seek information on HIV/STI testing (AOR 0.71 [95% CI 0.55 to 0.89]) and PEP (AOR 0.40 [95% CI 0.22 to 0.73]), but more likely to seek information on depression (AOR 1.56 [95% CI 1.14 to 2.12]). There were no differences in information seeking on PrEP, viral load or HIV home testing.

CONCLUSIONS: ooMSM differ demographically and indicate different online health promotion needs that opvMSM. Future research should also consider HIV/STI risk and access to and uptake of health services.

O022
GLOBAL CHALLENGES TO ACHIEVING MEANINGFUL COMMUNITY ENGAGEMENT IN BIOMEDICAL HIV PREVENTION RESEARCH: A MULTIPLE EMBEDDED CASE STUDY IN CANADA, INDIA, SOUTH AFRICA AND THAILAND

Newman, Peter A[1]; Rubincam, Clara[1]; Chuang, Deng-min[1]; Lindegger, Graham[2]; Chakrapani, Venkatesan[3]; Roungprakhon, Surachet[4]; Tepjan, Suchon[1]
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BACKGROUND: Community engagement is a mantra in HIV research, across funding organizations, researchers, advocacy groups and populations at risk; yet scant empirical research has identified and assessed challenges and benefits of community engagement in diverse global settings.

METHODS: From 2008 to 2011 we conducted an embedded exploratory case study with a multiple case design to identify key challenges and strategies for community engagement in global HIV prevention trials. Through university-civil society organization (CSO) collaborations in Ontario, Canada, Chennai, India, Cape Town, South Africa and Bangkok, Thailand, we developed semi-structured interview guides adapted to local priorities and contexts. We used purposive sampling to recruit diverse stakeholders for in-depth interviews (IDI) or focus groups (FG): CSO representatives, community advocates, service providers (all IDI), and populations at risk (IDI and FG). All interviews/focus groups were digitally recorded, transcribed and translated into English. We used narrative thematic techniques from grounded theory – line-by-line and focused coding, and a constant comparative method – to analyze data within countries, then synthesized and contrasted themes across countries.

RESULTS: Participants (n=182) were 61% men, 37% women, 2% transwomen across 11 focus groups (n=90) and 92 in-depth interviews. We identified four cross-cutting themes: 1) challenges in balancing meaningful engagement of community in research versus placing unrealistic expectations and inappropriate roles on community representatives; 2) challenges in communicating key scientific concepts to community leaders/peer educators and potential participants: placebo, randomization, vaccine-induced seropositivity; 3) reasons community members seek to participate in research, including altruism and contributing to ethical oversight; and, 4) managing dissemination of trial outcomes.

CONCLUSION: Meaningful community engagement in global HIV prevention research requires strategies that avoid token participation by identifying appropriate roles for community stakeholders commensurate with time and expertise, involve communities early in trial planning processes, and mobilize creative scientific and trial literacy activities with community members, including post-trial knowledge translation.

O023
"CULTURE" AS HIV PREVENTION: INDIGENOUS YOUTH SPEAK UP!

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BACKGROUND: This paper explores the ways that a) Indigenous youth involved in an HIV intervention take-up and reclaim their cultures as a project of defining "self" and b) Indigenous "culture" can be used as a tool for resistance, HIV prevention and health promotion.

METHODS: Data for this paper was drawn from the Taking Action Project: Using Arts-Based Approaches to Develop Aboriginal Youth Leadership in HIV Prevention. 'By youth, for youth' workshops were facilitated in six Indigenous communities across Canada that incorporated traditional and contemporary art forms. Over 100 youth participated, 70 partook in individual interviews post-workshop to reflect on their experiences. Interviews were audio-recorded, transcribed verbatim and analysed using NVivo software and collective discussions.

RESULTS: For many youth, being Aboriginal was much more than blood quantum, appearance or status cards. It related to the importance

that culture played in identity formation. Culture was a complex construct that included reconnecting to land, body, history, family, community, language, tradition, and ceremony. Youth understood art as not only a medium for self-expression, but an important site of cultural evolution. They spoke excitedly of their attempts to reclaim their languages and cultures despite barriers presented by family members, community, and colonial education systems. Participating in cultural activities was seen as important for intergenerational healing; empowerment; staying healthy; and combatting ills like HIV and substance use.

DISCUSSION: Our research process and findings show that the incorporation of culture, community, history and tradition is important for effective HIV prevention with Indigenous youth. Reclaiming indigenous cultures, stories, languages, and ceremonies helps to nurture the hearts and minds of future generations. Reclaiming these aspects of culture washes away cycles of victimization. It combats hopelessness by reconnecting youth to stories of resistance and survival through the retention of their cultures so future generations can re-learn, reclaim and perpetuate them.

O024
"IT'S 80% LYING AND 20% BOOKING": THIRD PARTY FACILITATORS' ROLES IN HEALTH PROMOTION AND HIV PREVENTION WITH WOMEN ENGAGED IN THE COMMERCIAL SEX INDUSTRY

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BACKGROUND: Third party facilitators or those who coordinate control or supervise some aspect of sex workers' activities are often denounced as harmful for sex workers' health. There is growing evidence, however, that they may play an important role in reducing vulnerabilities for HIV and other negative health outcomes. In 2012 we launched SPACES: A Sex Industry Study to examine the interrelationships between third party facilitators' practices, the sex work environment, and sex workers' vulnerabilities for HIV infection.

METHODS: Qualitative interviews were conducted with 15 facilitators and 29 women sex workers working in out-call and in-call settings in Vancouver. Purposeful sampling was employed. Facilitator and sex worker data were compared for similarities and differences in perspectives about facilitators' protective practices for women's health and safety. Data were analysed thematically to identify categories of facilitators and included analysis of how the socio-political context framing the sex industry influenced facilitators' roles and practices.

RESULTS: Four overlapping facilitator categories were identified: a) employer/manager; b) security; c) booking personnel; and d) consultant. The degree of protectiveness varied and was influenced by perceptions regarding their role in the industry and fear of arrest or business closure. Their protective roles were also associated with their degree of influence and control regarding sex workers' decision making about fees for services, safer sex practices, substance use, advertisement, location of sex for money exchanges, and client screening. Facilitators' were further identified as important "health and safety educators", particularly for new sex workers. Facilitators were described as "non-protective" for women using drugs. In these instances women were fired and received no support or protection from harm.

CONCLUSIONS: Third party facilitators are an integral part of the sex industry. Interventions to promote and protect the health and safety of sex workers including HIV prevention and access to HIV care require engagement with this sub-population.

Track A: Basic Sciences: Virology: Restriction Factors and Pathogenesis

Volet A: Sciences fondamentales : Virologie : facteurs de restriction et pathogénie

O025
TRIM5ALPHA DETERMINANTS FOR THE ACTIVATION OF INNATE IMMUNITY

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Trois-Rivières, QC

BACKGROUND: The anti-retroviral factor TRIM5α can promote the induction of an antiviral state involving the activation of transcription factors NF-κB and AP-1 and the formation of K63-linked ubiquitin chains. A RING zinc-binding motif with E3 ubiquitin ligase activity is found at the N-terminus of TRIM5α and is involved in both the direct inhibition of incoming retroviruses and in innate immune activation. Other TRIM5α motifs were found to be related to the sumoylation pathway, specifically a putatively sumoylated lysine (lysine 10) just upstream of the RING domain, and putative SUMO interaction motifs (SIMs) in the C-terminal PRYSPRY domain which also determines interaction with capsid. Our objective was to analyze the respective roles of lysine 10 and the SIMs in the activation of innate immunity by TRIM5α.

RESULTS: As expected, mutating the RING domain completely abrogated activation of NF-κB, AP-1 or the generation of K63-linked ubiquitin. Mutating Lysine 10 significantly decreased the activation of NF-κB and AP-1, and reduced the generation of K63-linked ubiquitin. The K10R mutation caused an increase in TRIM5α self-ubiquitination, unlike mutations in the RING domain that also abrogate this activity. We identified a novel putative SIM motif in PRYSPRY, which we named SIM4. Mutating SIM4 strongly decreased activation of NF-κB while having no effect on the capacity of TRIM5α to trigger the formation of K63-linked ubiquitin chains. Mutations in both lysine 10 and SIM4 decreased the transient nuclear association of TRIM5α with SUMO-1.

CONCLUSIONS: TRIM5α motifs that are linked to the sumoylation pathway modulate the activation of innate immunity in specific fashion.

O026
MXB PROTEIN IS AN INTERFERON-INDUCED HIV-1 RESTRICTION FACTOR

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Montreal, QC

Restriction factors constitute a key layer of the innate immune response against viral infection. Several restriction factors have been discovered that curb HIV-1 infection, these include APOBEC3G, TRIM5alpha, tetherin and SAMHD1. Viruses often evolve measures to counter or escape restriction factors, as seen with HIV-1 Vif countering APOBEC3G and Vpu antagonizing tetherin. Here, we present data to show that an interferon-induced protein called MxB (myxovirus resistance gene B, also named Mx2) inhibits HIV-1 infection. In agreement with the potent inhibition of HIV-1 by ectopically expressed MxB, depletion of MxB that is induced by interferon(alpha) markedly overcomes the inhibitory effect of interferon(alpha) on HIV-1 infection, which supports MxB as an important anti-HIV-1 effector induced by interferon. Further studies showed that MxB reduces the level of HIV-1 DNA integration and exerts no significant effect on 2-LTR circles. These data suggest that HIV-1 nuclear import and integration is impaired by MxB. Selection of MxB-resistant HIV-1 in tissue culture led to the identification of a mutation A88T in viral capsid that confers resistance to MxB. Since A88T is located within the cyclophilin A-binding loop of capsid, we further demonstrated that depletion of cyclophilin A or treatment with cyclosporin A abrogate MxB inhibition, suggesting a role of cyclophilin A in the anti-HIV-1 action of MxB. We will discuss the results by Malim's and Bieniasz's groups that also support the restriction role of MxB in HIV-1 infection.

O027
GATING OF NUP62 TO MEMBRANES BY HIV-1

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The HIV-1 genomic RNA (vRNA) is exported through the nuclear pore complex (NPC), a channel that studs the nuclear envelope and is composed of 30 different nucleoporins (Nups). Our earlier work showed that HIV-1 induces dramatic changes in the composition of NPCs from HIV-1 infected T cells (Monette et al., J. Cell Biol. 2011). As a consequence, HIV-1 promotes the cytoplasmic translocation of Nup62 through a mechanism that depends on nucleocytoplasmic vRNA transit through the NPC. In this work, we report that Nup62 is found associated to vesicular structures in the cytoplasm of HIV-1 expressing cells, as determined by immunogold electron microscopy. S100/P100 fractionation and membrane flotation assays showed that whereas Nup62 was virtually absent in membrane fractions in mock-transfected cells, a strict partitioning of Nup62 to membrane fractions was found in HIV-1 expressing cells. The Nup62 membrane association was not dependent on the presence of Gag as Nup62 remained exclusively in membrane fractions upon expression of a Gag-less proviral construct. To characterize the cytoplasmic complexes containing Nup62, comparative proteomic analyses of immunoprecipitated FLAG-Nup62 were undertaken in the presence and absence of HIV-1. FLAG-Nup62 interacting partners found solely in HIV-1-expressing cells included numerous ER, Golgi, nuclear, exocyst and mitochondrial factors, suggesting that Nup62 may associate with a wide variety of organellar membranes. vRNA was also found to co-immunoprecipitate with FLAG-Nup62. Combined sensitive fluorescence in situ hybridization/immunofluorescence and superesolution structured illumination microscopy allowed us to visualize vRNA and Nup62 at an ~120 nm resolution. vRNA and Nup62 colocalized in small discrete puncta in the cytoplasm and at a juxtanuclear position. Finally, the overexpression of Nup62 in HeLa cells resulted in a threefold increase in HIV-1 production. Our results suggest that the Nup62 that finds itself in the cytoplasm following HIV-1-induced rearrangements of the NPC plays a role in virus assembly.

O028
ANALYSIS OF LENTIVIRAL VECTOR INTEGRATION SITES IN BRAIN EPENDYMAL CELLS IDENTIFIES NON-B DNA-FORMING MOTIFS AS A NEW FACTOR THAT INFLUENCES LENTIVIRUS INTEGRATION SITE PLACEMENT IN THE GENOME

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The blood-brain barrier controls the passage of molecules from the blood into the central nervous system (CNS) and is a major challenge for treatment of brain disorders such as metachromatic leukodystrophy (MLD). Gene therapy via intracranial injection and transduction of brain ependymal cells is an attractive approach to rapidly and permanently deliver therapeutic levels of proteins or enzymes to a broad area of the CNS and is less invasive than multiple injections throughout the brain. Here we present an analysis of the distribution of integration sites of a clinical grade lentiviral vector encoding the human ARSA gene (LV-ARSA) in murine brain ependymal cells; administered via a single intracranial injection into the cerebral spinal fluid. LV-ARSA did not exhibit a strong preference for integration in or near genes. Rather, it exhibited a strong preference for integration in or near satellite DNA. We also identified several genomic hotspots for LV-ARSA integration and identified a strong consensus target site sequence motif, (TG)9GCXTG. Moreover, our analysis identified non-B DNA-forming motifs as a new factor that influences Lentivirus integration site targeting, including targeting of human immunodeficiency virus type-1 (HIV-1) in human cells. Together, our data contributes new knowledge of host factors that influence Lentivirus integration targeting and adds to a body of evidence suggesting that lentiviral vectors are well-suited for safe and effective gene therapy in the brain.

O029
NEF: AN HIV-1 PROTEIN AT THE FOREFRONT OF PATHOGENESIS

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The HIV-1 accessory protein Nef accelerates disease by counterattacking the host antiviral response. Nef lacks intrinsic enzyme activity and instead usurps host cell signaling and traffic machinery to drive AIDS progression. One essential role of Nef is to promote immune evasion by downregulating cell-surface major histocompatibility complex I (MHC-I). The interaction between Nef and the sorting proteins PACS-1 and PACS-2 mediate key signaling and trafficking events required for Nef-mediated MHC-I downregulation. Little is known, however, about the molecular details governing the Nef-PACS interaction. In the current study, we identify key residues on Nef and PACS necessary for this interaction and describe the consequences of disrupting this interaction for Nef function. We identified a novel PACS-1 and PACS-2 cargo recognition sequence, which forms a bipartite binding site with Nef. Bimolecular fluorescence complementation (BiFC) analysis showed Nef interacts with PACS-1 and PACS-2 on distinct populations of endosomes. Mutation of key contact sites prevented the interaction of Nef with the PACS proteins and blocked MHC-I downregulation corresponding in distorted endosomal trafficking. Our results provide insight into the molecular basis of Nef action and suggest novel strategies to combat HIV-1.

O030
HIV NEF AND VPU PROTECT HIV-INFECTED CD4+ T CELLS FROM ADCC THROUGH DOWN-MODULATION OF CD4 AND BST2

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Montreal, QC

BACKGROUND: HIV accessory proteins Nef and Vpu can modulate various host proteins to evade ultimately host's immune defenses. Indeed, the CD4 receptor is down-regulated by Nef and Vpu, whereas virion-tethering BST2 is depleted by Vpu. Fc-mediated effector functions including antibody-dependent cell-mediated cytotoxicity (ADCC) have been increasingly recognized as a potentially powerful host response against HIV. Given that epitopes which are recognized by ADCC-competent anti-HIV antibodies are transitionally exposed during CD4-Env interactions, we investigated whether by depleting CD4 and BST2, HIV could negatively affect ADCC function.

METHODOLOGY: Primary and CEM.NKR CD4+ T cells were infected with GFP-marked HIV-1 NL4.3 ADA wild-type (WT) virus or derivatives lacking Nef (N−), Vpu (U−) or both (N−U−), and examined for their susceptibility to ADCC (FACS-based assay) by peripheral blood mononuclear cells (PBMC) using purified A32 and 2G12 or plasmas from HIV-infected patients as sources of anti-Env Abs. Viruses encoding nef and vpu mutants that are unable to down regulate respectively, CD4 and BST2, as well as T cells that are deficient for CD4 and BST2 were used as investigative tools to examine relative contributions of both proteins to ADCC.

RESULTS: Interactions between CD4 and Env within infected cells expose ADCC-targeted epitopes on cell-surface Env molecules, marking infected T cells for lysis by immune cells. By cross-linking nascent virions at the plasma membrane, hence increasing cell-surface Env density, BST2 further enhances the efficiency of this antiviral process. The heightened susceptibility of T cells infected with the N−U− virus to ADCC was observed with both purified anti-Env Abs and plasmas from HIV-infected patients.

CONCLUSIONS: Our data unveil a mechanism by which HIV Nef and Vpu function synergistically to protect infected cells from ADCC and promote viral persistence. These findings also renew the potential practical relevance of ADCC function in vivo.

O031
INTERACTION WITH CELLULAR CD4 EXPOSES HIV-1 ENVELOPE EPITOPES TARGETED BY ANTIBODY-DEPENDENT CELL-MEDIATED CYTOTOXICITY

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Anti-HIV-1 envelope glycoprotein (Env) antibodies without broadly neutralizing activity correlated with protection in the RV144 clinical trial, stimulating interest in other protective mechanisms involving antibodies, such as antibody-dependent cell-mediated cytotoxicity (ADCC). Env epitopes targeted by many antibodies effective at mediating ADCC are poorly exposed on the unliganded Env trimer. Here we investigate the mechanism of exposure of ADCC epitopes on Env, and show that binding of Env and CD4 within the same HIV-1-infected cell effectively exposes these epitopes. Env capacity to transit to the CD4-bound conformation is required for ADCC epitope exposure. Importantly, cell-surface CD4 down-regulation by Nef and Vpu accessory proteins and Vpu-mediated BST-2 antagonism modulate exposure of ADCC-mediating epitopes and reduce the susceptibility of infected cells to this effector function. Significantly, Env conformational changes induced by cell-surface CD4 are conserved among Env from HIV-1 and HIV-2/SIVmac lineages. Altogether, our observations describe a highly-conserved mechanism required to expose ADCC epitopes and help explain the evolutionary advantage of downregulation of cell-surface CD4 by the HIV-1 Vpu and Nef proteins.

O032
IMPAIRED IL-23 SIGNALING AND TH17 DYSFUNCTION IN HIV INFECTION

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BACKGROUND: HIV infection causes depletion of gut Th17 cells, contributing to loss of mucosal barrier function and microbial translocation, thus driving microbial translocation and systemic immune activation. Despite normalization of circulating CD4+ T cell counts with highly active antiretroviral therapy (HAART), Th17 frequency and function often remain impaired. The cytokine IL-23 plays a crucial role in maintaining normal Th17 cell function. We hypothesize that HIV inhibits IL-23 signalling in Th17 cells, resulting in Th17 dysfunction.

METHODOLOGY: Th17 cells were isolated from peripheral blood of HIV-seronegative donors and infected with HIV in vitro. Expression of IL-17 was examined by ELISA and flow cytometry. Levels of Th17-associated transcription factors STAT3 and RORC mRNA expressed in response to IL-23 stimulation were quantified by qRT-PCR. Phosphorylation of STAT3 (pSTAT3) in response to IL-23 stimulation was assessed by flow cytometry. Th17 cells were isolated from untreated and HAART-treated HIV-infected individuals and IL-23-induced pSTAT3 was examined. Expression of the IL-23 receptor on Th17 cells was examined by flow cytometry and Western blot.

RESULTS: In vitro HIV infection significantly inhibited IL-17 production, IL-23-induced pSTAT3, and expression of STAT3 and RORC mRNA. Th17 cells isolated from untreated and HAART-treated HIV-infected individuals showed complete loss of IL-23 responsiveness. IL-6 induced pSTAT3 was unaffected by in vitro and in vivo infection, suggesting that HIV infection results in specific inhibition of IL-23 signalling. Expression of the IL-23 receptor was not affected by in vivo HIV infection.

CONCLUSIONS: These results demonstrate that in vitro and in vivo HIV infection results in impaired IL-23 signalling which is not reversed by HAART and is not a result from reduced receptor expression, demonstrating that HIV interferes with IL-23-activated signaling pathways. These findings may explain the inability of HAART to restore Th17 frequency and function and the resulting persistent chronic immune activation observed in HIV-infected individuals.

Track B: Clinical Sciences: Coinfections and Comorbidities

Volet B : Sciences cliniques : Co-infections et comorbidités

O033
SOFOSBUVIR PLUS RIBAVIRIN FOR HCV GENOTYPE 1-3 INFECTION IN HIV CO-INFECTED PATIENTS (PHOTON-1)

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BACKGROUND: Interferon-free treatments for HCV that can be safely co-administered with antiretroviral therapy (ART) are needed for HIV/HCV co-infected patients. We evaluated the safety and efficacy of sofosbuvir (SOF), a pan-genotypic HCV NS5B inhibitor, with ribavirin (RBV) in HCV genotype (GT) 1-3 patients co-infected with HIV.

METHODOLOGY: HCV patients with stable HIV disease received SOF 400 mg QD and RBV 1000 mg/day to 1200 mg/day; treatment-naive GT 1 and treatment experienced GT 2/3 patients received 24 weeks and treatment naive GT 2/3 patients received 12 weeks of treatment. Multiple ART regimens were permitted as were patients with compensated cirrhosis. The primary efficacy endpoint was sustained virologic response 12 weeks after treatment, (SVR12); safety assessments included HIV RNA and CD4 cell levels.

RESULTS: Baseline characteristics and virologic responses are shown in the table. Among treatment naive GT 2 and 3 patients, SVR12 was achieved in 88% (23 of 26) and 67% (28 of 42) respectively. No S282T resistance mutations have been detected from virologic failures to date. Complete SVR24 results for all groups, including treatment-experienced GT 2 and GT 3 patients, will be presented. In all groups, treatment discontinuations due to adverse events (AEs) were uncommon (3%) and grade 3/4 AEs were reported in 25 (11%) patients.

CONCLUSIONS: Treatment-naive HCV GT 2 and 3 patients coinfected with HIV achieved high rates of SVR12 an interferon-free, all-oral regimen of SOF+RBV. These data suggest that SOF+RBV treatment was well-tolerated and safely co-administered with multiple ART regimens and may be equally safe and efficacious in patients with and without HIV coinfection.

GT 1 TN (n=114)	GT2 TN (n=26)	GT3 TN (n=42)	GT2 TE (n=24)	GT3 TE (n=17)	
Baseline characteristics					
Male, n (%)	93 (82)	21 (81)	34 (81)	23 (96)	14 (82)
Black, n (%)	37 (33)	6 (23)	2 (5)	6 (25)	1 (6)
IL28B CC genotype, n (%)	30 (27)	10 (39)	15 (36)	10 (42)	10 (59)
Cirrhosis, n (%)	5 (4)	1 (4)	6 (14)	4 (17)	6 (35)
Log10 HCV RNA (IU/mL), mean (SD)	6.6 (0.8)	6.5 (0.6)	6.2 (0.6)	6.5 (0.8)	6.4 (.5)
CD4 T-cell count (cells/µL), mean (SD)	636 (251)	627 (278)	559 (224)	649 (330)	671 (346)
On ART, n (%)	112 (98)	22 (85)	39 (93)	23 (96)	16 (94)

ART Regimen:					
Tenofovir/Emtricitabine PLUS					
Efavirenz, n (%)	42 (37)	7 (27)	13 (31)	9 (39)	7 (44)
Atazanavir/ ritonavir, n (%)	24 (21)	4 (15)	3 (7)	5 (22)	3 (19)
Darunavir/rito-navir, n (%)	15 (13)	6 (23)	11 (26)	0	2 (12)
Raltegravir, n (%)	21 (18)	2 (8)	6 (14)	4 (17)	3 (19)
Other, n (%)	10 (9)	3 (12)	6 (14)	6 (26)	1 (6)
SVR12, n/N (%)	87/114 (76)	23/26 (88)	28/42 (67)	(To be presented)	(To be presented)
SVR24, n/N (%)	(To be presented)	(To be presented)	(To be presented)	(To be presented)	(To be presented)

O034
DOES OPIOID USE PLAY A ROLE IN PROGRESSION OF LIVER FIBROSIS IN HIV-HEPATITIS C (HCV) CO-INFECTION?

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BACKGROUND: Chronic opioid use may be associated with liver disease, in particular fibrosis in cross sectional analyses. We evaluated this association in a prospective cohort study of co-infected individuals.

METHODOLOGY: The Canadian Co-infection Cohort study is a multi-centre prospective cohort of HIV-HCV co-infected patients from 17 centres across Canada. We used pooled logistic regression to estimate the association between prescribed and non-prescribed opioids use during the six previous months and progression to significant fibrosis (aspartate-to-platelet ratio (APRI) ≥1.5) among HCV RNA positive patients with APRI<1.5 at baseline. We used a generalized estimating equation model to evaluate the average change in APRI score associated with prescribed and non-prescribed opioid use during the previous six months among all participants. All models were adjusted for sex, baseline age and duration of HCV infection, and time updated alcohol abuse, CD4 count, HIV viral load and ART use.

RESULTS: At baseline, 59% of the participants used opioids: 34% used prescribed opioids and 52% used non-prescribed opioids, 90% of whom were injecting some/all of the time. Over a quarter (28%) of the participants reported using both prescribed and non-prescribed opioids. Over a median follow-up of 41 months, 28% developed significant fibrosis. Neither prescribed nor non-prescribed opioid use was associated with progression to significant fibrosis (OR 1.16 [95% CI 0.78 to 1.72] and 1.21 [95% CI 0.82 to 1.79], respectively) or with a change in APRI score over time (−0.026 unit/year [95% CI −0.354 to 0.330] and −0.168 [95% CI −0.468 to 0.130], respectively).

CONCLUSIONS: In this prospective cohort, we found a high rate of both prescribed and non-prescribed opioid use. However, we were unable to confirm an association between opioid use and progression of liver fibrosis, suggesting that after accounting for other risk factors opioids may not contribute to liver disease in co-infected patients. These findings need to be confirmed in larger cohorts.

O035
ENGAGING HIGH RISK POPULATIONS OF DOWNTOWN VANCOUVER THROUGH HEPATITIS C AND HIV PORTABLE POP-UP CLINICS

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Vancouver, BC

BACKGROUND: Unique models of care need to be developed to engage and treat people who inject drugs (PWID). Thus, the aim of this study was to organize targeted interventions at specific locations frequented by PWID to allow participants to be tested for HIV and HCV and to increase the likelihood of engaging them into long-term HIV or HCV care and treatment.

METHODS: Participants were recruited at Portable Pop-up Clinics (PPCs) held on a bi-weekly basis at different community-based sites in Vancouver. Point of Care testing was offered including OraQuick HCV Rapid Antibody tests and INSTI HIV-1 Antibody tests. If a positive test result was obtained, the nurses and/or physicians from the team engaged the patients by offering resources including access to weekly HIV and HCV support groups, enhanced social support and preferred access to specialty clinics to design HIV and HCV treatment regimens, including participating in clinical trials of novel agents.

RESULTS: Between March 2013 and January 2014, 373 individuals were tested or evaluated (82 female, mean age 48.3 years). Among the tested individuals, 99 (26.5%) were found to be infected with HIV or HCV with 96 (25.7%) being HCV antibody positive, 11 (2.9%) positive for HIV antibody and eight (2.1%) co-infected with both viruses. Among the HCV-infected individuals, 19 were engaged into care by attending HCV support groups or clinic appointments to further discuss available treatment options (four being currently on treatment and four having completed HCV therapy).

CONCLUSION: The addition of point-of-care testing, enhanced social support and preferred specialist consultation has enhanced community-based efforts to recruit and engage HIV and/or HCV-infected PWID who do not traditionally seek medical care, despite prior knowledge of their infection status. This will be an important tool in our strategy to optimize health care delivery to PWID in inner city populations.

O036
LONG TERM BENEFIT OF HCV TREATMENT ON THE LIVER. EVIDENCE FROM THE L'ACTUEL'S VIRAL HEPATITIS COHORT (HEPVIRAC)

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BACKGROUND: Liver fibrosis was considered as an irreversible damage for long term. However since the scale up of HCV treatment and evidence of cure for HCV there have been few encouraging results showing regression of fibrosis and cirrhosis, even without use of anti-fibrotic agents. The aim of this study was to estimate the impact of treatment on liver fibrosis stage.

METHODS: HCV treated patients from the HEPVIRAC cohort with pre-post treatment measure, as well as HCV naive patients with ≥2 measures at least six months apart were included. Liver fibrosis staging was assessed using elastometry (fibroscan). Regression and progression of fibrosis were defined as reduction and augmentation of ≥1 METAVIR score during follow up. The determinant of fibrosis regression were analysed by logistical regression using SPSS17.0.1©.

RESULTS: A total of 130 patients (71 naive and 59 treated) were included with BL METAVIR score of F0-F1 (49%), F2 (16%), F3 (12%), F4 (24%). Forty-two (32%) were HIV-co infected, 108 (83%) were HCV-geno1,4 and 16 (12%) HCV-geno2,3. Thirty-two (54%) of treated patients had a sustained virological response (STR) to treatment while 27 (46%) were non-responders/relapsers. Overall, 31 (24%) patients had a fibrosis regression, which was greater when SVR was achieved (50% versus 11% in non-SVR and 17% in non-treated [NT] patients; P=0.001). Fibrosis progression was observed in 21 (16%) patients which was greater in non-responders (22%) followed by naive patients (20%). Only 3% progression was observed after SVR. The only determinant coming up from the multivariable regression analyses was the treatment effect: comparing to naive patients, fibrosis regression was greater after a SVR (OR 1.4 [1.7 to 11.2]) and similar in non-responders or relapsers (OR 0.6 [0.1 to 2.1]).

CONCLUSION: A SRV after HCV treatment is significantly associated with fibrosis regression. The regression was observed equally in HCV mono and HIV-HCV co infected patients.

O037
HCV RE-INFECTION IN HIGH-RISK PEOPLE WHO INJECT DRUGS

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BACKGROUND: People who inject drugs (PWID) constitute the majority of cases of HCV infection in Canada. Although a number of strategies have been developed to engage them in care, reluctance to implement them partly relates to concerns about re-infection following successful treatment. We have examined this issue in a prospective longitudinal cohort to establish whether this concern is confirmed in clinical practice.

METHODS: Within a multidisciplinary program to engage and treat PWID, we have documented 70 cases of HCV therapy having resulted in a sustained virologic response (SVR) in which patients continued to engage in high-risk behaviour for HCV acquisition after SVR was achieved. These individuals have been followed prospectively to document recurrent viremia, with the performance of HCV RNA testing every six months, more frequently if elevated ALT or symptoms of acute hepatitis were noted. The endpoint of this analysis is a positive HCV RNA test following the clear establishment of an SVR.

RESULTS: Among the 70 patients, there were 67 males, mean age of 53 years. Disease characteristics included: 13 HIV co-infected, 51 genotype 1, 56 previously treatment naive. In a mean of 1.98 person-years of follow-up/subject, four cases of re-infection were noted (2.89 per 100 person-years) with three of the re-infections being noted in co-infected patients and three being genotype 1. The only factor associated with an increased risk of re-infection was use of stimulants. If our overall study population is considered (138 courses of HCV therapy), the effective rate of re-infection is 1.47 per 100 person-years.

CONCLUSION: PWID successfully treated for HCV infection experience re-infection at a lower rate than previously encountered in uninfected at-risk individuals, and this negative outcome is often associated with stimulant use. Strategies are thus needed to deal with ongoing high-risk addiction behaviors to maximize the benefits of the intervention and further reduce the rate of re-infection.

O038
CAN WE ACCURATELY QUANTIFY CHANGE IN COGNITION DURING A CLINICAL ENCOUNTER?

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BACKGROUND: The ability to quantify changes in cognition is pivotal for early identification of degenerative brain processes. Cognitive screening tests available to clinicians lack the psychometric properties required to provide an accurate change score. Our aim is to develop a measure that can accurately quantify cognition in the clinic setting. The objective of this study was to estimate the extent to which self-report items and computerized cognitive tasks can be combined into a measure with statistical properties suitable for quantifying change over time.

METHODS: One hundred thirty-one non-demented aviremic HIV+ individuals (75% men, mean age 49) had their cognition assessed on up to three occasions over six months. We administered computerized cognitive tasks and a self-report inventory, the Patient Deficit Questionnaire. All items from all time points were combined and Rasch analysis was used to align the items according to difficulty. The item hierarchy was tested for stability across time, gender, education, and age.

RESULTS: Items from self-report and computerized tests assessing several cognitive domains can be combined to form a single unidimensional construct. On average, people scored better at time 3 than time 1, indicating a practice effect. Lower scores were observed for women and for people with no university education. Precision of measurement was best for people who scored in the mid-range of the measure and declined at the extremes. The internal reliability or Cronbach's alpha was 0.77.

CONCLUSIONS: This novel type of measure quantifies on the same scale cognitive ability using items from self-report and computerized cognitive tasks. The fit of the data to the Rasch model supports an approach to the measurement of cognition as a global construct that can be evaluated across a range of difficulty to provide a true change score. Despite administration of different forms, there was still a practice effect, which can now be quantified.

O039
THE BENEFITS OF POSITSCIENCE BRAIN FITNESS EXERCISES FOR NEUROCOGNITIVE IMPAIRMENT IN MEN WITH HIV: PILOT RESULTS FROM A 10-WEEK COGNITIVE REHABILITATION INTERVENTION STUDY

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BACKGROUND: HIV-associated neurocognitive disorders (HAND) remain common in HIV, and combination antiretroviral therapy (cART) has had only a modest benefit on neurocognitive status. We are exploring the potential benefits of Brain Fitness (developed by PositScience), a cognitive rehabilitation intervention to further address neurocognitive impairments and HAND.

METHODS: We enrolled 15 men (mean age 54 years) with no history of mental illness other than depression and no current significant substance use. At baseline, five participants had normal neurocognitive status, six had mild neurocognitive disorder (MND), and four had HIV-associated dementia (HAD). Almost all were on cART (93%) and had suppressed viral load (93%) at baseline. Each participant completed a neuropsychological battery that included measures of attention and working memory, psychomotor efficiency, learning and memory and executive functioning before and after completing 10 weeks of on-line auditory brain fitness exercises (computer-based set of exercises done at home five days/week, and for 30 min/day to 60 min/day). Participants completed an average of 37 h of brain fitness exercises (range: 28 h to 47 h). Mixed linear model regression method was used to assess improvement in neurocognitive status over time.

RESULTS: Overall there was an 87% reduction in total neurocognitive symptom burden, and an 80% improvement in well-being following the intervention. Compared to those who were neurocognitively normal, individuals with MND had significant improvement in working memory ($B=1.46$; $P<0.01$) while participants with HAD significantly improved ($P<0.05$) in visual memory ($B=0.66$; $P<0.05$) and executive function ($B=1.10$, $P<0.05$).

CONCLUSIONS: This is the first Canadian study to evaluate and demonstrate the potential benefits of brain fitness exercises for neurocognitive impairment in HIV, over and above the contribution of cART. These preliminary results support the need for the implementation and evaluation of a large well-designed RCT to determine the effectiveness of brain fitness exercises to prevent and reverse neurocognitive impairments and HAND in HIV.

O040
INCIDENCE OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND BACTERIAL PNEUMONIAS ARE ELEVATED IN HIV-POSITIVE INDIVIDUALS COMPARED TO THE GENERAL POPULATION IN BRITISH COLUMBIA (BC)

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BACKGROUND: HIV has been associated with elevated rates of bacterial pneumonia in several cohorts. We evaluated incidence rates of bacterial pneumonia/COPD in HIV+ individuals compared to the general population in BC.

METHODS: A population-based dataset was created via linkage between the BC Centre for Excellence in HIV/AIDS and PopulationDataBC. Our analysis involved a random 1% adult general population sample (cohort 1) and HIV+ adults identified using validated case-finding algorithms (cohort 2). Incidence rates for bacterial pneumonia/COPD were determined using one in-patient or two outpatient ICD-9 codes. Factors associated with COPD/bacterial pneumonia incidence

were assessed using a generalized mixed model with Poisson distribution adjusted for age, gender, Aboriginal ancestry, history of IDU, hepatitis C (HCV), baseline CD4 cell count (per 100 cells/μL), baseline plasma viral load (pVL – per log10 copies/mL) and pVL suppression in the year of COPD/bacterial pneumonia diagnosis.

RESULTS: 40,993 (49% male) and 10,747 (80% male) individuals contributed 312,166 and 67,914 person-years (PY) in cohorts 1 and 2, respectively. In cohort 1, the incidence rate for COPD was 0.47 per 100 PY in 2009/2010, and for bacterial pneumonia was 0.98 per 100 PY in 2009/2010. In cohort 2 the incidence rate for COPD and bacterial pneumonia was 1.50 and 8.20 per 100 PY, respectively. Incidence of COPD was inversely associated with pVL suppression (adjusted relative risk [aRR] 0.43 [95% CI 0.29 to 0.63]), and associated with higher age at baseline (aRR 1.02 [95% CI 1.00 to 1.04]), HCV (aRR 2.62 [95% CI 1.76 to 3.96]) and higher baseline pVL (aRR 1.40 [95% CI 1.04 to 1.90]). Bacterial pneumonia was inversely associated with pVL suppression (aRR 0.48 [95% CI 0.37 to 0.61]), and associated with higher age at baseline (aRR 1.03 [95% CI 1.02 to 1.05]), female gender (aRR 2.41 [95% CI 1.90 to 3.06]), history of IDU (aRR 3.10 [95% CI 2.08 to 4.61]), HCV (aRR 2.62 [95% CI 1.76 to 3.96]), and higher baseline pVL (aRR 1.22 [95% CI 1.01 to 1.46]).

CONCLUSION: Incidence rates of bacterial pneumonia and COPD were higher in HIV+ individuals than the general population. HIV+ individuals with viral load suppression were less likely to have incident bacterial pneumonia and COPD.

Track C: Epidemiology and Public Health: Local and Global Evaluations of Interventions, Public Health Programs, and Policy

Volet C : Épidémiologie et santé publique : Évaluations locale et mondiale des interventions et des programmes et politiques de santé publique

O041
DEVELOPMENT OF A CANADIAN PERFORMANCE FRAMEWORK FOR MEASURING COMPREHENSIVE COMMUNITY-BASED PRIMARY HEALTHCARE FOR PEOPLE LIVING WITH HIV

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BACKGROUND: People living with HIV require comprehensive care across longer life spans. Although initially a specialist-focused condition, the health system must adapt to HIV as a complex chronic condition requiring co-management and integration across providers. A performance framework delineating the elements of high quality primary health care (PHC) and specialist care is required. Our objective was to develop the first Canadian performance framework for measuring comprehensive community-based PHC for people living with HIV.

METHODS: We conducted a narrative literature review of HIV care performance frameworks to draft a framework from existing indicators based on frequency of appearance in publications and whether they represented a unique stakeholder or important PHC perspective. We did semi-structured interviews with 24 patients, providers, and policy-makers who reviewed the draft framework to identify priority and missing indicators and potential roles for performance data. Transcripts were coded and immersion/crystallization was used to identify emerging themes. All data were triangulated with expert opinion and a recently released guideline for PHC for people living with HIV.

RESULTS: A total of 1184 performance indicators for HIV care from 47 publications were screened and mapped to a PHC framework. After iterative adaptation, the final version of the framework included 98 performance indicators across 12 domains of PHC.

Practice-Based Health Care Service Delivery
* Access
* Patient-Provider Relationship
* Continuity
* Service Integration
Technical Quality of PHC Practice-Based Clinical Care
* Health Promotion and Primary Prevention
* Secondary Prevention
* Care of Chronic Conditions
* Care of Acute Conditions
Patient-Level Criteria
* Satisfaction
* Activation/Empowerment
Health Care Utilization

CONCLUSION: A comprehensive PHC performance framework for people with HIV was produced incorporating key aspects of HIV-specific care, essential elements of PHC delivery, and reflecting priorities and opinions of diverse stakeholders. This framework can be used to measure the quality of PHC and to evaluate interventions for better care for people with HIV.

O042
CONTINUUM OF HIV TREATMENT IN CANADA, 2003–2012

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BACKGROUND: The continuum of HIV care has become a focal point for implementation efforts to maximize the benefits of HIV treatment for individuals and populations. Using a multi-site Canadian cohort we aim to (1) determine the longitudinal continuum of HIV treatment by age, gender, and risk; and (2) identify gaps in the 2012 continuum of HIV treatment.

METHODS: Participants from the Canadian Observational Cohort (CANOC), a cohort of HIV-positive individuals ≥18 years of age initiating ART after January 1 2000 in British Columbia, Ontario, and Québec, were included. Five steps of the continuum of HIV treatment were defined and measured, by calendar year (Table 1). Trend significance was assessed using the Cochrane-Armitage test.

RESULTS: A total of 8092 participants (18% female) were included, of median age 40 years (Q1 to Q3, 33 to 47 years) at pre-ART baseline. The continuum of HIV treatment for years 2003, 2006, 2009 and 2012 is shown in Table 1, as % of 'Linked to Treatment'. Significant increases can be seen from 2003 to 2012 for 'On ARV' (79% to 93%; P<0.01), 'Adherent' (67% to 86%; P<0.01) and 'Suppressed' (39% to 71%; P<0.01). In 2012, suppression was lower among females (60% versus 74%); younger individuals (<30 years, 60%; 30 to 39 years, 71%; 40 to 49 years, 73%; 50+ years, 76%); persons with IDU history (60% versus 75%); and non-MSM (63% versus 78%).

CONCLUSIONS: Although the HIV continuum of treatment has improved over time, attrition was greatest between the stages 'Adherent' and 'Suppressed'. Future efforts should focus on limiting losses along the cascade, especially on the achievement and sustainment of viral suppression.

	2003	2006	2009	2012
(i) Linked to Treatment: having started ART in the current or past years, and not being known deceased or lost to follow-up in the calendar year;	1725 (100%)	3117 (100%)	4952 (100%)	6467 (100%)
(ii) Retained in Treatment: of those who are "Linked to Treatment", having more than two HIV contacts (pVL, CD4, or ARV) more than three months apart in the calendar year;	1604 (93%)	2914 (93%)	4761 (96%)	6230 (96%)
(iii) On ARV: of those who are "Retained in Treatment", being on ARV for more than three months in the calendar year;	1365 (79%)	2633 (84%)	4492 (91%)	6035 (93%)
(iv) Adherent: of those who are "On ARV", being on ARV ≥80% of the calendar year;	1159 (67%)	2364 (76%)	4077 (82%)	5560 (86%)
(v) Suppressed: of those who are "Adherent", having at least 1 pVL test <50 copies/mL and not having any pVL test >250 copies/mL in a given year	618 (36%)	1546 (50%)	2850 (58%)	4194 (65%)

O043
REACHING THOSE MOST AT RISK FOR DRUG-RELATED HARM: POTENTIAL USERS OF A SUPERVISED INJECTION SERVICE IN OTTAWA, CANADA

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BACKGROUND: Supervised injection services (SISs) have been effective in reducing health risks among the most marginalised communities of people who use drugs, including those who face issues of homelessness, mental health illness, interactions with the law, and HIV infection. To determine the potential impact of an SIS in Ottawa, we set out to determine whether the people who face the highest risk of negative health outcomes are likely to use an SIS.

METHODS: The PROUD study employs community-based participatory research methods to better understand the HIV risk environment among people who use drugs in Ottawa. From March to October 2013, 597 people who reported using injection drugs or smoking crack cocaine in the past 12 months were enrolled through a targeted, street-based recruitment strategy. At enrollment, trained peer or medical student researchers administered a demographic, behavioural, and socioenvironmental survey.

RESULTS: Of those participants who reported injecting drugs in the past 12 months (n=272), 75.4% (205) reported a willingness to use an SIS in Ottawa. Among potential SIS users, 24.9% had recently injected with a used needle, 61.3% were unstably housed, 18.5% had engaged in sex work in the past year, 74.6% reported a mental health diagnosis, and 14.2% were HIV positive. Potential SIS users were more likely to inject in public (OR 1.85 [95% CI 1.01 to 3.38]), require assistance to inject (OR 1.85 [95% CI 1.00 to 3.39]), have tested positive for hepatitis C (OR 2.17 [95% CI 1.18 to 3.97]), to identify as LGBTQ (OR 6.69 [95% CI 1.56 to 28.62]), and to have been recently redzoned by the police (OR 2.4 [95% CI 1.3 to 4.3]).

CONCLUSION: An SIS in Ottawa would be well-positioned to reach its target group of high-risk injection drug users. Given the barriers these marginalized groups continue to face in accessing health and harm reduction services, it is important to further explore the contribution an SIS could make to engaging hard-to-reach populations and reducing harm.

O044
LES SERVICES SOCIAUX ET DE SANTÉ EN LIEN AVEC LE VIH ET LE VIEILLISSEMENT : DIFFICULTÉS ET BESOINS DES PERSONNES ÂGÉES VIVANT AVEC LE VIH

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CONTEXTE : Les personnes âgées vivant avec le VIH (PAVIH) font face à de multiples difficultés au niveau psychologique, social, économique et de la santé physique. Ces difficultés génèrent des besoins importants de services sociaux et de santé. La question de la disponibilité et de l'adéquation des services existants au Canada pour répondre aux besoins des PAVIH semble donc essentielle à examiner.

OBJECTIF : Documenter les difficultés et les besoins des PAVIH relatifs aux services sociaux et de santé et aux ressources formelles.

MÉTHODOLOGIE : S'appuyant sur une méthodologie qualitative, notre recherche se base sur des entrevues semi-dirigées approfondies avec 38 participants vivant avec le VIH âgés de 50 à 73 ans, recrutés à la clinique médicale l'Actuel. L'analyse qualitative des données, inspirée de la théorisation ancrée, a été conduite à l'aide du logiciel QDAMiner.

RÉSULTATS : Concernant le réseau de la santé, les problèmes identifiés sont notamment les difficultés d'accès aux services, la déshumanisation des soins, le manque de temps passé avec les professionnels, ainsi que la discrimination reliée au VIH et à l'âge. Pour ce qui est des organismes communautaires, les participants évoquent le manque d'activités pour PAVIH qui leur permettraient de rompre l'isolement et de faire face aux défis du vieillissement. Le manque de ressources psychosociales et d'accompagnement psychologique en lien avec la double problématique du VIH et du vieillissement est également rapporté. Enfin, les participants s'inquiètent des risques de stigmatisation du VIH et d'homophobie dans les hébergements pour personnes âgées et de l'inexistence d'hébergement spécifiquement destinés aux PAVIH.

CONCLUSION : Les résultats mettent en évidence es multiples besoins des PAVIH concernant les services de santé, les ressources psychosociales et communautaires et les hébergements, en raison de l'absence de prise en considération du vieillissement des PVVIH et de la double stigmatisation du VIH et du vieillissement.

O046
"THE CANGO LYEC PROJECT – HEALING THE ELEPHANT": RISK FACTORS FOR HIV INFECTION AMONG POST CONFLICT POPULATIONS IN NORTHERN UGANDA

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BACKGROUND: The 20-year civil war in Northern Uganda resulted in countless deaths, child abductions, destruction of the social and economic fabric of society and the displacement of the majority of the population. In the aftermath of the war, the conditions are rife for the spread of HIV; unfortunately, HIV epidemiological data for the North are limited. This prospective cohort study affords a unique opportunity to assess HIV spread and associated risk factors in post conflict Northern Uganda.

METHODS: The "Cango Lyec Project" is a cohort study involving conflict-affected populations living in Gulu, Amuru and Nwoya districts in Northern Uganda. We randomly selected study communities and conducted a house-to-house census that mapped and enumerated the entire population. We identified 2448 people 13 to 59 years of age living in the selected communities between October 2011 and July 2012. Participants consented to HIV testing and completed trauma, depression and socio-demographic-behavioural surveys conducted in Luo, the local language.

RESULTS: 1953 sexually active people were included in this analysis, 1162 (59%) were women and 535 (27%) people had experienced abduction during the conflict. The overall HIV prevalence was 11.7%, with the highest prevalence of 14% observed in Gulu district. In multivariable logistic regression, HIV positivity was associated with being female (Adjusted odds

ratio [AOR] 1.68 [95% CI 1.23 to 2.30]); one year increase in age (AOR 1.05 [95% CI 1.04 to 1.07]); trauma experiences (AOR 1.50 [95% CI 1.02 to 2.17]); Gulu district (AOR 2.03 [95% CI 1.44, 2.91]); Nwoya district (AOR 1.78 [95% CI 1.15 to 2.75]) compared to Amuru district; history of genital ulcers in last year (AOR 3.03 [95% CI 2.14 to 4.28]), and domestic violence (AOR 2.06 [95% CI 1.21 to 3.42]).

CONCLUSIONS: HIV prevalence is significantly higher among women, people with trauma experiences, domestic violence and residing in Gulu district. Culturally safe, gender- and trauma-informed prevention and treatment programs are urgently needed.

O047

EVALUATION OF A TRAINING INTERVENTION FOR COUPLES' HIV COUNSELING AND TESTING PROVIDERS IN COPPERBELT PROVINCE, ZAMBIA

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BACKGROUND: With the expansion of couples' voluntary HIV counseling and testing (CVCT) in Zambia, there is a growing need to evaluate CVCT provider trainings to ensure that trainees have acquired the correct theoretical knowledge to provide quality CVCT services. We examined the effect of training using pre- and post-training test scores for a Canadian International Development Agency (CIDA) funded CVCT project. We also evaluated predictors of pre- and post-training test scores.

DESIGN: We collected data from 1,219 trainees from 56 government clinics in four Copperbelt Province cities from August 2010 to March 2013 for three different training types: CVCT, rapid HIV testing ("laboratory"), and data management. Trainings were quantitatively evaluated in a pre-post test design. Test topics included causes of HIV infection, modes of transmission, basics of CVCT, and counseling of concordant and discordant results. Increases in scores from pre- to post-test were evaluated by trainee demographics and training type. Multivariate ANCOVA determined predictors of pre- and post-test scores.

RESULTS: Following training the overall average test score increased from 68.8% to 83.8% ($P<0.001$). Test scores increased significantly for every demographic group considered ($P<0.001$), and when stratified by provider type with one exception – test scores did not significantly increase for those with less than a high school education. In multivariate analysis, education and medical knowledge were predictive of higher pre-test scores. Though the average post-test scores for laboratory and data training exceeded the minimum required for passing, more than half of lay counselors (no medical background) failed the post-test and had to repeat the counselor training.

CONCLUSIONS: Systematic pre- and post-test assessments are critical to ensure quality services and to highlight groups who may benefit from more intensive training and simplified messaging, particularly as task-shifting from medically trained to lay staff becomes more common.

O048

IMPACT OF AN INTERNET BASED SEXUALLY TRANSMITTED INFECTIONS TESTING PROGRAM IN OTTAWA, CANADA. RESULTS FROM THE "GET TESTED. WHY NOT?" CAMPAIGN, A FIRST OF ITS KIND MODEL TO INCREASE ACCESS TO TESTING

Uddin, Zhaida

Ottawa, ON

BACKGROUND: In June 2011, Ottawa Public Health (OPH) launched a sexual health strategy to address the increasing rates of sexually transmitted infections in Ottawa known as the ACCT strategy. This comprehensive approach addresses sexual health needs with four main components: Access points, Capacity building, Condoms and Technology. The ACCT strategy builds on traditional sexual health initiatives by integrating innovative campaigns and social media health promotion while enhancing youth engagement and community partnerships.

Chlamydia and gonorrhoea are prevalent in Ottawa: in 2013 there were approximately 2,400 and 260 diagnosed cases of chlamydia and gonorrhea, respectively. These infections are among the most-reported infectious diseases affecting our population.

OBJECTIVES: This session will focus on the Technology component of the ACCT strategy. In 2011, Ottawa Public Health (OPH) was the first Health Unit in Canada to develop a website that offers an on-line access point for lab requisitions to test for chlamydia and gonorrhea. One of the campaign goals was to reduce barriers to testing and information by offering increased access to testing and information on STI/HIV/birth control for youth 15 to 29 years of age using new technologies. A bilingual website was created which offers on-line screening and promotion, a downloadable requisition form, SMS Texting, and overall promotion of STI testing campaign for sexually active people.

This project used a multifaceted marketing and communication strategy including SMS text messaging, social media websites (such as Facebook), Quick response (QR) codes, and a dedicated website (www.gettested.whynot.ca).

Findings of the three year project will be shared, as well as information on various aspects including planning, marketing with social media, evaluation, implementation, and execution of this project.

CONCLUSIONS: Lessons learned and next steps will be shared.

Track D: Social Sciences: Living with HIV/ Living with GIPA: Resilience(s), Stigma(s) and Disclosure(s)

Volet D : Sciences sociales : Vivre avec le VIH / vivre selon le principe GIPA : résilience, stigmatisation et divulgation

O049

GIPA IN PRACTICE: COMMUNITY LEADERSHIP GUIDES THE DEVELOPMENT OF AN INCLUSIVE, TRANSPARENT & ACCESSIBLE PRA HIRING PROCESS

Gurm, Jasmine[1]; McDougall, Patrick[1]; McNeil, Ryan[1]; Thompson, Victor[1]; Howard, Terry[1]; Leclair, Karen[1]; Porayko, Gerry[1]; Salters, Kate[1,2]; Strike, Carol[3]; Pauly, Bernie[4]; Parashar, Surita[1,2]; Worthington, Cathy[4]; Samji, Hasina[1]; Baltzer Turje, Rosalind[1]; Hogg, Robert[1,2]; Dr Peter Study Team, The[1]

[1]Vancouver; [2]Burnaby, BC; [3]Toronto, ON; [4]Victoria, BC

BACKGROUND: The lack of available protocols for hiring Peer Research Associates (PRAs) presents a challenge to health services organizations engaging HIV/AIDS related Community-Based Research (CBR). The Dr Peter Centre (DPC), an HIV/AIDS care facility in Vancouver, BC, utilized the guidance of community members' expertise and lived experiences to develop an inclusive, transparent and accessible PRA hiring process. The hiring process described below could serve as a model for organizations seeking to implement PRA hiring processes grounded in the Greater Involvement of People Living with HIV/AIDS (GIPA).

TARGET POPULATION: The applicants we sought to engage were PLHIV who were DPC clients or had lived experiences in common with DPC clients, such as those who have faced socio-economic, psychosocial and/or behavioral barriers to treatment and care.

APPROACH: Community Advisory Committee (CAC) members served as community advocates in the development of low-threshold recruitment and communication tools and strategies throughout the hiring process, including hiring materials and processes accounting for varying literacy levels (eg, plain language job posting, simplified application process). Any perceived barriers, such as conventional requirements for resumes or previous experience, were removed from the job description to promote inclusion. Our process instead emphasized attributes that were expressed by community to directly impact applicants' ability to meaningfully and respectfully engage with the DPC population, such as lived experience and commitment to the position. To help assess these characteristics, and provide community voice and perspective throughout, a member from our CAC who is also a DPC participant was directly involved in conducting interviews for the final candidate selection.

OUTCOMES & LESSONS LEARNED: By involving community stakeholders, this hiring process provided an opportunity to establish community voice and ownership within the context of this CBR initiative. Moreover, this hiring process cultivated an in-depth understanding of community values across the wider research team and reinforced the overall CBR process.

O050
WORK IN PROGRESS: STRUCTURAL FACTORS THAT SHAPE SUCCESSFUL EMPLOYMENT TRAJECTORIES FOR PEOPLE LIVING WITH HIV IN CANADA

Oliver, Brent
Calgary, AB

PURPOSE: Income support and labour force participation are critical issues for people living with HIV in Canada (PHAs). The objectives of this study were to identify factors that support or deter labour force participation, and to develop a conceptual framework to describe the processes and structures that shape PHAs' successful vocational experiences.

METHODS: Community-based research methods and a grounded theory framework were used to explore perspectives of PHAs in Canada who have sustained successful participation in the labour force. Purposive and theoretical sampling was conducted in the provinces of Ontario, Alberta, and British Columbia. Thirty-one semi-structured interviews were conducted with PHAs who were successfully engaged in the labour force for three months or more. Sampling was conducted concurrently with data analysis until saturation was achieved within emergent thematic categories. The data were transcribed and analyzed using grounded theory coding methods and NVIVO computer software.

FINDINGS: Study findings summarized participants' experiences of working successfully and have been conceptualized from a strengths perspective and within a social ecological framework that include factors at the personal, work, community, and public policy level. Within this framework, factors at the public policy level have been conceptualized as critical influences structuring participants' successful involvement in the labour force. Study results include a comparative analysis between provincial jurisdictions highlighting systemic barriers and facilitators to employment within current social and public policies. Additionally, participant narratives suggest that income support policy, access to medication policy, housing policy, and stigma and discrimination intersect in influencing the employment trajectories of people living with HIV.

CONCLUSION: Study findings contribute to an expanded contextual view of labour force participation for PHAs and highlight the importance of income support policy, access to medication, and stable housing. Specific results related to employment and public policy inform recommendations for advocates, policy makers, and those working in community based AIDS service organizations including the need for flexible income supports, universal access to HIV treatment, and increased consistency across jurisdictions.

O051
KNOW YOUR RIGHTS: DEVELOPING PRACTICAL AND ACCESSIBLE LEGAL INFORMATION FOR PEOPLE LIVING WITH HIV

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Toronto, ON

OBJECTIVES: In light of increasing questions from people living with HIV and their service providers about practical legal issues that people living with HIV face in everyday life, we sought to create legal information tools about privacy rights and HIV disclosure obligations in the contexts of employment, education, childcare and health care.

METHODS: A bilingual electronic survey was circulated to people living with HIV and community-based AIDS service organizations across Canada. Questions explored legal information sources used by respondents and the specific legal questions of respondents with respect to privacy, disclosure and discrimination. Results were tabulated and legal information needs were categorized. Plain language posters and information sheets were developed to answer the pressing questions in each category.

RESULTS: A total of 204 people completed the survey, comprised of 119 who self-identified as men, 79 as women, three as transgender and three as other. One hundred seventy-four people completed the survey in English, 30 in French. Individuals responded from every province and territory except Newfoundland and Nunavut. A set of four bilingual posters and information sheets were developed in an accessible format and design. The questions addressed ranged from "Do I have to tell my employer that I have HIV?" to "Can I request additional help to meet deadlines and educational goals because of illness or limitations related to my HIV status?" and "How do I file a human rights complaint?" The resources were distributed electronically and in hard copy throughout the country. Based on these resources, community education sessions were developed.

CONCLUSION: The legal information needs of people living with HIV and their service providers remain acute and relate to a diverse range of settings and situations. Four further resources will be developed on privacy rights & HIV disclosure obligations. Legal information complements practical advice, service referrals and skills development.

O052
"I NEED A SAFE PLACE FOR MYSELF": ISSUES OF REFUGEE CLAIMANTS IN TRANSITIONAL HOUSING FOR PEOPLE LIVING WITH HIV/AIDS

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BACKGROUND AND ISSUE: Refugees in Canada face complex issues, of which appropriate and affordable housing is one of the most critical. For refugee people living with HIV/AIDS (PHAs) transitional housing acts as a segue that assists the individuals to move towards greater autonomy and self-sufficiency thereby increasing the likelihood of their housing stability and their successful resettlement. However, limited transitional housing for PHAs in Ontario, reduces its accessibility for refugee PHAs causing various barriers.

DESCRIPTION: Qualitative data were collected through in-depth interviews with refugee PHAs who accessed the transitional housing in Toronto (one of the three transitional housing programs specifically for PHAs in Ontario). Three peer research assistants were trained in qualitative data collection methods. Qualitative data were analyzed using thematic analysis. This presentation is based on the themes generated from the data collected from refugee residents in transitional housing.

FINDINGS: Refugee claimants expressed a unique set of concerns about individual and structural barriers that they faced in their new country of residence. Structural level challenges included challenges with the legal system, barriers in finding suitable and sustainable housing, barriers in finding employment and barriers in upgrading their skills and education. Disclosure, safety, and isolation that stemmed from previous experiences of violence and trauma were some of the individual level barriers that they experienced.

RECOMMENDATIONS: Transitional housing programs need to devise case management strategies that take into consideration the experiences of trauma and violence that refugee claimants may have undergone. Secondly, partnerships with community organizations and government programs that are fully aware of and better equipped to address issues of dislocation and trauma, need to be developed in order to better serve this population. Thirdly, increasing the number of transitional housing units, is a viable option for greater housing readiness for refugee PHAs who lack these skills.

O053
THE DEPTH OF WATER REQUIRES KNOWLEDGE: LISTENING TO THE VOICES OF THE HIV PATIENT JOURNEY

Howard, Patricia A
Prince George, BC

BACKGROUND: Patient Journey Mapping is an effective and well tested method for improving the Health Care System. However, while working with the HIV population in Northern British Columbia, adaptations to this method were needed for this unique population that a) generally had negative experiences with the system, b) low level literacy skills, c) distrust of health professionals – so transformation of the patient journey mapping occurred in three ways: 1) visual metaphors in the focus

group were used and 2) storytelling in the individual interviews and 3) a collective and kinesthetic analysis occurred.

METHODS: This report used narrative inquiry, a qualitative methodology where two focus group sessions were held, one woman specific, along with five personal individual interviews which were electronically recorded and transcribed, totalling 19 people living with and affected by HIV. This was a very diverse group aged 18 – 60+, including male, female and transgender, with the majority being of Aboriginal descent. All data was coded and thematically organized and analyzed. Saturation was not the aim of this report but was a guiding principle for data collection.

RESULTS: The common themes that emerged were:

- Shame, stigma and discrimination are ubiquitous therefore reducing access to care;
- Unprofessional and inappropriate treatment by hospital staff;
- Clients are required to remember and repeat information multiple times;
- Lack of culturally appropriate care for Aboriginal population;
- Peers want constant, ongoing HIV education and to be involved in decision making process – nothing about us, without us;
- Lack of adequate housing/social determinants of health are not considered;

RECOMMENDATIONS: This report identified the following priorities:

- Address ignorance and lack of respect proactively with culturally safe curriculum;
- Protect confidentiality;
- Keep clients Informed and included with health journey;
- Peer mentorship program developed;
- Collaborate with other agencies to ensure holistic health;
- Trauma/mental health services provided;
- Art as healing;

O054
RETHINKING HIV-RELATED STIGMA IN HEALTH CARE SETTINGS: A QUALITATIVE STUDY

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BACKGROUND: Research conducted in Canada over the past decade indicates that people living with HIV (PLWH) continue to endure stigma and discrimination in the context of health care. Qualitative research on this particular topic has been almost exclusively focused on individual experiences of HIV-related stigma. As a result, the structural nature of HIV-related stigma in health care settings has remained largely undocumented and unexplored by researchers. The objective of this paper is to present the findings of a qualitative study designed to examine stigma both symbolically and structurally.

METHODS: From April to August 2013, 21 PLWH were interviewed using a semi-structured in-depth approach. Interviews were conducted in home settings and community-based settings in five regions of the province of Quebec: Bas-Saint-Laurent, Centre du Québec, Mauricie, Outaouais, and Québec. The data was analyzed following the principles of thematic analysis.

RESULTS: During the analysis, four core categories were identified and relations between these categories were delineated to reflect the experiences of participants. The findings of this study suggest that HIV-related stigma in health-care settings is 'episodic' in nature. In other words, it is characterized by various degrees of exposure to health care providers outside HIV care settings and it is made up of different episodes of stigma that are isolated and sporadic over time. The findings also suggest that HIV-related stigma is experienced through interactions with health care providers and is embedded in health care structures, practices, and policies. Finally the findings reveal that stigma contributes to 1) changing perceptions of health care providers, 2) creating barriers to care, 3) reinforcing the production of a responsible self, and 4) ensuring the proper and optimal functioning of the health care 'dispositif'.

CONCLUSION: The study findings have implications for research, theory, policy, and clinical practice. The implications will be discussed during the presentation.

O055
TEA TIME: MAPPING INFORMAL NETWORKS OF WOMEN LIVING WITH HIV

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BACKGROUND: Across Canada it is estimated that 25% of all people living with HIV (PLHIV) are women. Despite the increase in the number there is a lack of programs and services to address their unique health needs. Yet, women-specific programming proves to be highly effective in assisting women in dealing with the multiple and unique challenges faced by a PLHIV. As WLHIV continue to be even further marginalized,
unsupported and separated from their peers, it has challenging to figure out how to move forward in the HIV response.

METHODS: Using the Tea Time method required WLHIV to be active participants in the organizing, promotion, and story sharing within the research process. Based in feminist and popular education frameworks, Tea Time shifts the power relations by enabling a collective, communal learning experience as a means to create and explore group knowledge. This research asked: How do community-based social support networks address the health needs of WLHIV? How can community-based research better engage WLHIV in ways that are respectful and useful to them? How can the Tea Time method facilitate research and network-building among WLHIV?

RESULTS: Thirty-seven women participated in eight tea parties in seven cities in North America expanding to over sixty-four as an arts based intervention in fourteen cities Globally. Women's participation was represented through a teacup and letter to exchange that were photographed. Emerging from this project was the desire of WLHIV to build networks of much needed social support and to find innovative ways of connecting with peers. By having multiple avenues for connections, women were able to meet, maintain and foster relationships with other WLHIV, thereby increasing their access to peer support. The Tea Time Book was created as a KTE tool funded by SRC.

CONCLUSION: Tea Time is a response to the increasing trend of eroding social programs as it aims to actively engage women living with HIV in the process of rebuilding their social support networks.

O056
"YOU KNOW EXACTLY WHERE YOU STAND IN LINE... ITS RIGHT AT THE VERY BOTTOM OF THE LIST": NEGOTIATING PLACE AND SPACE AMONG WOMEN LIVING WITH HIV SEEKING HEALTH CARE IN BRITISH COLUMBIA, CANADA

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BACKGROUND: Health services research conventionally defines place in terms of proximity to care. However, the notion of 'place' must also include the social and physical spaces that influence how people experience place. For women living with HIV (WLWH), both geographical and sociospatial barriers must be understood to support engagement in healthcare.

METHODS: Using a community-based and critical feminist approach, we explored how WLWH experience and negotiate 'place' and 'space' in attempting to access healthcare in British Columbia. Peer Research Associates conducted four focus groups with WLWH (n=28), 40% of whom identified as Aboriginal, in Vancouver, Victoria, and Prince George, as part of the Canadian HIV Women's Sexual and Reproductive Health Cohort Study. Transcripts were analyzed using thematic analysis, peer debriefing, and investigator triangulation.

RESULTS: Women expressed frustration with the centralization of healthcare within urban centres and the time, costs, and other trade-offs associated with travelling to care sites. Place-based barriers were amplified by intersecting social factors (eg, poverty, childcare, work demands) and affected women's access to care. Particularly striking, however, was that women's experiences of the 'spaces' where they seek care emerged as the most defining barrier to healthcare. Women highlighted how existing services, even if proximally close, can be socially marginalizing as they

confront stigma, racism, sexism, and classism, which operate to exclude women from the places and spaces they must access for care. In response, women employed strategies to actively resist marginalization by rejecting available services and relying on self-care to manage their healthcare needs. Women also highlighted the role of peer support and virtual communities of WLWH, which support women to overcome geographical and social-spatial barriers and create their own spaces.

CONCLUSIONS: Beyond distance to services, access to care for WLWH is also heavily shaped by experiences of marginality in the spaces where they seek care. Our findings stress the urgent need to acknowledge and redress socio-spatial barriers to care and to work with WLWH towards the co-creation of spaces that reflect women's diverse identities and experiences.

Track A: Basic Sciences: Viral Evolution and Molecular Epidemiology

Volet A : Sciences fondamentales : Évolution virale et épidémiologie moléculaire

O057

DEEPGEN™HIV: AN INNOVATIVE DEEP SEQUENCING-BASED HIV-1 GENOTYPIC AND CORECEPTOR TROPISM ASSAY TO SIMULTANEOUSLY MONITOR SUSCEPTIBILITY TO MATURATION, PROTEASE, REVERSE TRANSCRIPTASE, AND INTEGRASE INHIBITORS, AND CCR5 ANTAGONISTS

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BACKGROUND: With 29 individual antiretroviral drugs, from six classes, approved for the treatment of HIV-1 infection, a combination of different phenotypic and genotypic tests is currently needed to monitor HIV-infected individuals. In this study, we have developed a novel HIV-1 genotypic assay based on deep sequencing (DEEPGEN™HIV) to simultaneously assess HIV-1 susceptibility to all drugs targeting the three viral enzymes as well as to predict HIV-1 coreceptor tropism.

METHODS: Patient-derived gag-p2/NCp7/p1/p6/pol-PR/RT/IN- and env-C2V3 PCR products were sequenced using the Ion Torrent PGM™. Reads spanning the 3'end of Gag, PR, RT, IN, and V3 regions were extracted, truncated, translated, and assembled for genotype and HIV-1 coreceptor tropism determination. Results were compared with i) virological response to treatment, ii) genotyping based on population sequencing, and iii) tropism based on population sequencing/Geno2Pheno and phenotypic assays.

RESULTS: DEEPGEN™HIV consistently detected both minority drug-resistant viruses and non-R5 HIV-1 variants from clinical specimens with viral loads ≥1,000 copies/mL, and from B and non-B subtypes. Additional mutations associated with resistance to PR, RT, and IN inhibitors, previously undetected by standard (Sanger) population sequencing, were reliably identified at frequencies as low as 1%. DEEPGEN™HIV correlated with phenotypic (original Trofile, 92%; ESTA, 80%; Trocai, 81%; and VeriTrop, 80%) and genotypic (population sequencing/Geno2Pheno 10% FPR, 84%) HIV-1 tropism tests. DEEPGEN™HIV (83%) and Trofile (85%) showed similar concordance with clinical response following an 8-day maraviroc monotherapy (MCT).

CONCLUSIONS: In summary, this novel all-inclusive HIV-1 genotypic and coreceptor tropism assay, based on deep sequencing of the PR, RT, IN, and V3 regions, permits the multiplex detection of low level drug-resistant and/or non-R5 viruses in up to 96 clinical samples simultaneously. This comprehensive test, the first of its class, will be instrumental in the development of new antiretroviral drugs and, more important, will aid in the treatment and management of HIV-infected individuals.

O058

APPLICATION OF CHANGE DETECTION AND ANCESTRAL STATE RECONSTRUCTION TO THE DETECTION OF NATURAL SELECTION

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Within-host evolution of HIV is strongly influenced by natural selection, notably mediated by the host's immune response. Selection is often measured by comparing the estimated rates of nonsynonymous and synonymous substitutions among genetic sequences. This approach is not designed to detect directional selection where the whole population is exposed to a relatively consistent selective environment, such as viruses within a given host.

The distribution of mutations in a phylogenetic tree relating individual viruses may retain signatures of past selective events. We generated 25 to 50 replicate trees by simulating the evolution of HIV populations under a Moran model with varying parameters. Directional selection acted on a single codon after a predefined time post infection. For each tree, we built up an alignment around the selected codon by simulating neutral evolution at 100 additional codons. To detect directional selection from these data, we adapted a technique from industrial QC and fault monitoring (change detection). We applied this method both directly to the exact trees and mutation distributions, and to trees inferred from the sequence data by maximum likelihood (RAxML) and distributions inferred by ancestral reconstruction (HyPhy).

In simulations of HIV evolution within hosts, the rate at which mutations accumulated at the selected codon tended to decline rapidly near the onset of directional selection. We found that the change detection technique was highly effective at using this signal to differentiate the codon under directional selection from the neutrally-evolving background. Change detection was fairly robust to varying effective population size, and sensitive to the intensity and timing of directional selection.

Understanding how HIV diversity is shaped by the host-specific immune response is a core challenge in vaccine research. Our change detection method provides a new approach to quantifying selective effects from large within-host HIV sequence data sets, such as those produced by next-generation sequencing.

O059

POPULATION-LEVEL PHYLOGENETIC ANALYSES QUANTIFY THE IMPACT OF CLINICAL, DEMOGRAPHIC, AND RISK FACTORS ON VARIATIONS IN HIV TRANSMISSION RATES IN BRITISH COLUMBIA, CANADA

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Phylogenetic clustering can quickly extract key epidemiological information from large phylogenies without compromising patient confidentiality. Each cluster is a set of closely related infections that can represent a sub-group exposed to high rates of HIV transmission. We performed a large-scale phylogenetic analysis of HIV sequences collected for routine genotyping in British Columbia (BC), Canada, to assess the impact of clinical, behavioural and demographic factors on rates of epidemic spread. Phylogenies were reconstructed from 100 bootstrap alignments of over 27,000 doubly anonymized bulk HIV pol sequences representing over 7,700 individuals – roughly half the estimated HIV prevalence in BC. Clusters were assembled from pairs of sequences from different individuals with short tip-to-tip distances (patristic distance <0.02). For every individual, we extracted the 'phylogenetic neighbourhood' of their earliest sequence, defined as the sequences from five other individuals with shortest patristic distances. Effects of group-level characteristics on the odds of clustering (as a proxy of variation in transmission rates) were assessed in a multivariate logistic model. A total of 4431 individuals grouped into 744 clusters largely separated by risk factors, including 71 clusters of 10 or more individuals (maximum 330). The mean log10 viral load of an individual's phylogenetic neighbourhood increased their odds of appearing in a cluster by 2.3 per log10 viruses per mL ($P<10–5$). Odds of clustering increased significantly with group prevalence of injection drug use (+2.1) and hepatitis C virus

coinfection (+2.7, P<0.001). These odds also increased significantly with lower mean ages at baseline (1.4 per decade, $P<10^{-6}$).
Secondary analysis of anonymized HIV sequences collected for routine drug resistance genotyping, integrated with clinical and epidemiological data, enables monitoring of the growth of phylogenetic clusters in near-real time at the group (but not the individual) level. Group-level characteristics of emerging phylogenetic clusters provide an important resource for targeting public health initiatives for HIV prevention.

O060
DIFFERING PATTERNS OF HCV ENVELOPE PROTEIN EVOLUTION DURING PREGNANCY ARE ASSOCIATED WITH HIV-1 COINFECTION

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BACKGROUND: As a result of shared transmission routes, coinfection with HIV-I and HCV is common. To date, HCV infection has not be shown to influence the course of HIV infection, but coinfection clearly worsens the prognosis of hepatitis C. HCV exists as quasispecies within the host, with most of genetic variability being located within hypervariable regions (HVRs) of the E2 envelope protein, which is targeted by host immune responses. During pregnancy, selective pressure exerted on HCV is largely focused on surface-exposed regions of E2, suggesting the involvement of humoral immunity. The objective of the study was a) to examine the potential association between HCV quasispecies evolution based on E2 sequences and maternal humoral immune responses; and b) to determine whether coinfection with HIV-1 can impact maternal immunity and/or HCV evolution.

METHODS: Serum samples from pregnant women infected with HCV alone (mono-infection; n=15) or coinfected with HIV-I (n=17) were obtained in the first, second and third trimesters of pregnancy and in the postpartum period. HCV RNA was extracted from serum, amplified by RT-PCR, and sequenced on a Roche 454 GS-FLX System. The presence of neutralizing antibodies in maternal serum was assessed by infecting Huh7.5 cells with HCVpp engineered to express autologous E2 segments. Analysis using the Morisita-Horn similarity index revealed that the rate of HCV quasispecies evolution between the third trimester and the postpartum period was significantly higher in mono-infected subjects as compared with coinfected subjects (P=0.0169; Mann-Whitney U test).

CONCLUSIONS: Differential turnover of HCV quasispecies in mono-infected versus coinfected subjects suggests that maternal immune responses drive HCV quasispecies evolution directly following childbirth, and that coinfection with HIV-1 interferes with those responses. Coinfection might lead to reduced rates of spontaneous HCV clearance in the mother and/or to higher rates of mother-to-child HCV transmission.

O061
DEGRADE OR DIE: MOLECULAR INTERROGATION OF THE HIV-1 VIF/APOBEC3F INTERACTION

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Four related human DNA cytosine deaminases restrict HIV-1 replication in T cells: APOBEC3D, 3F, 3G and 3H. The HIV-1 protein Vif counteracts these restrictive APOBEC3 proteins by binding and targeting them for proteasomal degradation, allowing HIV-1 replication to occur. Although we now have structural information about APOBEC3F and Vif, separately, it remains unknown how these proteins interact. To delineate the APOBEC3F/Vif interaction surface, we used a genetic approach, comparing the amino acid sequences of human APOBEC3F with rhesus macaque APOBEC3F. Although the proteins are phylogenetically related and share 88% identity, only human APOBEC3F is targeted for degradation by HIV-1 Vif. Our previous studies demonstrated that a single amino acid change at position 324 in human APOBEC3F from a glutamate to a lysine (the corresponding rhesus residue) was sufficient to render human APOBEC3F resistant to HIV-1 Vif, but the reciprocal substitution failed to make rhesus APOBEC3F fully susceptible to HIV-1 Vif. We hypothesize that multiple reciprocal changes will be necessary to render rhesus APOBEC3F fully susceptible to HIV-1 Vif. We generated a series of human/rhesus APOBEC3F chimeric proteins along with single amino acid residue changes and tested them for their sensitivity to HIV-1 Vif and restriction of HIV-1 in both single-cycle and spreading infectivity assays. This approach mapped the regions and residues that define the APOBEC3F/Vif interaction to an extensive, solvent-exposed APOBEC3F surface. A better understanding of the APOBEC3/Vif interaction may inform novel therapeutic strategies to enable the innate immune proteins to completely suppress HIV-1 replication.

O062
GENERATION AND CHARACTERIZATION OF A GROUP OF NOVEL CCR5 TROPIC SHIVENV CHIMERIC VIRUSES

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New simian-human inmmunodeficiency chimeric viruses with an HIV-1 env (SHIVenv) are critical for studies on HIV pathogenesis, vaccine development, and microbicide testing. However, to date, few SHIVenv viruses can maintain stable and prolonged infection in macaques. Instead of individual and serial testing new SHIV constructs, a pool of SHIVenvB derived from 20 acute HIV-1infections (AHI, subtype B) were constructed using a novel yeast-based SHIV cloning approach and then used to infect macaques, and one of SHIVenv (i.e. SHIVenvB3) virus successfully established infection in macaques. Analyses of viral proteins showed that, over 80% of the constructs (pREC_SHIVenvB and pREC_HIV-1envB) produced SHIV or HIV chimeric with wild type levels of capsid (p27 or p24) content, reverse transcriptase (RT) activity, and expressed envelope glycoproteins that could bind to cell receptors CD4/CCR5 and mediate virus entry. Although the HIV-1env chimeric viruses propagated in susceptible cell lines, 16 SHIVenvB variants showed only limited replication in macaque peripheral blood mononuclear cells (PBMCs) and 174×CEM. CCR5 cell line. The AHI HIV-1envB chimeric virus showed minor variations in cell entry efficiency and kinetics as well as replicative fitness based on dual infections with three competitor viruses, derived from chronic infections. However, further sequence analyses revealed that B3 env protein has less glycosylation sites, which possibly renders the virus higher transmission efficiency and results in successful establishment of infection in Rhesus macaque.

Track B: Clinical Sciences: HIV in Pregnant Women, Children, and Adolescents

Volet B : Sciences cliniques : Le VIH chez les femmes enceintes, les enfants et les adolescents

O063
ADEQUACY OF PRENATAL CARE IN WOMEN LIVING WITH HIV: 2002-2011

Ng, Ryan H[1]; Macdonald, Erin[1]; Bayoumi, Ahmed[1]; Raboud, Janet[1]; Brophy, Jason[2]; Masinde, Khatundi-Irene[1]; Tharao, Wangari E[1]; Yudin, Mark H[1]; Loutfy, Mona[1]; Glazier, Richard H[1]; Antoniou, Tony[1]
[1]Toronto; [2]Ottawa, ON

BACKGROUND: Adequate prenatal care has been shown to reduce perinatal morbidity and mortality. However, there are no population-based studies examining the adequacy of prenatal care among women living with HIV. Accordingly, we compared the prevalence of adequate prenatal care among women living with and without HIV infection between the ages of 18 to 49 years who had a live birth between April 1, 2002 and March 31, 2011.

METHODS: We determined adequacy of prenatal care using the revised GINDEX, which is calculated based on the number of prenatal care visits, the month care prenatal care was initiated, and gestational age. We used generalized estimating equations with a logit link function to derive adjusted odds ratios (aORs) and 95% CI for the association of HIV infection with adequacy of prenatal care, and to assess predictors of adequacy of prenatal care among women living with HIV.

RESULTS: Between 2002/3 and 2010/11, a total of 1,151,627 live births were available for analysis, of which 652 (0.06%) were among women living with HIV. Overall, 20.4% of women living with HIV received adequate prenatal care, compared with 25.3% of women not living with HIV. Following multivariable adjustment, women living with HIV were less likely to receive adequate prenatal care (aOR 0.80 [95% CI 0.65 to 0.99]) than women not living with HIV. Women living with HIV originally from Africa and the Caribbean were less likely to receive adequate prenatal care relative to Canadian-born women, regardless of whether they were recent (ie, ≤5 years; aOR 0.41 [95% CI 0.22 to 0.75]) or non-recent (ie, >5 years; aOR 0.51 [95% CI 0.26 to 0.99]) immigrants.

CONCLUSION: Disparities exist in the receipt of adequate prenatal care between women living with and without HIV and among women with HIV originally from Africa and the Caribbean.

O064
POSTPARTUM HOSPITALIZATIONS AMONG WOMEN LIVING WITH HIV AND THEIR INFANTS IN ONTARIO: A POPULATION-BASED STUDY

Ng, Ryan H[1]; Macdonald, Erin[1]; Bayoumi, Ahmed[1]; Raboud, Janet[1]; Brophy, Jason[2]; Masinde, Khatundi-Irene[1]; Tharao, Wangari E[1]; Yudin, Mark H[1]; Loutfy, Mona[1]; Glazier, Richard H[1]; Antoniou, Tony[1]
[1]Toronto; [2]Ottawa, ON

BACKGROUND: Maternal and neonatal readmissions are associated with high economic costs, disruption of early parenting, and increased family burden. We compared the risk of postpartum maternal and infant hospitalizations among pregnancies in women living with and without HIV infection between the ages of 18 to 49 years between April 1, 2002 and March 31, 2011.

METHODS: We conducted a population-based study using Ontario's health administrative data. Generalized estimating equations with a logit link function were used to derive adjusted odds ratios (aORs) and 95% CIs for the association of HIV infection with maternal postpartum hospitalizations within 30 days of delivery and infant hospitalizations within 30 and 60 days of delivery.

RESULTS: Between 2002/3 and 2010/11, a total of 1,152,969 live births were available for analysis, of which 652 (0.06%) were to women living with HIV. The proportion of women who were re-hospitalized within 30 days of delivery was higher among women living with HIV (n=18 [2.8%]) relative to women not living with HIV (n=12,622 [1.1%]) (P<0.001), while the proportions of infant admissions within 30 (2.6% versus 3.7%; P=0.15) and 60 (4.9% versus 4.9%; P=0.98) days of delivery were similar. Following multivariable adjustment for demographic variables, maternal comorbidity, adequacy of prenatal care, mode of delivery and neighborhood instability and deprivation, the risk of postpartum readmission (aOR 1.56 [95% CI 0.96 to 2.56]) was higher women living with HIV relative to women not living with HIV.

CONCLUSION: Women living with HIV are at higher risk of postpartum hospitalization relative to women not living with HIV. In contrast, no such risk was observed for infant admissions. Future research is required to identify factors associated with postpartum hospitalization among women living with HIV.

O065
SAFETY OF COMBINATION ANTIRETROVIRAL THERAPY AS HIV-POST EXPOSURE PROPHYLAXIS IN HIGH RISK HIV-EXPOSED NEONATES

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[1]Montreal, QC; [2]Toronto; [3]Ottawa, ON

BACKGROUND: Triple combination antiretroviral therapy (cART) has been routinely prescribed in our institutions to infants born to mothers with inadequate HIV virologic suppression (documented or suspected) late in gestation. The purpose of this review was to assess the safety of neonatal cART.

METHODS: Children born prior to 2014 were eligible if born to an HIV-infected mother and initiated on cART within 72 h of birth. Data were extracted by retrospective chart review. Laboratory measures of possible toxicity were compared to zidovudine monotherapy (ZDV) recipients from one institution (2010 to 2012).

RESULTS: 131 cART-treated and 145 ZDV-treated infants were included. Neonatal cART (39% nevirapine-based; 56% nelfinavir-based; 5% lopinavir-based) was initiated because of detectable maternal viral load (VL) prior to or at the time of labor in 79%; other reasons included maternal late diagnosis, treatment refusal or non-adherence. The mean age, VL and CD4 count of mothers was 29.2±5.1 years, 7971±18985 copies/mL and 406±246 cells/mm^3. Modes of delivery were spontaneous vaginal delivery (38.2%), elective C-section (47.3%) and emergency C-section (14.5%). Vertical transmission rate was 9% (12/130). Mean birth weight and gestational age at birth was 2.93±0.61 kg and 37.7±2.7 weeks, respectively. Reported possible adverse events included rash (11%), vomiting (5%), jitteriness (5%), diarrhea (4%) and lethargy (4%). At one month of age severe anemia (hemoglobin <80 g/L) and neutropenia (<750/mm^3) was observed in 4.2% and 9.5%, respectively. The frequency of moderate/severe anemia (<95 g/L) and neutropenia (<1000/mm^3) did not differ significantly between cART and ZDV recipients (25% versus 21%, P=0.48; 19% versus 11%, P=0.08). Premature treatment discontinuation due to possible adverse events occurred in 6% of cART-treated and 3% of ZDV-treated infants.

CONCLUSIONS: cART is well tolerated by most HIV-exposed neonates. Anemia and neutropenia are common, but reversible. Controlled trials are needed to determine the safety, efficacy and pharmacokinetics of cART in neonates.

O066
ANTIRETROVIRAL DRUG USE DURING PREGNANCY AND RISK OF PREMATURE DELIVERY: A RETROSPECTIVE MATCHED COHORT STUDY

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Toronto, ON

OBJECTIVE: To determine whether HIV-positive women on antiretroviral therapy during pregnancy are at increased risk of adverse infant outcomes including preterm birth (PTB), low birth weight (LBW) and small for gestational age (SGA), when compared to HIV-negative women.

METHODS: A retrospective matched cohort study of 384 women was conducted at St. Michael's Hospital in Toronto, ON, comparing pregnancy outcomes of HIV-positive women treated with antiretroviral therapy (n=96) to HIV-negative women (n=288) who delivered between January 2007 and December 31st, 2012. The women were identified and matched in a 1:3 ratio for year of birth, age, parity and number of fetuses. Univariate and multivariate logistic regression models were used, adjusting for covariates, to compare the two groups on adverse infant outcomes including PTB, LBW and SGA.

RESULTS: Depite matching, baseline characteristics differed for race and history of preterm birth (p <0.01). Univariate analysis initially revealed a 2-fold increase in the rates of PTB, LBW and SGA, but once odds ratios were adjusted for race and history of preterm birth, no statistical difference remained between the two groups for: preterm birth aOR 1.2 (95% CI 0.3 to 4.6); low-birth weight aOR 1.21 (95% CI 0.32 to 4.67); and small for gestational age infants aOR 1.28 (95% CI 0.43 to 3.81).

CONCLUSION: Among a population of HIV-positive pregnant women on antiretroviral therapy in Canada, there were no increased odds of preterm birth, low birth weight and small for gestational age infants when compared to matched HIV-negative women.

O067
IS FUNCTIONAL HIV CURE POSSIBLE FOLLOWING PERINATAL INFECTION? A CAUTIONARY TALE

Samson, Lindy M[1]; Brophy, Jason[1]; Bitnun, Ari[2]; Kakkar, Fatima[3]; Soudeyns, Hugo[3]; Ostrowski, Mario[2]; Kim, John[1]; Sandstrom, Paul[1]; Chun, Tae-Wook[4]; Read, Stanley E[2]
[1]Ottawa; [2]Toronto, ON; [3]Montreal, QC; [4]Bethesda, MD, USA

BACKGROUND: The possibility of eradicating HIV following early initiation of combination antiretroviral therapy (cART) and sustained viral suppression (SVS) is of current interest. We report one such child who discontinued therapy and had rapid viral rebound.

METHODS: History and laboratory testing are summarized. HIV-specific T-cell responses were measured by ELISPOT assay. Plasma viremia and cell-associated HIV-1 RNA were determined by Cobas Amplirep/Cobas Taqman HIV-1 Test, cell-associated HIV-1 DNA by real-time PCR and presence of replication competent virus by culture of stimulated CD4+ T-cells.

RESULTS: An infant whose mother had inadequately controlled HIV infection at delivery, commenced nevirapine-based cART on the day of birth. HIV DNA PCR was positive on day 6 and initial viral load (VL) on day 28 was 808 c/mL. Maternal genotyping demonstrated NNRTI resistance, and cART was changed on day 25 to a lopinavir/ritonavir-based regimen. SVS was achieved at 175 days, and remained so for 2.5 years except for a single measurement of 40 c/mL. At age 3, HIV serology and ultrasensitive VL were negative. Cell-associated proviral DNA (detection limit 2.6 copies/µg DNA) was undetectable, whereas cell-associated RNA was 149 copies/1.5 µg RNA. Replication competent virus was not demonstrated in stimulated CD4+ T-cell co-culture (6.7 million cells). At age 3.25 years, cART was interrupted following adherence difficulties. Two and four weeks later, VL was 7797 c/mL and 11358 c/mL respectively. HIV-1 specific T-cell responses to gag and nef were also positive. Repeat serology is pending.

CONCLUSIONS: Viral resistance to the initial cART regimen, prolonged time to SVS and residual HIV replication (as evidenced by history of a single detectable VL) may have contributed to the development and persistence of viral reservoirs in this child. Caution should be exercised prior to attempting treatment interruption to evaluate for potential cure in this setting.

O068
PLANNING RESEARCH FOR TRANSITION OF HIV-INFECTED ADOLESCENTS IN CANADA – OUTCOMES FROM A NATIONAL RESEARCH PLANNING MEETING

Brophy, Jason C[1]; Kakkar, Fatima[2]; Kennedy, Logan[3]; Bitnun, Ari[3]; Alimenti, Ariane[4]; Vaudry, Wendy[5]; Seigel, Sandra[6]; Karatzios, Christos[2]; Clark, Michael[1]; Samson, Lindy[1]; Lamarre, Valerie[2]; Lapointe, Normand[2]; Gough, Kevin[3]; Arbess, Gordon[3]; Angel, Jonathan[1]; Klein, Marina[2]; Loutfy, Mona[3]
[1]Ottawa, ON; [2]Montreal, QC; [3]Toronto, ON; [4]Vancouver, BC; [5]Edmonton, AB; [6]Hamilton, ON

BACKGROUND: With increasing numbers of perinatally-infected youth moving from pediatric to adult clinics, the transition process has emerged as an important issue in their care. In April 2013, a CIHR planning grant brought together HIV care providers (HCPs) from across Canada, national and international experts on transition and adolescent HIV cohort research, and HIV-infected youth who had recently transferred from pediatric to adult care. The purpose was to discuss transition and identify priorities to advance a Canadian research agenda.

DESCRIPTION: Pediatric and adult HCPs from six Canadian cities participated. They were asked to itemize their program's transition resources and activities, and identify challenges and successes within their respective programs. Priorities for transition programming and plans for future research were discussed by the assembled team.

LESSONS LEARNED: The seven pediatric centers care for 132 patients, 13 to 18 years of age, representing approximately 94% of children who will transition to adult care in the next five years. Only two sites had a formal transition process in place, and one additional site had a hospital transition program that had not been adapted for the HIV clinic. Transition generally occurred between 17 and 19 years of age. The five participating adult centers reported that transitioned patients represent approximately 1% of their total population (one combined pediatric-adult clinic had 3% transitioned patients). Adult clinics' challenges in caring for transitioned youth included antiretroviral resistance and non-adherence, engagement in care, and mental health issues.

NEXT STEPS: The team agreed that operational definitions of "transition success" are needed, and should incorporate both engagement/retention and virologic/immunologic outcomes. Members agreed on a common approach to transition preparation, and shared tools for specific activities. A detailed cross-sectional description of the current cohort will be undertaken to plan for a transition cohort to evaluate post-transition success and/or interventions to improve outcomes.

Track C: Epidemiology and Public Health: Regional, National and International Cohort Studies

Volet C : Épidémiologie et santé publique : Études de cohorte régionales, nationales et internationales

O069
COHORT PROFILE: COMPARISON OF OUTCOMES AND SERVICE UTILIZATION TRENDS BETWEEN HIV-POSITIVE INDIVIDUALS AND THE GENERAL POPULATION OF BRITISH COLUMBIA (BC), 1996 TO 2010

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[1]Burnaby; [2]Vancouver, BC

BACKGROUND: The primary objective of this study is to evaluate the determinants of health outcomes and healthcare services utilization among HIV+ individuals in the ART era in BC and to compare these trends to those observed in a random sample of the general population.

METHODS: Our work is based on a new population-based study – the Comparative Outcomes And Service utilization Trends (COAST) study – comprising three defined cohorts including de-identified health-related data from the BC Centre for Excellence in HIV/AIDS and Population Data BC for the period April 1, 1996 to March 31, 2010. Validated case-finding algorithms were applied to identify all HIV+ adults (≥19 years) across BC to create two HIV+ cohorts that were differentiated by whether or not participants had ever accessed antiretroviral regimens (ARVs). The third cohort, a random 1% sample of adults in BC was used as a comparison. We assessed patterns of mortality, comorbidities and healthcare service use for these three cohorts. Our analysis of health care service use included inpatient/outpatient care and emergency room visits, hospitalizations, mental health services and non-ARV prescriptions. Additionally, AIDS-defining, virological, and immunologic outcomes were accessed in the HIV+ cohorts.

COHORT COMPOSITION: The COAST study comprises of 60,413 men and women, of which 12,730 (21%) are HIV+. The HIV+ cohort who has ever accessed at least one ARV consisted of 8620 individuals with a median age of 37 years (32 to 44 years), was primarily men (83%) and had 66,601 person-years (PY) of follow-up. The HIV+ ARV-naive cohort (n=4110) had 76% men, a median age of 38 years (32 to 46 years) and 13,907 PY. The cohort comprising a random sample of the BC population consisted of 47,683 individuals (51% men) with a median age of 34 years (21 to 49 years) and 472,443 PY.

SUMMARY: This population-based longitudinal study is one of the first to use the general population as a comparison. Hopefully, future work with these cohorts will improve our understanding of the ageing process and impact of comorbidities on health among HIV+ individuals over time.

O070

"THE CANGO LYEC PROJECT – HEALING THE ELEPHANT–": WOMEN AT RISK – DIFFERENCES IN HIV RISK FACTORS BETWEEN MEN AND WOMEN IN POST CONFLICT NORTHERN UGANDA

Muyinda, Herbert[1]; Malamba, Samuel[2]; Tebere, Lillian[3]; Blair, Alden H[4]; Ogwang, David M[3]; Odong, Patrick[5]; Katamba, Achilles[1]; Kitandwe, Paul[2]; Kinyanda, Eugene[2]; Mugisha, James[1]; Sewankambo, Nelson[1]; Kiwanuka, Noah[2]; Patel, Sheetal[6]; Spittal, Patrica M[4]; Schechter, Martin T[4]
[1]Kampala, Uganda; [2]Entebbe, Uganda; [3]Gulu, Uganda; [4]Vancouver, BC; [5]Amuru, Uganda; [6]Ottawa, ON

BACKGROUND: Exposure to war related violence in Northern Uganda has been well documented and may be accelerating HIV spread. The Northern Uganda cohort study allowed us to study prevalence and risk factors for HIV infection in this post conflict region.

METHODS: The "Cango Lyec Project" is a cohort study involving Gulu, Amuru and Nwoya districts in Northern Uganda. We randomly selected study communities and conducted a house-to-house census that mapped and enumerated the entire population All residents 13 to 59 years of age living in the selected communities between October 2011 and July 2012 who consented to participate in the survey and to HIV testing were recruited and completed trauma, depression and sociodemographic-behavioural surveys conducted in Luo.

RESULTS: Of 2448 participants, 58.2% were females; 24% had been abducted by the rebels and 23% raped while in captivity. HIV prevalence was 14.4% [12.6, 16.4] in women versus 7.9% [6.3, 9.7] in men (P<0.001). PTSD was observed in 13.9% [12.1, 15.8] in women compared to 8.6% [7.0, 10.5] in men and depression was reported by 19.9% [17.8, 22.0] of women and 8.2% [6.6, 10.1] of men (P<0.001). HIV among women in study communities ranged from 19.8% to 7.7%. Among sexually active men, HIV positivity was associated with never using condoms with most recent sex partner (AOR 2.03 [95% CI 1.09 to 3.78]); history of genital ulcers in last year (AOR 4.64 [95% CI 2.2 to 9.4]); and residing in Gulu district (AOR 1.83 [95% CI 0.98 to 3.42]). For sexually active women, HIV positivity was associated with never use of condoms with most recent sex partner in last year (AOR 1.83 [95% CI 1.28 to 2.62]), genital ulcers in last year (AOR 2.51 [95% CI 1.65 to 3.82]), war related sexual violence (AOR 1.80 [95% CI 1.19 to 2.73]), depression (AOR 1.82 [95% CI 1.26 to 2.64]) and residing in Gulu district (AOR 1.45 [95% CI 1.04 to 2.04])

CONCLUSIONS: Women are disproportionately impacted by both HIV infection and trauma and depression in this post conflict-affected population. Trauma informed HIV prevention and culturally safe mental health care initiatives are urgently required.

O071

PREDICTORS OF UNSTRUCTURED ANTIRETROVIRAL TREATMENT INTERRUPTION AND RESUMPTION AMONG HIV-POSITIVE INDIVIDUALS IN CANADA

Samji, Hasina[1,2]; Taha, Taha T[2]; Moore, David[1]; Burchell, Ann N[3]; Cescon, Angela[1]; Cooper, Curtis[4]; Raboud, Janet M[3]; Klein, Marina B[5]; Loutfy, Mona R[3]; Machouf, Nima[5]; Tsoukas, Chris M[5]; Montaner, Julio[1]; Hogg, Robert S[1,6]; Canadian Observational Cohort, The[1]
[1]Vancouver, BC; [2]Baltimore, MD, USA; [3]Toronto; [4]Ottawa, ON; [5]Montreal, QC; [6]Burnaby, BC

BACKGROUND: Sustained optimal use of combination antiretroviral treatment (cART) has been shown to decrease morbidity, mortality and HIV transmission. However, incomplete adherence and treatment interruptions (TI) remain substantial challenges to the full realization of the promise of cART. We estimated trends and predictors of treatment interruption (TI) and resumption among HIV-positive cART-naive individuals in the Canadian Observational Cohort (CANOC) collaboration.

METHODS: CANOC is a national collaboration of eight cohorts in three provinces (British Columbia, Quebec, and Ontario) of antiretroviral-naive HIV-positive individuals ≥18 years of age initiating cART after January 1, 2000. We defined TIs as ≥90 consecutive days off cART. We used descriptive analyses to study TI trends over time and Cox regression to identify factors predicting time to first TI and time to treatment resumption after a first TI.

RESULTS: A total of 7633 CANOC participants initiated cART between 2000 and 2011, of whom 1860 (24.5%) had at least one TI ≥90 days. The prevalence of TI in the first calendar year of cART decreased by half over the study period. Our analyses highlighted a higher risk of TI among women (adjusted hazard ratio [aHR] 1.59 [95% CI 1.33 to 1.92]), younger individuals (1.27 [95% CI 1.15 to 1.37], per 10 year increase), individuals who initiate treatment earlier in the course of their disease (CD4 cell count ≥350 versus <200 mm3, aHR 1.46 [95% CI 1.17 to 1.81]), those with Aboriginal ancestry (aHR 1.67 [95% CI 1.27 to 2.20]), a history of injecting drug use (aHR 1.43 [95% CI 1.09 to 1.89]), and use of zidovudine versus tenofovir in the initial cART regimen (aHR 2.47 [95% CI 1.92 to 3.20]). Conversely, factors predicting treatment resumption were male sex, older age, and a CD4 cell count <200 mm^3 at cART initiation.

CONCLUSIONS: Despite significant improvements in cART since its advent, our results demonstrate that the frequency of TI remains relatively high in a setting of universal free access to HIV care. Strategies to support continuous HIV treatment are needed to maximize the benefits of cART.

O072

FINDINGS FROM FOLLOW UP AND DE-ENROLLMENTS IN A NIGERIAN COHORT OF HIV SERODISCORDANT COUPLES

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[1]Abuja; [2]Jos, Nigeria; [3]Baltimore, MD, USA

BACKGROUND: Cohorts of HIV serodiscordant couples have been used for prevention studies as well as for understanding protection factors in HIV exposed and uninfected individuals. Follow up of individuals who are exposed to HIV is crucial for capturing information on retention rates, risk factors, HIV incidence and immune correlates to protection.

METHOD: A total of 540 Nigerian couples were confirmed HIV serodiscordant and the HIV seronegative partners were enrolled into the NICCAV study. Eligibility of each enrollee was assessed at every of the 11 follow up visit with the use of behavioral data, medical examinations and laboratory tests. Termination from the study was based on not meeting eligibility criteria of the study. Study defaulters were tracked back through phone calls and home visits.

RESULTS: Of the 540 HIV negative study enrollees, a total of 88 (16.3%) were de-enrollment after a follow up of 26 months. Reasons for de-enrollments included; unwilling to continue 25 (28.4%), pregnancy in females 18 (20.5%), death of enrollee 4(4.5%), death of HIV positive partner 20 (22.7%). Enrollee deaths were due to illnesses like liver cirrhosis while AIDS related illness accounted of the death of 20 HIV+ partners. The average CD4 count and viral loads of the deceased HIV+ partners were 235 cells/μL and 257,445 copies/mL respectively despite being on ARTs for an average of five years. Those unwilling to continue in the study reported several reasons ranging from bad road networks, religious crisis, busy schedules and stigma.

CONCLUSIONS: Our data shows that despite access to treatment to the infected partners, there are still a significant number of AIDS related deaths in HIV+ partners underscoring the challenges of adherence. Focus must be directed towards counseling and re-consenting to make sure enrollees understand the importance of completing a clinical trial and additional support should be considered for their HIV+ partners to be adherent to ART.

O073

THE CEDAR PROJECT: CHILDHOOD MALTREATMENT AND HIV RISK AMONG YOUNG ABORIGINAL PEOPLE WHO USE DRUGS IN THREE CANADIAN CITIES

Cedar Project Partnership, The[1,2,3]; Pearce, Margo E[2]; Jongbloed, Kate[2]; Christian, Wayne M[4]; Schechter, Martin T[2]; Spittal, Patrica M[2]
[1]Prince George [2]Vancouver, [3]Chase; [4]Enderby, BC

BACKGROUND: Aboriginal communities are deeply concerned about the role of childhood maltreatment in long-term risk for HIV infection among young Aboriginal people who use drugs.

METHODS: The Cedar Project is a cohort of young Aboriginal people (14 to 30 years of age) who use drugs in Vancouver, Prince George, and

Chase, BC. We used confirmatory factor analysis (CFA) to assess the validity of the 25-item Childhood Trauma Questionnaire (CTQ). Generalized linear mixed models (GLMM) explored associations of CTQ abuse-type scores with HIV risk behaviours between 2003 and 2012, adjusting for confounders. Adjusted odds ratios (AOR) and 95% CIs were estimated.

RESULTS: Overall, 266 participants (53% women) completed the CTQ and at least one follow-up. Most (86%) experienced at least one form of maltreatment; 38.7% reported severe sexual abuse, 41.4% severe physical abuse, 33.8% severe emotional abuse, and 60.9% severe physical or emotional neglect. Significantly more participants in Prince George reported severe sexual (P=0.017) and emotional abuse (P=0.30), while those in Chase had lower frequency and severity of all abuse-types. CFA demonstrated good fit to the predicted factor structure (Comparative-Fit-Index=0.973, Root-Mean-Square-Error-Approximation=0.975, Standardized-Root-Mean-Square-Residual=0.085). In GLMM analyses, a one-unit increase in sexual abuse severity increased odds for injecting drugs by 9% (95% CI 1.03 to 1.14), sex work by 17% (95% CI 1.12 to 1.22), inconsistent condom use by 8% (95% CI 1.03 to 1.13), and HCV infection by 9% (95% CI 1.00 to 1.19). A one-unit increase in emotional abuse severity increased odds for borrowing syringes by 5% (95% CI 1.01 to 1.12), and inconsistent condom use by 8% (95% CI 1.02 to 1.14). Each unit increase in emotional neglect severity increased odds for injection drug use by 11% (95% CI 1.02 to 1.20), sex work by 10% (95% CI 1.02 to 1.20), and, in unadjusted analysis, HIV infection by 14% (95% CI 1.04 to 1.26).

CONCLUSION: The severity of childhood maltreatment among Cedar Project participants continues to have grave consequences for HIV risk. Prevention programming must consider the legacies of historical and lifetime traumas among young Aboriginal people who use drugs.

O074
THE CEDAR PROJECT: PREDICTORS OF MORTALITY AMONG YOUNG ABORIGINAL PEOPLE WHO USE DRUGS IN BRITISH COLUMBIA

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[1]Vancouver; [2]Enderby, BC

BACKGROUND: Young Aboriginal people who use injection and non-injection drugs in British Columbia (BC) may face increased risk of mortality due to vulnerability associated with drug use. As few studies have examined causes and rates of death within this population, this study identified patterns of mortality among young Aboriginal people who use drugs in BC.

METHODS: The Cedar Project is a cohort of 605 young Aboriginal people who use illicit drugs in Vancouver and Prince George, BC. Since 2003, 36 deaths have been identified by staff and confirmed through coroner's reports, death registration, news reports and obituaries. Crude mortality rate was calculated using person-time methods. Indirect standardized mortality rate was calculated using the age-specific mortality rate of Canadians in 2008. Analyses were censored on March 31, 2013. Predictors of mortality were identified using Cox regression with a cutoff of P<0.1 for inclusion in the multivariate model.

RESULTS: Participants accumulated 5099 person-years of follow-up resulting in a crude mortality rate of 706 per 100,000 person-years. Participants were 83.1 times (95% CI 59.9 to 115.2) more likely to die than Canadians the same age. Causes of deaths include: overdose (n=11), substance abuse (n=5), suicide (n=4), HIV-related (n=3), homicide (n=2), other (n=6), under investigation (n=3) and unknown (n=2). Being female, ever being paid for sex, ever injecting, ever being in jail, ever receiving methadone, ever overdosing, age at first drug smoking, HIV infection, HCV infection and recent injection predicted mortality in unadjusted Cox models. In adjusted analyses, ever having injected (HR 5.37 [95% CI 1.27 to 22.66]) remained significantly associated with time to death.

CONCLUSIONS: Aboriginal young people who use drugs are dying at a rate more than 80 times other Canadians their age. Injection drug use appears to be an important contributor to their early mortality. The vulnerability of these young people is extreme and must be addressed.

Track D: Social Sciences: Social, Structural, and Systemic Drivers and Contexts of HIV Risk

Volet D : Sciences sociales : Facteurs sociaux, structurels et systémiques et contextes du risque lié au VIH

O075
WHAT GOES AROUND: HOW PEERS USE THEIR SOCIAL NETWORKS TO SHARE STBBI EDUCATION AND INFORMATION

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The 595 Prevention Team, formerly the Manitoba Harm Reduction Network, is a Manitoba-wide organization that works with Peers, network members, policy makers, community leaders, and academics to make recommendations about the development, implementation, and evaluation of prevention initiatives focused on sexually transmitted and blood borne infections (STBBI). The 595's work is largely steered by the Peers – a group of 20 individuals who identify as members of a community affected by HIV and/or HCV, and who are actively involved in reducing the transmission of STBBIs. The Peer group includes individuals with a diverse range of experiences, such as individuals involved in sex work, transgender individuals, people who use substances, and people who are HIV and/or HCV positive.

In 2013, the 595 Peers undertook a community based research project entitled "What Goes Around: How Peers Use Their Social Networks to Share STBBI Education and Information". Building upon previous Peer-led community based research projects, the Peers wanted this initiative to explore their role as "natural helpers"; to share information about the many ways in which the Peers are, of their own volition, sharing harm reduction information and supplies within their personal networks. This presentation will share the results of this research, including what the Peers identified as key messages for safer drug use and for safer sex, who Peers are sharing harm reduction information and/or supplies with within their social networks, who Peers won't share information with and what topics are off limits, the settings in which Peers share harm reduction information, the barriers Peers identified to sharing information within their social networks, and implications for policy and programming based on these results. This research invites us to reflect on how we can better support and utilize the natural helpers in our communities in order to prevent sexually transmitted and blood borne infections.

O076
AN ETHNO-EPIDEMIOLOGICAL STUDY OF THE IMPACT OF 'RED ZONE' RESTRICTIONS ON ACCESS TO CARE AND DRUG-RELATED HARMS AMONG PEOPLE WHO INJECT DRUGS IN VANCOUVER, CANADA

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BACKGROUND: Across Canada, sentencing and release conditions for people who use drugs (PWUD) have increasingly included supervisory orders, termed 'red zone' restrictions, that prohibit them from being present in specified drug scene locations. Given their potential to impact access to health and harm reduction services, including HIV care, this ethno-epidemiological study examined how 'red zone' restrictions shape access to care and drug-related harms among PWUD.

METHODS: Semi-structured qualitative interviews and mapping exercises were completed with twenty-four PWUD recruited from among participants in ongoing observational cohort studies of street-involved youth (ARYS) and drug-using populations (VIDUS and ACCESS) in Vancouver, Canada. Cohort participants who reported having 'red zone' restrictions in surveys completed within the previous two years were eligible to

participate in the qualitative component. Interview transcripts were analyzed thematically and triangulated with mapping data to examine the impacts of 'red zone' restrictions.

RESULTS: Most participants initially complied with their 'red zone' restrictions, and those prohibited from entering areas where they accessed health and harm reduction services reported that these restrictions compromised their ability to enact risk reduction and access HIV care. Many participants also described how compliance with these restrictions interrupted their access to income-generating opportunities (eg, drug dealing) and regular sources of drugs, which in turn resulted in drug-related harms (eg, increased withdrawal symptoms, assault when buying drugs). Given these harms, most participants eventually ignored their 'red zone' restrictions and instead enacted strategies to minimize the likelihood of arrest for breaching these release conditions.

CONCLUSION: 'Red zone' restrictions were largely unsuccessful in reducing drug scene participation, and functioned to increase drug-related risks and decrease access to HIV care. These findings underscore the need to reconsider this distinct structural driver of drug-related harm.

O077
PERCEPTIONS OF CONDOM NORMS AMONG RECENT SEROCONVERTERS

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This study examines the perceptions of men have recently seroconverted concerning the condom preferences of recent sex partners. It draws on interviews with 51 new seroconverters, 49 of whom are gay or bisexual, from two downtown Toronto clinics, who respond to the question, Do you find the guys [girls] you meet often do or don't want to use condoms? Participation in drug-using and bareback sites is high. Of the 51 interviewees, nine report being a part of the PNP or crystal meth scene, 13 have profiles on the website, barebackrt.com (bbrt), and nine report both a profile on bbrt and PNP scene. The leading narrative among these 31 shows a perception that men do not want to use condoms, followed by narratives about encountering a mix of men wanting sex with or without condoms. Others report too limited recent experience to form an opinion or claim that prospective partners may be deceitful about serostatus. The leading narrative for men outside the PNP/bbrt scene is that men do want to use condoms, followed by narratives about encountering a mix of men wanting and not wanting to use condoms.

CONCLUSION: These narratives suggest that lack of condom use is not simply a direct effect of drug use but rather that the PNP scene and bbrt site act as nodes in a habitus where condom use has come to been seen as unnecessary or not normative. It raises the question of the pathways into and out of these scenes and whether men in these scenes can be engaged to reduce the vulnerability of participants who have not yet seroconverted.

O078
MAPPING CANADIAN MEDIA'S RESPONSE TO HIV/AIDS: LESSONS FOR EDUCATIONAL INTERVENTION WORK WITH GAY/BISEXUAL MEN

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BACKGROUND: Empirical studies demonstrate news media have played a significant role in shaping public perceptions and public health policy responses to the HIV/AIDS epidemic . Surprisingly, little research has been conducted on Canadian media's HIV messaging. Our pilot study represented a first step in addressing literature gaps. Our **Hypothesis:** shifting thematic trends in news media's HIV messaging create uneven social/information environments restricting gay men's (GM) ability to navigate their social-health needs and practices.

METHOD: The Globe and Mail's (G&M) Factiva archive was chosen as an exploratory site of analysis. In phase 1, an analytic-content analysis was conducted on a sample of HIV related news stories, 1994 to November, 2013 (n=1114). Emergent themes and framing devices were identified. In phase 2, a sub-sample of articles searching "HIV" and "gay" (n=113) together with content rich articles identified from the 1st sample (n=30) were interpreted using critical discourse analysis to reveal underlying ideologies and normative concepts.

RESULTS: G&M messaging trends: a bias towards presenting HIV/AIDS as a success story led by biomedical advances; GM's presence as subjects of risk and knowledge experts in HIV discourses fades over time; and a bias against considering current socio-cultural, political and economic realities under-girding high levels of HIV prevalence/incidence among GM in Canada and countries of the Global South.

CONCLUSIONS: News stories relevant to gay men have diminished, but stigmatizing representations remain. Uncritical reports on biomedical innovations may produce unintended HIV effects: changes to risk management practices, skewed perceptions of HIV risk and health effects, and changes to how health responsibilities are negotiated and understood. For community based AIDS service organizations and gay community institutions to play affective roles in addressing messaging gaps and contradictions, more research is required to test these findings with other media sources, including local mainstream and gay news media and ASO media campaigns.

O079
BECOMING "UNDETECTABLE": LONGITUDINAL NARRATIVES OF GAY MEN'S SEX LIVES AFTER BEING DIAGNOSED WITH AN ACUTE OR RECENT HIV INFECTION

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BACKGROUND: Much longitudinal research on the sex lives of HIV-positive gay men has been focused upon charting behavioural trends quantitatively and emphasizing the different risk-reduction strategies men use (or do not use) to reduce onward transmission. To complement and critically add to this literature, we explore gay men's sex life narratives following their diagnosis with an acute or recent HIV infection to understand constructions of HIV risk.

METHODS: All participants received an acute (n=13) or recent (n=12) HIV diagnosis and completed a series of self-administered questionnaires and in-depth qualitative interviews over a one-year period. Study recruitment was conducted through six clinical sites in British Columbia, Canada (April 2009 to December 2012). Participants' qualitative accounts were coded as single cases (eg, 25 participant cases containing up to four interviews over one year) and as a whole sample (eg, considering thematic trends across participants and time points).

RESULTS: With few exceptions, men talked about a period of refraining from sex in the weeks and months immediately following their diagnosis and later resuming sex. Over the course of longitudinal interviews, when discussing their sex lives since being diagnosed with HIV, participants frequently spoke of the role of medications (eg, decisions to start treatment) and changing viral loads (eg, discourses of becoming "undetectable"). For example, many men discussed milestones relating to medication and viral load as informing their shifting sexual behaviours and identities as HIV-positive – or "undetectable" – men.

CONCLUSIONS: We argue that the narratives of the men we interviewed provide insight regarding complex negotiations and processes of decision-making overtime related to sex, treatment initiation, viral load and the significance of undetectability as an emergent identity. Our findings indicate the need for programming to further support recently diagnosed HIV-positive gay men as they make decisions regarding the everyday implications of biomedical forms of HIV treatment and prevention.

O080
SOCIAL AND BEHAVIOURAL ASPECTS OF HIV-SERODISCORDANT COUPLES IN HIGH-INCOME SETTINGS: A SCOPING REVIEW AND ASSESSMENT OF RESEARCH NEEDS

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BACKGROUND: Stable HIV-serodiscordant couples (SDCs) are a key group in which to focus HIV prevention measures. However, the

sufficiency and depth of research undertaken among SCDs situated in high-income settings was unclear. In response, we conducted a scoping review of the published literature that explored social and behavioural features of SDCs in high-income countries. Our objectives were to identify evidence gaps and suggest future research needs.

METHODS: From November to December 2012, 10 electronic databases (Medline, EMBASE, CINAHL, Cochrane Collaboration, JSTOR, PsychInfo, Scopus, Web of Science, Sociological and Social Work Abstracts) were searched and a check of cited references was conducted. After using a subset of included citations to develop a thematic framework, studies were categorized by primary thematic orientation. PRISMA guidelines were adopted for the reporting of this review.

FINDINGS: Searches yielded 2133 citations, of which 155 met inclusion criteria. Included citations clustered into eight primary themes: risk management, sexual risk behaviours, relationship quality, reproductive choice, serostatus disclosure, adherence to antiretroviral therapy, social support, and vulnerability. Proportions of studies conducted among heterosexual SDCs, same-sex male SDCs, and mixed cohorts were 41%, 34%, and 25%, respectively. Three-quarters of the studies were conducted in the United States, 21% in the European Union, 8% in Australia, and none in Canada. Seventy percent of studies were quantitative and one-quarter were qualitative. Intervention studies comprised 4% of the total. One-quarter of identified studies focused on sexual risk behaviours among same-sex male couples.

CONCLUSIONS: This review confirmed the absence of work conducted among SDCs in Canada. In high-income settings overall, major gaps included a lack of intervention studies, few studies conducted among vulnerable groups, and minimal assessment of the social determinants of health among SDCs. These evidence gaps should be the focus of future research proposals in Canada and other high-income settings.

Track A: Basic Sciences: Immunology: Regulators and Reservoirs

Volet A: Sciences fondamentales : Immunologie : régulateurs et réservoirs

O081
PEROXISOME PROLIFERATOR-ACTIVATED RECEPTOR GAMMA NEGATIVELY REGULATES HIV REPLICATION IN TH17 CELLS

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BACKGROUND: We previously demonstrated that primary Th17 (CCR4+CCR6+ phenotype) and Th1Th17 (CXCR3+CCR6+ phenotype) cells are highly permissive to HIV-1 infection and identified the nuclear receptor PPARG as being preferentially expressed by these cells. PPARG is known to negatively regulate the Th17 differentiation program. However, the role of PPARG in regulating HIV replication in CD4+ T-cells remains unknown.

METHODOLOGY: Memory CD4+ T-cell subsets were isolated by MACS and/or FACS and stimulated via CD3/CD28. PPARG-RNA interference was performed using the Amaxa technology. The efficacy of siRNA silencing was measured at mRNA and protein levels by RT-PCR and microscopy. Nucleofected cells were exposed to wild type (wt) NL4.3BaL R5 HIV or VSV-G-pseudotyped HIV (HIV-VSVG-GFP) strains. Viral replication was monitored up to day 6 post-infection.

RESULTS: PPARG knock down resulted in enhanced viral replication as reflected by the HIV-p24 levels in supernatants and the frequency of HIV-p24+ cells. PPARG silencing was also associated with a significant increase in HIV-DNA integration. Similar results were observed with cells exposed to single round HIV-VSVG-GFP that enter cells independently of CD4 and coreceptors. Levels of PPARG mRNA were significantly decreased at 24 h and 48 h post-nucleofection. Epifluorescence analysis revealed a significant decrease in the PPARG protein expression at 48 h and 72 h from both cytoplasm and nuclei. Cell viability (% and counts of Vivid- cells) and proliferation (% Ki67+ cells) was not significantly different when nucleofection was performed using NT1 and PPARG siRNA, suggesting differences in HIV permissiveness siRNA are not due to cell toxicity caused by nucleofection. Finally, the activation of the PPARG pathway using the agonist rosiglitazone dramatically inhibited HIV replication in sorted Th17 and Th1Th17 subsets.

CONCLUSION: These results identified PPARG as a negative regulator of HIV integration and replication in primary CD4+ T-cells by acting at levels post-entry and prior HIV-DNA integration.

O082
HIV-1 RESERVOIRS IN CENTRAL MEMORY CELLS EXPRESSING THE TH17 MARKER CCR6 ARE REACTIVATED BY ALL-TRANS RETINOIC ACID

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BACKGROUND: Persistence of HIV reservoirs in small fractions of central memory (CM) CD4+ T-cells is a major barrier against HIV eradication. We previously demonstrated that CD4+ T-cells expressing the Th17 marker CCR6 are highly permissive to HIV replication in vitro and that all-trans retinoic acid (ATRA) significantly increases HIV permissiveness in CCR6+ T-cells. Here, we investigated whether CM CCR6+ CD4+ T-cells contribute to HIV persistence under ART and used different strategies including ATRA to reactivate HIV replication in these cells.

METHODS: PBMC from twelve ART-treated HIV-infected subjects were available for this study, with plasma viral load <50 HIV-RNA copies/mL and a median CD4 count of 520 cells/μL. Total memory and/or CM CD4+ T-cells (CD45RA-CCR7+/−) expressing or not the Th17 marker CCR6 were sorted by flow cytometry. Cells were stimulated via CD3/CD28 in the presence of IL2 (5 nM) and ATRA (10 nM) or PHA (0.5 μg/mL) for 10 days. Cell-associated HIV-p24 and integrated HIV-DNA levels were quantified by FACS and real-time PCR, respectively, ex vivo or upon culture in vitro. Levels of HIV-p24 and HIV-RNA were quantified in cell supernatants by ELISA and real-time PCR, respectively.

RESULTS: We demonstrate that CM CCR6+ T-cells are major HIV reservoirs in HIV-infected subjects receiving ART. Among different stimuli used, the reactivation of HIV reservoirs in CCR6+ T-cells was induced mainly by ATRA. Of note, ATRA was able to reactivate HIV reservoirs even in subjects with undetectable levels of integrated HIV-DNA.

CONCLUSION: We demonstrate for the first time that CCR6 is a marker for CM subsets that contribute to the persistence of HIV in ART-treated subjects and that this viral reservoir is reactivated by ATRA. Understanding molecular mechanisms of HIV persistence in CCR6+ CM cells will be critical for the design of new therapeutic strategies aimed at HIV eradication specifically in these cells.

O083
CHARACTERIZATION OF T CELL IMMUNE RESPONSE BREADTH AND MAGNITUDE IN HIV+ ELITE CONTROLLERS ENROLLED IN THE CANADIAN COHORT OF HIV-INFECTED SLOW PROGRESSORS

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BACKGROUND: Elite Controllers (EC) are a rare subset of HIV-infected individuals who spontaneously control viral load (VL) to <50 copies/mL of plasma. Genome-wide association studies have mapped viral control to the MHC class I (MHC-I) region, implicating MHC-I restricted CD8+ T cell responses in VL control. HLA-B*57 and B*27 are protective alleles that are over-represented in EC compared to HIV-infected progressors. These protective alleles also interact with Killer Immunoglobulin-like Receptor (KIR) 3DL1, to license natural killer (NK) cells for potent anti-viral function.

METHODOLOGY: We studied 20 HLA and KIR3DL1 typed EC. Of these, nine (45%) were B*57+ and/or B*27+. Subject PBMC were

screened for responses to the entire HIV proteome by IFN-γ ELISPOT assay using peptide pool matrices corresponding to all HIV gene products. Responses to candidate peptides were verified by using single 15-mer peptides as stimuli. Response breadth and magnitude were recorded.

RESULTS: EC with and without protective MHC-1 recognized a median (range) of nine (three to 26) and seven (zero to 21) peptides, respectively. The magnitude of these responses in EC with protective versus non-protective MHC-1 was 3800 (790 to 23450) and 4670 (zero to 17,350) spot forming cells (SFC)/106 PBMC, respectively (P=N.S. for both comparisons, Mann-Whitney test). Three EC in each of the groups with and without protective MHC-1 recognized three or less peptides. All response magnitudes in EC with protective MHC-1 were >500 SFC/106. Of the EC with non-protective MHC-1, one had no and one has 100 SFC/106 PBMC.

CONCLUSIONS: This descriptive study begins to characterize HIV-specific T cell responses in this Canadian EC cohort. The observation that some EC have low or no ex vivo HIV-specific responses raises the question as to how they control their VL. One possibility is that NK cells may play a role in VL control. Our goal is to characterize these anti-viral responses and their interrelationship in EC.

O084
HEPATIC COMPARTMENTALIZATION OF EXHAUSTED AND REGULATORY CELLS IN HIV/HCV COINFECTED PATIENTS

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HCV morbidity is in part the result of immunologic dysregulation in the liver, but the contribution of regulatory lymphocyte subsets in blood and liver remains unclear. Few studies have simultaneously examined liver and blood cells from coinfected patients. We determined immune cell frequency in liver and peripheral blood samples from chronic HCV infected and HIV/HCV coinfected individuals.

Peripheral blood mononuclear cells (PBMC) and biopsy-derived liver associated mononuclear cells from 26 ART-treated HIV/HCV coinfected, nine chronic HCV-infected, and PBMC from 10 HIV/HCV negative individuals were assessed for T cell, B cell, dendritic cell, NK cell, and NK T cell frequency by flow cytometry. The NIAID IRB approved the study, and patients signed informed consent. Student's t-test or Wilcoxon sum rank test was used to compare groups. Exhausted CD8+PD-1+ T cells were higher in HCV-infected individuals compared with uninfected individuals (33±8 versus 23±9; P=0.02). HIV coinfection enhanced this difference (44±12 versus 33±8; P=0.005). HCV infection decreased memory CD19+CD27+ B cell frequency (22±1 versus 28±7; P=0.02), particularly in HIV coinfection (15±3 versus 22±1; P<0.00005). In the liver, regulatory CD4+CD25+FOXP3+ and PD-1+CD4+ T cells were more frequent in HIV/HCV coinfected than HCV monoinfected samples. Peripheral CD8+PD-1+ T cells were more frequent in the HCV-specific than CMV-specific compartment (7±0.9 versus 3.6±0.5) in HIV/HCV infected individuals compared with volunteers. In HIV coinfection, chronic HCV infection alters immune cells in the peripheral blood and liver compartments, increasing hepatic regulatory and exhausted T cell phenotypes particularly in the HCV-specific T cell compartment. Disproportionate liver compartmentalization of immunoregulatory T cells, and high HCV-specific exhausted T cells, may have a pathogenic role in establishing hepatic fibrosis in HIV coinfection.

O085
TARGETING THE TROJAN HORSE: NK CELLS EXHIBIT ROBUST ANTI-HIV ANTIBODY-DEPENDENT ACTIVATION AGAINST ALLOGENEIC T-LYMPHOCYTES

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BACKGROUND: Cell-associated HIV is more infectious than free virus in vitro and in vivo. Most current vaccine constructs, however, focus on preventing cell-free HIV transmission. Epidemiological studies suggest NK cells can prevent HIV transmission or control infection, especially in individuals co-carrying specific allelic combinations of inhibitory killer cell immunoglobulin-like receptor 3DL1 (KIR3DL1) and its HLA-Bw4 ligands. These receptor/ligand combinations educate NK cells to mediate robust antibody-dependent and independent effector functions. As vaccine design should incorporate tactics to eliminate HIV-infected allogeneic lymphocytes, we assessed if NK cells educated through HLA-Bw4/KIR3DL1 combinations mediate more robust anti-HIV antibody-dependent activation against allogeneic lymphocytes. We also evaluated if the presence of HLA-Bw4 on allogeneic target cells inhibits KIR3DL1+ NK cells.

METHODS: T-lymphocytes enriched from the lymphocytes of HLA-Bw4+ and HLA-Bw4- donors were cultured overnight in RPMI supplemented with IL-2. Next, T-lymphocytes were coated with HIV gp120. Coated or uncoated CD3+ T-lymphocytes from four HLA-Bw4+ and HLA-Bw4- donors were independently cultured with whole blood from nine donors with KIR3DL1+ NK cells in the presence of HIV+ and HIV- plasma. Fluorochrome-conjugated antibodies were used to identify CD3-, CD56dim and KIR3DL1+/− NK cells, and to detect CD107a expression and IFNγ production as markers of activation.

RESULTS: Robust NK cell activation occurred in the presence of gp120 coated T-lymphocytes and HIV+ plasma. Educated KIR3DL1+ NK cells were more functional than KIR3DL1- NK cells, and KIR3DL1+ NK cells did not exhibit decreased functionality against HLA-Bw4+ target cells.

CONCLUSIONS: As a result of education, KIR3DL1+ NK cells mediate more robust function than non-educated NK cells, but KIR3DL1+ NK cells are susceptible to inhibition upon HLA-Bw4 ligation. Nevertheless, the current study suggests KIR3DL1+ NK cells overcome inhibition to mediate anti-HIV antibody-dependent effector functions. These results are important for understanding how to optimize NK cell antibody-dependent responses for therapeutics and vaccines.

O086
SOLUBLE TLR2 (STLR2) IS SIGNIFICANTLY ELEVATED IN HIV-INFECTED BREAST MILK AND INHIBITS HIV-INDUCED CELLULAR ACTIVATION, INFLAMMATION AND INFECTION

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Multiple innate factors in human breast milk possess potent anti-viral activities that may play a critical role in inhibition of mother-to-child HIV-1 transmission (MTCT). Indeed, we recently demonstrated that immunodepletion of sTLR2 from human breast milk significantly increased HIV-1 infection in vitro. The aims of this study were to characterize sTLR2 levels in HIV-infected and uninfected breast milk and identify a mechanism(s) by which sTLR2 inhibits HIV-induced cellular activation, inflammation and infection. Using HIV-infected and uninfected breast milk from Nigerian and Canadian women, our results showed significantly increased TLR2 expression in breast milk cells and sTLR2 concentrations in milk from HIV-infected compared to uninfected women. Interestingly, levels of sTLR2 significantly correlated with HIV-1 p24 and IL-15 in HIV-infected breast milk, suggesting a local innate compensatory mechanism in the HIV-infected breast. In vitro studies demonstrated that sTLR2 significantly inhibited cell-free HIV-1-induced IL-8 production and infection. Indeed, preincubation of HIV-1 with sTLR2 containing supernatants showed significantly lower infection rates compared to sTLR2-free supernatants, and neutralization of sTLR2 by TLR2-specific monoclonal antibodies confirmed that sTLR2 was responsible for inhibition of HIV infection. In light of these findings, we next showed that mammary epithelial cells and macrophages, which make up the majority of cells in breast milk, produced significantly increased sTLR2 following exposure to HIV-1 proteins p17, p24 and gp41 or the TLR2 ligand, Pam_3CSK_4. Indeed, sTLR2 inhibited HIV protein-induced inflammation by competitively suppressing ligand interaction with TLR2. We also showed that sTLR2 physically interacts with p17, p24 and gp41 and inhibits HIV-1-induced NFκB activation and inflammation. Importantly, binding of sTLR2 to HIV-1 structural proteins inhibited a TLR2-dependent increase in CCR5 expression, thus resulting in significantly reduced HIV infection. Together these results suggest a novel mechanism by which sTLR2 may play a critical role in inhibition of mother-to-child HIV transmission.

O087

TIM-3 EXPRESSION ON PLASMACYTOID DENDRITIC CELLS DURING HIV-1 INFECTION CORRELATES WITH DISEASE PROGRESSION AND DECREASED IFN-α PRODUCTION

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BACKGROUND: Plasmacytoid dendritic cells are the major producers of IFN-α in response to virus infection via the endosomal toll-like receptors (TLR) 7 and 9. During chronic HIV-1 infection, pDC numbers decrease in blood and in vitro stimulated pDCs produce less IFN-α, suggesting defects in pDC function during HIV-1 infection may contribute to the development of opportunistic infection. Recent studies in mice show that pDC dysfunction can be induced by the immunoregulatory molecule, Tim-3.

HYPOTHESIS: Defective IFN-α production by pDC observed during HIV-1 infection is due to Tim-3 signaling on pDCs.

METHODS: To determine if Tim-3 is expressed on human pDCs, PBMCs from HIV-1 infected volunteers were analyzed ex vivo by flow cytometry for pDC markers BDCA2 and CD123 as well as Tim-3. For in vitro stimulations PBMCs were stimulated for 8 h with CpG, imiquimod or the RNA virus, sendai virus. pDC function was evaluated by flow cytometry. Tim-3 blockade was performed using anti-Tim-3 antibody simultaneously with sendai virus.

RESULTS: Tim-3 upregulation on pDCs ex vivo correlated with a reduced CD4 count. The percentage of Tim-3+ pDCs identified ex vivo negatively correlated with in vitro production of IFN-α upon stimulation with CpG, but not imiquimod or sendai virus. However, IFN-α production was absent from Tim-3+ pDCs for all stimulations. Finally, blocking Tim-3 increased IFN-α production in response to sendai virus.

CONCLUSIONS: Tim-3 upregulation on pDCs may play a role in the dysregulated IFN-α response to viruses during chronic HIV-1 infection.

O088

PROTEOMIC ANALYSIS REVEALS MUCOSAL INTEGRITY AND METABOLIC PROTEIN FACTORS ARE PERTURBED DURING BACTERIAL VAGINOSIS: IMPLICATIONS FOR HIV SUSCEPTIBILITY

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BACKGROUND: General mucosal inflammation, such as those found during bacterial vaginosis (BV), has been associated with increased risk of HIV infection in women. While a relationship between immune activation and HIV acquisition is widely believed the mechanisms and/or drivers of susceptibility mechanisms in that underpin this observation are far from being understood. This is likely a function of the general complexity of immune systems, and approaches to date have only studied individual or few immune components in isolation. Here we utilized a global proteomics approach, coupled to multivariate computational modeling, to better understand the impact and downstream consequences of of BV-related inflammation upon the mucosal immune system.

METHODS: Cervicovaginal lavage samples from BV+ (n=9) and BV- controls (n=33) were analyzed by tandem mass spectrometry. Features (classifiers) were identified by Lasso algorithm using Matlab software.

RESULTS: Of the >500 unique proteins identified, Lasso analysis indicated distinct patterns of protein expression distinguishing BV+ and BV- individuals, including a combination of 13 specific biomarkers. The multivariate model performed with 95% accuracy to predict BV+ individuals, and 94% accuracy on cross-validation. Many of these factors are structural/cytoskeletal protein factors involved with mucosal tissue integrity, and others involved with increased host metabolic activity.

CONCLUSION: This indicates that BV-related inflammation has potential effects upon tissue integrity factors in the vaginal compartment and underscores the utility of systems biology approaches. These results give novel findings of the impact of inflammation on mucosal environments, and new hypothesis or areas of investigation for risk factors of HIV infection.

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Track B: Clinical Sciences: Antiretroviral Therapies and Access to Care

Volet B : Sciences cliniques : Traitements antirétroviraux et accès à des soins

O089

ELVITEGRAVIR/COBICISTAT/EMTRICITABINE/TENOFOVIR DF (STB) HAS DURABLE EFFICACY AND DIFFERENTIATED SAFETY COMPARED TO ATAZANAVIR BOOSTED BY RITONAVIR PLUS EMTRICITABINE/TENOFOVIR DF AT WEEK 144 IN TREATMENT-NAIVE HIV-1 INFECTED PATIENTS

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BACKGROUND: In this randomized, double-blind, active-controlled Phase 3 trial in treatment naive patients, elvitegravir/cobicistat/emtricitabine/tenofovir DF (STB) was non-inferior to atazanavir boosted by ritonavir (ATV + RTV) + emtricitabine/tenofovir DF (TVD) at Week 48 with durable efficacy and a favorable safety profile through Week 96. We report Week 144 data.

METHODS: Key eligibility criteria included HIV-1 RNA ≥5000 c/mL and eGFR ≥70 mL/min. Virologic success (HIV-1 RNA <50 c/mL) was assessed per snapshot algorithm. Bone mineral density (BMD) was assessed in a substudy.

RESULTS: 708 patients were randomized and treated. Through Week 144, high rates of virologic success were maintained (STB 78% vs ATV+RTV+TVD 75%, difference 3.1% [95% CI −3.2% to 9.4%]). Virologic success was similar in patients with baseline HIV-1 RNA >100,000 c/mL (75% vs 72%), CD4 ≤350 cells/μL (76% vs 74%), and those with <95% adherence (59% vs 66%). Mean CD4 cell increase was 280 vs 293 cells/mm^3. Emergent resistance was infrequent in both groups (2.3% vs 0.6%). Drug discontinuation due to AEs was low and comparable (6% vs 8%). Renal discontinuation occurred in five (1%) vs eight (2%) patients; of those, two vs six patients discontinued after Week 96, including three ATV+RTV+TVD patients with proximal renal tubulopathy (PRT). No cases of PRT occurred in STB group. Median changes from baseline in creatinine (μmol/L) at Week 144 were 10.6 vs 7.1 and were stable since Week 48. STB had smaller mean decreases (%) in BMD (hip: −2.83 vs −3.77, P=0.23, spine: −1.43 vs −3.68, P=0.018).

CONCLUSIONS: At Week 144, STB demonstrated comparatively high rates of virologic suppression regardless of baseline viral load, CD4 cell count and adherence level, with low rates of resistance and a favorable safety profile including no new renal safety signals. These results support the durable efficacy and long-term safety of STB.

O090

SIMPLIFICATION OF PI+RTV+FTC/TDF TO E/C/F/TDF MAINTAINS HIV SUPPRESSION AND IS WELL-TOLERATED

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BACKGROUND: We report the Week (W) 48 results of a prospective, randomized, open-label, ongoing Phase 3b trial of a regimen simplification to the single-tablet regimen elvitegravir/cobicistat/emtricitabine/

tenofovir DF (E/C/F/TDF) from ritonavir-boosted protease inhibitor (PI+RTV) plus emtricitabine/tenofovir DF (FTC/TDF) regimens.

METHODS: Virologically suppressed subjects on PI+RTV+FTC/TDF regimens for ≥6 months were randomized (2:1) to switch to E/C/F/TDF or remain on their baseline PI regimen. Eligibility criteria included CrCl ≥70 mL/min, no documented resistance to FTC and TDF, exposure to ≤2 prior ARV regimens, and no history of virologic failure. The primary endpoint was the proportion of subjects who maintained HIV-1 RNA <50 c/mL at W48 by FDA snapshot algorithm (12% noninferiority margin). If noninferiority was established, then superiority would be tested per a prespecified sequential testing procedure.

RESULTS: A total of 433 subjects were randomized and treated (293 E/C/F/TDF; 140 PI). At randomization, atazanavir (40%) and darunavir (40%) were the most common PIs used. Baseline characteristics were similar between the two groups. At W48, 94% of subjects on E/C/F/TDF maintained HIV-1 RNA <50 c/mL compared to 87% on PI (difference 6.7% [95% CI +0.4% to +13.7%]; P=0.025). Rates of virologic failure were 0.7% E/C/F/TDF versus 1.4% PI with no emergent resistance. The safety and tolerability profiles of E/C/F/TDF were consistent with those reported in previous studies. Grade 2-4 drug-related AEs were 3.8% E/C/F/TDF versus 1.4% PI. AEs leading to drug discontinuation were low, 2.0% versus 2.9% respectively. At W48, median changes in CrCl were −7.5 mL/min and 0.4 mL/min, respectively, with no cases of proximal renal tubulopathy. There was a larger decrease from baseline in fasting triglycerides for E/C/F/TDF compared to PI (median: −0.18 mmol/L versus +0.03 mmol/L; P=0.001).

CONCLUSIONS: Switching to E/C/F/TDF compared to continuing PI+RTV+FTC/TDF resulted in significantly higher rates of virologic suppression without emergence of resistance and was well-tolerated.

O091
SWITCH FROM NNRTI PLUS FTC/TDF TO E/C/F/TDF MAINTAINS HIV SUPPRESSION AND IS WELL- TOLERATED

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BACKGROUND: We report the Week (W) 48 results of a prospective, randomized, open-label, ongoing Phase 3b trial of a regimen switch to the single-tablet regimen (STR) elvitegravir/cobicistat/emtricitabine/tenofovir DF (E/C/F/TDF) from non-nucleoside reverse transcriptase inhibitor (NNRTI) + emtricitabine/tenofovir DF (FTC/TDF) regimens in HIV-1 subjects.

METHODS: Subjects suppressed on NNRTI+FTC/TDF regimens for ≥6 months were randomized (2:1) to switch to E/C/F/TDF or remain on their baseline NNRTI regimen. Eligibility criteria included CrCl ≥70 mL/min, no documented resistance to FTC and TDF, exposure to ≤2 prior ARV regimens, and no history of virologic failure. The primary endpoint was the proportion of subjects who maintained HIV-1 RNA <50 c/mL at W48 by FDA snapshot algorithm (12% noninferiority margin).

RESULTS: A total of 434 subjects were randomized and treated (291 E/C/F/TDF; 143 NNRTI). At randomization, 74% of subjects were on STR EFV/FTC/TDF. Baseline characteristics were similar between the two groups. At W48, 93% E/C/T/TDF and 88% NNRTI maintained HIV-1 RNA <50 c/mL (difference 5.3% [95% CI −0.5%, +12.0%]). Virologic failure rates were 1% with no emergent resistance. The safety and tolerability profiles of E/C/F/TDF were consistent with reports from previous studies. Grade 2-4 drug-related AEs occurred in 5.5% E/C/F/TDF and 1.4% NNRTI. AEs leading to discontinuation were 2.1% E/C/F/TDF vs 0.7% NNRTI. Median changes in CrCl at W48 were −11.6 mL/min and −0.2 mL/min, respectively. Decreases from baseline at W48 in rates of vivid dreams (−15%; P<0.001), dizziness (−11%; P<0.001), anxiety (−9%; P=0.008), and insomnia (−10%; P=0.004) were reported after switching to E/C/F/TDF [HIV Symptom Index]. HIV Treatment Satisfaction scores were higher for subjects who switched to E/C/F/TDF (P<0.001) (HIV Treatment Satisfaction Questionnaire).

CONCLUSIONS: Switching to E/C/F/TDF from NNRTI + FTC/TDF regimens was associated with high rates of virologic suppression, no resistance development, and favorable tolerability with improved treatment satisfaction.

O092
SWITCHING FROM FIRST ART REGIMEN WHILE VIROLOGICALLY SUPPRESSED IS COMMON IN THE CANOC COHORT AND IS ASSOCIATED WITH INCREASED RISK OF SUBSEQUENT VIROLOGIC FAILURE

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BACKGROUND: First-line antiretroviral regimens (ART) are safe and durable in a majority of individuals, however many may switch ART for tolerability reasons. Outcomes of ART switches are presumed similar to those of first-line regimens. We evaluated factors associated with regimen switch for non-virologic failure and the association between switching and subsequent virologic failure.

METHODS: ARV-naive individuals initiating ART in CANOC, a multicentre Canadian observational cohort, between 2005 and 2012 were eligible. Factors associated with regimen switch with suppressed viral load (two viral loads <50 copies/mL, >1 month apart) were assessed using multivariable logistic regression. Durability of subsequent regimen was assessed using a Cox proportional hazards model, adjusted for age, gender, province, IDU history, and baseline CD4. Virologic failure was defined as viral load >1000 copies/mL.

RESULTS: Of 2797 eligible individuals, 13% were women, 12% IDU, and the median age at baseline was 40 (IQR 33 to 47). Overall 986 individuals switched from first-line ART regimen with VL <50 copies/mL (incidence 13.5 per 100 person-years [PY]), of which 601 switched ART on ≥2 occasions with VL <50 copies/mL (incidence 36.8 per 100 PY). Switches were more common with NNRTI than PI-based regimens (incidence 47.4 per 100 PY versus 35.9 per 100 PY), however switches within class were more common for PI versus NNRTI-based regimens (26.7 per 100 PY versus 13.9 per 100 PY). Factors associated with a single switch from first-line ART included residence in Ontario (adjusted odds ratio [aOR] 3.08 [95% CI 2.23 to 4.24]) or Quebec (aOR 3.04 [95% CI 2.15 to 4.29]) versus British Columbia, and longer duration of ART (aOR 1.47 [95% CI 1.38 to 1.57]). Switching ≥2 times was less likely in Ontario (aOR 0.35 [95% CI 0.27 to 0.45]) and Quebec (aOR 0.46 [95% CI 0.35 to 0.60]), among men (aOR 0.53 [95% CI 0.39 to 0.71]), and was associated with longer duration of ART (aOR 1.85 [95% CI 1.74 to 1.97]). In a confounder model switching from first regimen was associated with increased risk of virologic failure (adjusted hazard ratio [aHR] 2.70 [95% CI 1.94 to 3.76]).

CONCLUSIONS: Switches from first ART while virologically suppressed were common, with higher rates of switches from NNRTI-based regimens. Switching from first ART regimen while suppressed was associated with increased risk of subsequent virologic failure.

O093
IMPACT OF ANTIRETROVIRAL THERAPY IN HIV-INFECTED "ELITE CONTROLLERS" ON GUT IMMUNOLOGY AND PLASMA LEVELS OF IL-6 AND D-DIMER

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Serious non-AIDS (SNA) conditions are increased in HIV-infected individuals, and are associated with microbial translocation and plasma biomarkers including inflammatory cytokine IL-6 and coagulation marker D-dimer. Despite undetectable blood virus RNA levels, HIV-infected elite controllers (EC) are at increased risk of SNA conditions. We examined the impact of short-term antiretroviral therapy (ART) in EC men on gut immunology and SNA biomarkers. Blood and sigmoid biopsies were collected at baseline, six months after ART initiation and three months after ART discontinuation in four EC men. Blood and sigmoid CD4 T cell

subsets (regulatory T cells, Th1 cells, Th17 cells and Th22 cells), Th17 functionality and CD8 T cell activation were measured. Plasma markers of microbial translocation (LPS and soluble CD14), IL-6 and D-dimer were assessed. Prior to ART, EC and HIV-uninfected controls had similar proportions of gut CD4 T cells, regulatory T cells, Th1 cells, Th22 cells and activated CD8+ T cells. Plasma markers of microbial translocation were comparable, and polyfunctional Th17 cells were actually increased within the EC gut. However, plasma levels of IL-6 and D-dimer were elevated in ECs, and persisted despite effective ART. EC demonstrated highly polyfunctional gut Th17 cells and no evidence of increased microbial translocation. Plasma SNA biomarkers were elevated, however, and remained so despite effective ART. This suggests an independent mechanism for SNA pathogenesis in this population.

O094
COMPARISON OF COMPLIANCE RATES AND HEALTH CARE RESOURCE UTILIZATION BETWEEN ANTIRETROVIRAL TREATMENT (ART) REGIMENS: AN ANALYSIS USING THE QUEBEC PROVINCIAL DRUG REIMBURSEMENT PROGRAM DATABASE

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BACKGROUND: The objective was to assess differences in compliance rates and health care resource utilization between patients receiving a once daily single tablet regimen (STR) versus a multiple tablets per day regimen (MTR).

METHODS: This retrospective study included patients covered by the Quebec provincial drug reimbursement program (RAMQ) who have received at least one script for an ART from January 2006 to June 2012. For each patient, the index date was defined as the date of the first script for an ART and compliance rates were estimated over a one-year period. Patients were considered compliant if their medication possession ratio (effective treatment duration over expected treatment duration) was equal or greater to 90%. Medical costs (hospitalizations and ER, outpatient clinic, ICU and physician's visits) were compared between the STR group and the MTR group. Regression analyses were performed to assess the relationship between compliance and the ART regimen, adjusting for age, gender, comorbidities scores, mental disorders diagnosis and drug and alcohol abuses.

RESULTS: The study included 491 patients in the STR group (mean [±SD] age 43.7±10.8 years, 80.0% males) and 1903 patients in the MTR group (mean age 43.5±10.7 years, 77.9% males). A higher proportion of patients were compliant (88.4% versus 75.8%) in the STR group compared to the MTR group (P<0.001). When adjusting for patient's baseline characteristics, patients receiving a MTR were 2.4-fold more likely to be non-compliant than patients receiving a STR (P<0.001). Patients on a MTR had a higher risk to be hospitalized (25.8% versus 15.9%) than patients on a STR (P<0.001). Patients receiving a STR had a lower annual health care resource cost per patient than patients receiving a MTR (CAD$3,239 versus CAD$4,924, P<0.001).

CONCLUSIONS: Patients receiving a STR are more compliant than patients on a MTR and have lower hospitalization rates and medical costs.

O095
STAR STUDY: SINGLE TABLET REGIMEN RILPIVIRINE/EMTRICITABINE/TENOFOVIR DF MAINTAINS NON-INFERIORITY TO EFAVIRENZ/EMTRICITABINE/TENOFOVIR DF IN ART-NAIVE ADULTS THROUGH WEEK 96

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STaR is a randomized, open-label, 96-week study to evaluate the safety and efficacy of the STR RPV/FTC/TDF compared to the STR EFV/FTC/TDF in treatment-naive HIV-1 infected subjects. Subjects were randomized 1:1 to RPV/FTC/TDF or EFV/FTC/TDF. Eligibility criteria included screening HIV-1 RNA ≥2,500 c/mL, genotypic sensitivity to EFV, FTC, TDF, and RPV, and no prior ARV therapy. Randomization was stratified by HIV-1 RNA level (≤100,000 c/mL or >100,000 c/mL) at screening. The primary endpoint was the proportion of subjects with HIV-1 RNA <50 c/mL at Week 48 using the snapshot analysis (12% pre-specified non-inferiority margin). Secondary endpoints included efficacy and safety at Week 96.

A total of 786 subjects were randomized and dosed (394 RPV/FTC/TDF; 392 EFV/FTC/TDF). Baseline characteristics were similar between treatment arms, with a baseline mean CD4 count of 391 cells/mm^3 and HIV-1 RNA of 4.8 log10 c/mL.

Virologic Suppression Rates by Snapshot Analysis at Week 96

	RPV/FTC/TDF	EFV/FTC/TDF	Difference	95% CI	P value
Overall	77.9% (307/394)	72.4% (284/392)	5.5%	-0.6% to 11.5%	0.076
Baseline HIV-1 RNA ≤100,000 copies/mL	78.8% (205/260)	71.2% (178/250)	7.6%	0.2% to 15.1%	0.046
Baseline HIV-1 RNA >100,000 copies/mL	76.1% (102/134)	74.6% (106/142)	1.5%	-8.7% to 11.6%	0.78

Overall, virologic failure at Week 96 was 9.4% for RPV/FTC/TDF versus 5.9% for EFV/FTC/TDF by snapshot analysis. Grade 3/4 adverse events (AEs) were reported in 10.2% of subjects in the RPV/FTC/TDF arm and 16.6% in the EFV/FTC/TDF arm. There were fewer discontinuations of study drug due to AEs in RPV/FTC/TDF (3.0%) compared to EFV/FTC/TDF (11.0%), the most frequent being psychiatric events (0.3% versus 6.1% respectively).

Overall RPV/FTC/TDF demonstrated non-inferior efficacy, fewer discontinuations due to AEs compared to EFV/FTC/TDF, and statistical significance for efficacy response in subjects with a baseline viral load ≤100,000 c/mL in treatment-naive HIV-1-infected subjects through Week 96.

O096
EXAMINATION OF DISPARITY IN ACCESS TO MENTAL HEALTH SERVICES AMONG PEOPLE LIVING WITH HIV AND COMORBID DEPRESSION IN ONTARIO

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OBJECTIVES: Depression is a prevalent psychiatric morbidity among people living with HIV. However, this condition is under-diagnosed and under-treated, which may result in poor outcomes and increased health care costs. We aimed to describe barriers and gaps in accessing mental health services among this population.

METHODS: Retrospective cohort study was conducted from 2008 to 2012 by linking the OHTN Cohort Study (n=3545) with administrative health databases at ICES. Comorbid depression was identified based on CES-D (Scores ≥20) or Kessler Psychological Distress Scale (Scores ≥23). Use of primary and specialty mental health services was measured during the 12 months following assessments of depression at baseline. Logistic and negative binominal regression models were constructed to examine associations between predisposing, enabling, and need factors and the use and intensity of use of mental health services.

RESULTS: There were 950 (27%) persons with HIV identified with comorbid depression at baseline; of these, 523 (55%) and 444 (47%) had used primary care and specialist care respectively during one year after they identified with comorbid depression. For those who were depressed, we found that non-English speakers were two times less likely to receive primary (aOR 0.5 [95% CI 0.3 to 0.8]) and mental health specialist (aOR 0.6 [95% CI 0.4 to 0.9]) services when compared to their English speaking counterparts. In addition, those who were identified as gay, having annual income <$20,000, or residing in rural areas were two times less likely to use mental health specialist care. For accessing primary and specialist care, we found that those who identified as being gay or from an ethnic minority group had 40% to 50% fewer encounters to care.

CONCLUSIONS: Significant barriers and gaps in accessing primary care and mental health specialists exist for those with HIV and comorbid depression according to language, ethnoracial status, sexual orientation,

income, and geography. Focused interventions and policies are needed to reduce these inequities.

Track C: Epidemiology and Public Health: Epidemiology and Surveillance of HIV/AIDS and Co-infections

Volet C : Épidémiologie et santé publique : Épidémiologie et surveillance du VIH/sida et des co-infections

O097

HETEROGENEITY IN OVERLAPPING OF HIGH-RISK BEHAVIOURS IN THE INTERACTION BETWEEN SEX WORKERS AND INJECTION DRUG USERS: A STUDY FROM 7 MAJOR CITIES IN PAKISTAN

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BACKGROUND: Heterogeneity in mixing patterns among high risk populations has been shown to sustain HIV epidemics and complicate the delivery of HIV intervention strategies. This study highlights the heterogeneity in the overlap between sex workers (SWs) and injection drug users (IDUs) in Pakistan.

METHOD: Data from integrated behavioral and biological surveillance collected from March to September 2011 among SWs, including male (MSWs), hijra (transgender; HSWs), and female sex workers (FSWs) in seven major cities in Pakistan was used for analysis. Multiple logistic regression analysis was used to identify independent factors contributing to the overlapping of sexual and drug injection networking between SWs and IDUs.

RESULTS: A total of 6821 sex workers were included in the study. Compared to MSWs who have had sex with IDUs, HSWs were 2.1 (95% CI 1.1 to 4.1) times more likely to inject drugs, with no significant difference among FSWs. However, compared to HSWs, FSWs who have had sex with IDUs are 62.4% (OR=0.376 [95% CI 0.227 to 0.624]) less likely to injecting drugs. Sex workers who solicited their clients by roaming around and through network operators are 1.8 (95% CI 1.2 to 2.8) and 1.6 (95% CI 1.1 to 2.4) more likely to inject drugs, respectively, compared to those who used mobile phone. For every one-year increase in the duration of sex work, there was a 4.2% increase in the odds of injection drug use.

CONCLUSION: There is heterogeneity in the overlapping patterns of sexual and drug injection networking between SWs and IDUs. There is also heterogeneity by city. Solicitation type of clients and the likelihood of injection drug use among SWs are significantly associated. The odds of injection drug use among SWs also increased as the duration in sex work increased. There is a need to closely monitor mixing patterns among high risk populations and implement prevention programs customized to local epidemics.

O098

FACTORS ASSOCIATED WITH INJECTION DRUG USE AMONG THE ABORIGINAL POPULATION IN REGINA, SASKATCHEWAN: FINDINGS FROM THE A-TRACK PILOT SURVEY (2011 TO 2012)

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BACKGROUND: Aboriginal people continue to be over-represented in Canada's HIV epidemic, with injection drug use as a major exposure category. Results from A-Track, an enhanced surveillance system that monitors HIV prevalence and associated infections, behaviours and socio-demographic factors among Aboriginal populations in Canada, are presented here with a focus on factors associated with injection drug use among Aboriginal people in Regina, Saskatchewan.

METHODS: Eligible participants were 16 to 60 years of age, self-identified as Aboriginal or claimed Aboriginal ancestry. An interviewer-administered questionnaire collected information regarding demographics, drug use, injecting and sexual risk behaviours, and HIV and hepatitis C testing history. A biological sample was collected and tested for HIV, hepatitis C, and syphilis antibodies. Univariate analyses explored factors associated with injection drug use, stratified by sex. Factors significantly associated ($P<0.05$) with injection drug use were examined in sex-stratified multivariate logistic regression models, adjusted for age.

RESULTS: A total of 1064 individuals participated in the A-Track Regina pilot survey, one-half (50.1%) of whom reported having ever injected drugs (53.4% among males, 46.7% among females). Among males, multivariate analyses found significant associations between ever injecting drugs and: having received welfare in the past year, history of incarceration and non-injection drug use of cocaine. Similar factors were observed among females, with the addition of residential school attendance and a history of transactional sex.

CONCLUSION: The demographic and risk behaviour profile of people who reported injection drug use was different from those who had never injected drugs. Key factors associated with injection drug use among both sexes included having received welfare in the past year, a history of incarceration and non-injection drug use of cocaine. In addition, a history of transactional sex and residential school attendance emerged as important risk factors among females. These findings provide guidance to sex-specific prevention and control programs.

O099

PREVENTION OF PRIMARY HEPATITIS C VIRUS (HCV) INFECTION: A HIGH PRIORITY FOR THE CONTROL OF BLOODBORNE INFECTIONS AMONG MONTREAL INJECTION DRUG USERS

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Rationale: While a decrease in HIV incidence has been observed among injection drug users (IDU) in Montreal, HCV transmission has remained high over the past decade. Further HCV reinfection has not been estimated. Monitoring the epidemiology of these viral infections is of paramount importance for health planners.

OBJECTIVE: To estimate incidence rates of HIV and HCV primary infection and reinfection among IDUs in Montreal.

METHODS: IDUs were recruited into a prospective cohort study between 2004 and 2013. Two HIV-negative sub-cohorts were assembled. HCV primary infection rate was estimated among anti-HCV negative participants (PI-CO) while HCV reinfection rate was estimated among anti-HCV-positive/HCV-RNA-negative participants (RI-CO). HIV incidence was estimated separately for both cohorts. Time-to-event methods were used to estimate incidence rates.

RESULTS: Of 301 IDUs enrolled in PI-CO (81% males, mean [± SD] age 34.4±9.3 years), 108 became anti-HCV positive (incidence = 16.1 per 100 p-y [95% CI 13.3 to 19.4]), and four became anti-HIV positive (incidence = 0.6 per 100 p-y [95% CI 0.2 to 1.4]). HCV incidence rates were stable overtime (Cochrane-Armitage Trend test = 0.8).

Of 191 participants enrolled in RI-CO (76% males, mean age 38.7±9.9 years), 20 became reinfected with HCV (incidence = 3.5 per 100 p-y [95% CI 2.2 to 5.4]), and two became anti-HIV-positive (incidence = 0.4 per 100 p-y [95% CI 0.1 to 1.3]). Reinfection incidence rates were similar between the 116 spontaneous resolvers (incidence = 3.6 per 100 p-y (95% CI 2.1 to 6.0) and the 74 treated participants (incidence = 3.9 per 100 p-y (95% CI 1.6 to 8.1).

CONCLUSIONS: HCV reinfection rate is low compared to HCV primary infection rate. This finding is consistent with persistent changes in behaviour following HCV infection notification recently demonstrated in our cohort. The contribution of immune factors to protection against reinfection remains to be determined. HIV incidence rates are low in both populations of HCV-uninfected IDUs.

O100
TIMELY LINKAGE TO CARE FOLLOWING HIV DIAGNOSIS IN ONTARIO: ENCOURAGING RESULTS AT A KEY STAGE IN THE CASCADE OF HIV CARE

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BACKGROUND: Linkage to care is a key step in the HIV care cascade, a framework increasingly used to assess progress towards optimal HIV prevention and control. Using first viral load and CD4 testing following HIV diagnosis as an indicator of access to care, we examined linkage to HIV care in Ontario.

METHODS: Persons newly diagnosed with HIV in Ontario from January 1, 2000 to June 30, 2012 with a nominal first HIV-positive test were matched to viral load/CD4 testing data. Time to care was calculated from date of HIV diagnosis to the first viral load or CD4 test; this was examined by sex, age, exposure category, health region, and year of HIV diagnosis using Kaplan-Meier analysis. Significant predictors of time to care were assessed using multivariate Cox regression.

RESULTS: Of 12,582 persons newly diagnosed with HIV during the study period, 7741 (61.5%) had a nominal HIV-positive test and were included in the analysis. Median time to care was 42 days (IQR 21 to 140 days); this decreased from 60 days in 2000 to 27 days in 2012 (P<0.0001). Among persons diagnosed in 2010 – 2012 (n=1553), the proportion who accessed care within one, three, six and 12 months was 53.6%, 80.3%, 85.1% and 86.6%, respectively. In multivariate regression adjusted for year of diagnosis, time to care was significantly longer among females (aHR 0.88 [95% CI 0.82 to 0.93]) and people who injected drugs (PWID vs others; aHR 0.81 [95% CI 0.74 to 0.88]).

CONCLUSION: Despite some delay among females and PWID, uptake of HIV care in Ontario improved substantially over time. In recent years, most patients (>80%) accessed care shortly after HIV diagnosis. Centralized HIV diagnostic and viral load testing data enabled population-based assessment of linkage to care; these are valuable data sources to measure subsequent stages of the HIV care cascade in Ontario.

O101
FOLLOW-UP HIV TESTING FOR COUPLES COUNSELED IN NDOLA, ZAMBIA

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INTRODUCTION: We describe predictors of follow-up testing for discordant (M+F− and M−F+), and concordant negative (M−F−) couples seeking joint voluntary HIV counseling and testing in Ndola, a densely populated city in the Copperbelt region of Zambia where cohabiting couples account for an estimated two-thirds of incident HIV infections.

METHODS: Demographic data were collected from couples' voluntary HIV testing and counseling (CVCT) and follow-up testing services implemented in government clinics with Canadian International Development Agency funding. We calculated follow-up testing rates by serostatus and compared rates before and after introduction of a Good Health Package (GHP).

RESULTS: The follow-up testing rate from May 2011 to December 2012 was 24.5% for discordant couples and 12.2% for M−F− couples. Multivariate predictors of follow-up included increasing man's (aOR 1.02 per year) and woman's (aOR 1.02) age and either partner being HIV+ (men: aOR 2.57; women: aOR 1.89). The man (aOR 1.29) and the couple (aOR 1.22) having been previously tested for HIV were predictive of follow-up testing among concordant negative couples. Among discordant couples, M-F+ had lower follow-up rates than M+F− (aOR 0.73), and ARV use at baseline was associated with a borderline increase in follow-up (aOR 1.37; P 0.07). Introduction of a GHP increased follow-up testing among discordant (aOR 2.93) and concordant negative (aOR 2.06) couples. Most couples chose soap (91%), chlorine (10%), and deworming (9%); few couples chose screening for diabetes, hypertension, or schistosomiasis (3%).

CONCLUSION: A low-cost GHP including prevention, screening, and treatment for common causes of morbidity and mortality resulted in increased follow-up testing rates among HIV discordant and concordant negative couples. Overall follow-up testing rates remain low and efforts to increase these rates are necessary in order to ensure linkage to combination prevention, reduce HIV transmission within couples and identify seroconversions promptly. Further investigation of low-cost sustainable incentives and other factors influencing follow-up HIV testing for couples is needed.

O102
ARV UPTAKE AND SEROINCIDENCE BY ARV STATUS AMONG HIV DISCORDANT COUPLES IN COPPERBELT PROVINCE, ZAMBIA

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BACKGROUND: Zambian National Guidelines recommend antiretrovirals (ARVs) for HIV+ individuals in discordant relationships. Though "treatment as prevention" (TasP) efficacy has been established, effectiveness, including acceptability and adherence in discordant couples, has not been evaluated. In the context of high HIV prevalence and ARV costs, limited ARV access, and declining budgets, the question of TasP effectiveness is critical.

METHODS: Couples' Voluntary HIV Counseling and Testing (CVCT) services were provided in Copperbelt province with Canadian International Development Agency funding from August 2010 to March 2013. History of prior testing, pregnancy, and ARV use data was collected. ARV referrals were provided to HIV+ partners not on treatment. In 2011, quarterly follow-up was instituted. We evaluated ARV uptake and calculated HIV seroincidence by ARV status for discordant couples.

RESULTS: A total of 6479 discordant couples had ARV information at their initial visit. Among all HIV+ partners and HIV+ pregnant women previously tested, roughly 70% were not on ARVs at their first CVCT visit. Almost 20% of discordant couples had at least one follow-up visit, and those on ARV at baseline were more likely to return for followup. One in four discordant couples who were not on ARV at the time of CVCT had initiated ARV at follow-up. Excluding two sequence-confirmed unlinked seronversions, there were 14 seroconversions in 372 couple-years (CY) (3.8 per 100 CY [95% CI 2.1 to 6.3]). Seroincidence by ARV status was: 2.0 per 100 CY (95% CI 0.7 to 4.7) for those on ARV and 7.3 per 100 CY (95% CI 3.3 to 13.8) for those not on ARV.

DISCUSSION: Though HIV+ individuals in discordant relationships are referred for ARVs, ARV uptake is low. ARV effectiveness in our cohort is much lower than ARV efficacy in randomized trials, likely due to access and adherence issues. Given reduced HIV transmission rates in discordant couples after CVCT irrespective of ARV, CVCT with follow-up testing for discordant couples should be provided and promoted in government clinics.

O103
HPV GENOTYPE DISTRIBUTION AND ONCOGENE EXPRESSION IN HIV-POSITIVE ADULTS AND THE UNDERLYING RISK FACTORS FOR ANAL, ORAL AND GENITAL MALIGNANCY: AN ATLANTIC CANADA PROSPECTIVE COHORT STUDY

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People with HIV or HIV-positive partners are at the higher risk of HPV-related pre-cancerous lesions and malignancy. We aimed to determine the prevalence of high-risk (HR) HPV-types in HIV-positive adults in Atlantic Canada, to correlate their prevalence with underlying malignancy and risk factors.

This study was designed for a three-year period subsequent to the baseline screening. HIV-positive adults were approached by physicians to request participation in the study. Consented participants were required to complete a confidential questionnaire and provide oropharyngeal and anal swabs. Cervical specimen was obtained from females. All specimens were tested for cytologic abnormalities, HPV DNA and genotyping.

The screening year analysis was based on 300 patients (91.7% males). The mean age was 46.9 years. Total 77.3% of participants tested positive for HPV infection, of them 54% with multiple genotypes. Total 46 HPV genotypes were detected, of which 39% were HR. The most frequently detected HR types were: 16, 52, 45, 51 and 18. HR 16, 45, 51, 52, 53 and 59 were strongly associated with anal lesions. The highest number of cytologic abnormalities was reported in anal specimens (26%). Lesions were significantly associated with patients' high risk sexual behavior. The overall prevalence of the HR genotypes was 46.6% and of the cytologic abnormalities caused by them – 27.3%. Biopsy confirmed cytologic abnormalities except for the few discrepancies. A case with unsatisfactory for the cytology evaluation anal sample was investigated further based on the patient's clinical presentation and showed rectal squamous cell carcinoma (SCC) in situ with HPV16/18. One anal sample with ASC-US showed HSIL with HPV18/51. Three other anal specimens with LSIL each were diagnosed with HSIL and associated with HPV16. Throat cancer was diagnosed in male patient with NILM and was associated with HPV16. A cervical specimen with LSIL was histologically confirmed as HSIL.
Overall, 26% of participants had abnormal anal cytology. The study findings might be helpful in promoting and implementing provincial anal cancer screening program for the populations at the highest risk for HPV-caused cancers.

O104
VARIATIONS IN SYPHILIS TESTING AND DIAGNOSIS AMONG MSM IN HIV CARE IN ONTARIO ACCORDING TO SEXUAL BEHAVIOUR

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BACKGROUND: Rates of syphilis (re)diagnosis are 400 times higher among HIV-positive gay and other men who have sex with men (MSM) than in the general population in Ontario. We report on differences in the proportion undergoing syphilis testing and syphilis diagnoses according to sexual behaviour.

METHODS: The OHTN Cohort Study is a multi-site cohort of persons in HIV care. We obtained data from interviews and record linkage with syphilis test records at the Public Health Ontario Laboratories. We analysed data from 2159 MSM participants who responded to questions about their sexual behaviour in the past three months in 2010 to 2012. Here we report preliminary findings on the proportion that were subsequently tested for or diagnosed with syphilis at any time after their baseline set of sexual behaviour responses; men were followed a median of 1.6 years thereafter (IQR 1.0 to 2.1 years).

RESULTS: At baseline, 37.0% reported no sex partner, 27.1% only one, 21.8% two to four, and 12.9% 5+ partners in the past three months. Subsequently, 64.8% (n=1400) were tested for syphilis while under follow-up and 6.2% (n=134) had a new diagnosis of syphilis; patterns varied with sexual behaviour (Table).

CONCLUSION: Although the majority underwent syphilis testing, it is concerning that one in four men reporting ≥5 partners at baseline were unscreened. We observed more diagnoses among men who serosorted but the proportion was highest among men with a mix of negative and positive partners or partners of unknown status. Improved interventions are needed to control the syphilis epidemic among MSM living with HIV.

Table. Sexual behaviour in past three months reported at baseline and subsequent syphilis testing and diagnosis among MSM participating in the OHTN Cohort Study, 2010-12

	Issue: n	Issue: % tested (95% CI)	Issue: % diagnosed (95% CI)
Number of male partners	Issue:	Issue:	Issue:
None	Issue: 799	Issue: 57.9 (54.5, 61.4)	Issue: 1.6 (0.7, 2.5)
One	Issue: 585	Issue: 63.8 (59.9, 67.7)	Issue: 2.7 (1.4, 4.1)
2 to 4	Issue: 471	Issue: 69.6 (65.5, 73.8)	Issue: 11.5 (8.6, 14.3)
5 or more	Issue: 278	Issue: 77.7 (72.8, 82.6)	Issue: 18.0 (13.5, 22.5)
HIV status of male partners	Issue:	Issue:	Issue:
No partner	Issue: 799	Issue: 57.9 (54.5, 61.4)	Issue: 1.6 (0.7, 2.5)
All HIV-positive	Issue: 219	Issue: 66.2 (60.0, 72.5)	Issue: 4.6 (1.8, 7.3)
All HIV-negative	Issue: 270	Issue: 61.9 (56.1, 67.7)	Issue: 3.0 (0.9, 5.0)
HIV-positive & -negative or any status unknown	Issue: 871	Issue: 71.8 (68.8, 74.8)	Issue: 11.8 (9.7, 14.0)
Anal sex	Issue:	Issue:	Issue:
No partner	Issue: 799	Issue: 57.9 (54.5, 61.4)	Issue: 1.6 (0.7, 2.5)
Sexually active but no anal sex	Issue: 354	Issue: 61.0 (55.9, 66.1)	Issue: 3.7 (1.7, 5.6)
Anal sex always with a condom	Issue: 380	Issue: 66.6 (61.8, 71.3)	Issue: 7.4 (4.7, 10.0)
Any condomless anal sex	Issue: 565	Issue: 75.0 (71.5, 78.6)	Issue: 12.7 (10.0, 15.5)

Track D: Social Sciences: Intersectional Framing of HIV, Sex, and Gender: Contested Contexts, Experiences, and Responses

Volet D : Sciences sociales : Encadrement intersectionnel du VIH, du sexe et du genre : contextes, expériences et interventions contestés

O105
"USING A STICK TO BEAT PEOPLE DOWN": PERCEPTIONS OF CRIMINALIZATION OF HIV NON-DISCLOSURE AND TESTING PRACTICES AMONG MEN IN NOVA SCOTIA

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BACKGROUND: It has been argued that the 2012 Supreme Court of Canada ruling on criminalization of HIV non-disclosure conflicts with upstream approaches to promoting health. Current literature suggests this policy neglects and further stigmatizes HIV positive individuals. Further, it has been suggested this policy exacerbates the already negative implications on the gendered health-seeking behaviours of young men, particularly in relation to the uptake of testing.

PURPOSE: While there has been limited health promotion research done on the recent Supreme Court ruling, this study sought to answer the question, "how, if at all, is the criminalization of HIV nondisclosure related to decisions to seek or not seek testing among young men in Nova Scotia?"

METHODS: This qualitative, inductive study consisted of two focus groups held with six health professionals, including public health and ASOs, who work primarily with men living with HIV in Nova Scotia. Data collection and analysis were undertaken in an iterative manner allowing for the refinement of the question guide. Thematic analysis was undertaken of the verbatim transcripts, resulting in two key emergent themes.

RESULTS: As indicated by the key themes, the Supreme Court ruling serves to enhance HIV stigma, which further jeopardizes health outcomes of people living with HIV in Nova Scotia. Further, the findings suggest that the criminalization of HIV non-disclosure is impeding health promotion approaches to preventative care, such as getting testing and knowing one's HIV status.

O106

HIRING, TRAINING, AND SUPPORTING PEER RESEARCHERS: OPERATIONALIZING COMMUNITY-BASED RESEARCH PRINCIPLES WITHIN EPIDEMIOLOGICAL STUDIES BY, WITH, AND FOR WOMEN LIVING WITH HIV

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BACKGROUND: Community-based research (CBR) is a critical approach to redress gendered and social marginalization from meaningful HIV research participation and benefit. However, few studies have articulated the process of peer engagement, particularly across large-scale, national cohort studies where gender, cultural and linguistic diversity, and on-going discrimination and power inequities must be navigated.

OBJECTIVES: To 1) describe a national strategy of hiring, training, and supporting women living with HIV (WLWH) as Peer Research Associates (PRAs) with the Canadian HIV Women's Sexual and Reproductive Health Cohort Study (CHIWOS); 2) reflect on challenges and opportunities; and 3) offer recommendations for best practices.

PROCESS AND LESSONS LEARNED: To reflect the diversity of WLWH in Canada, we hired 38 PRAs of varying skills and experiences, across British Columbia, Ontario, and Québec. The hiring process prioritized women historically under-represented in research, including women from racialized and LGBTQ communities, and women with sex work and/or drug use histories. Building on PRAs' lived experience, research capacity was supported through a multi-phase experiential training curriculum covering survey-based research, CBR principles, research ethics, social positioning, self-care, and computer literacy. On-going iterative learning and support opportunities were implemented, including a secure PRA training and networking website, monthly meetings, and refresher trainings. Challenges included: 1) being responsive to the range of PRA skills and experiences; 2) tensions around PRAs' shifting roles; 3) ensuring PRA safety and confidentiality relating to HIV and other personal factors; and 4) insufficient time and resources dedicated to translation. Opportunities included: 1) overall team capacity building; 2) co-creation of innovative solutions to study challenges; 3) PRAs becoming study stewards in their communities and supporting engagement of harder-to-reach women; and 4) stronger community connections facilitating knowledge translation, advocacy, and action on formative study findings and processes.

RECOMMENDATIONS: Recommendations include: creating employment and training processes that are flexible and responsive to women's needs and experiences; allotting sufficient resources for translation and cultural adaptation of training tools; fostering team building, trust, and communication; and supporting tailored implementation to match regional contexts.

O107

SEXUAL MATURATION PATHWAYS AND HIV RISK TOLERANCE: UNDERSTANDING GAY AND QUEER MEN'S SEXUAL RISK TAKING OVER TIME

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Social science HIV prevention research has recognized that sexual risk behaviours need to be situated within broader social and cultural contexts (Adam 2005, 2006; Kippax & Race, 2003; Körner, Hendry, & Kippax, 2005). Similarly, an emerging literature has indicated the value of using a life course framework to better understand the decision-making practices of at-risk subjects (Chown 2013; WHO 2000). Further, within the field of sexuality studies, a host of theoretical and methodological tools have been devised to better understand how sexual practices become enacted over space and time (Dowsett 2009; Green 2008, 2013; Plummer 2003).

This presentation takes off from these viewpoints using data collected from 34 in-depth qualitative interviews performed in 2013 with young (18 to 35 years of age), HIV negative and sero-status unknown, gay and queer identified men living in Montréal and Toronto. All 34 men have had one or more encounters where they have been at-risk of HIV.

Based off of this data, I shall introduce the concept of sexual maturation pathway to explain how young gay men make their sexual health risk choices over time. By tracing these men's sexual history and understandings of HIV risk as they mature, I have found two general patterns: 1) the sexual risk adversity pathway and 2) the sexual risk tolerance pathway. Whether or not subjects become more or less tolerate to sexual risk taking is a product of four key factors: 1) abstract health knowledge, 2) sexual experience, 3) interactions with health services, and 4) orientations to gay and queer communities. Understanding how these changing factors shift the sexual maturation pathway offers us a new way to understand the intersections between sexual and health decision-making.

This presentation will be useful to HIV prevention researchers and front-line workers who are interested in better addressing the needs of young gay and queer men.

O108

A NATIONAL NEEDS ASSESSMENT OF TRANS PEOPLE

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INTRODUCTION: International studies have suggested alarming HIV rates among trans people, particularly trans women. ASOs have accordingly recognized the need to enhance their capacity to serve the trans population, beginning with a clearer understanding of their health disparities, circumstances and needs. The Canadian AIDS Society, guided by a trans advisory committee, undertook a national needs assessment of trans people vis-à-vis ASOs, and, by extension, of ASOs vis-à-vis trans people.

METHODS: In 2013, our mixed method, qualitative and quantitative 80-question online survey (approved by PHAC's Research Ethics Board) asked trans people about their health, income, employment, housing, children, support systems, experiences with discrimination and stigma, HIV risk factors, HIV status, and experiences with ASOs. Key informant interviews were conducted with staff in ASOs, health centres, and other community-based organizations, to assess services available, gaps and barriers.

FINDINGS: Response to the survey was positive, with >250 respondents. Data analysis began in January 2014. Few respondents reported HIV-seropositive, but a substantial proportion had never – or had not recently – been tested. Preliminary analysis indicates considerable diversity in the circumstances and needs of trans people in Canada. A number of specific needs were identified, including access to endocrinologists, access to mental health care, and improved public education about gender identities and gender expressions in order to reduce stigma, discrimination and violence against trans people.

CONCLUSION: Further research is needed: epidemiological data about trans people would provide a much clearer picture of the extent to which HIV affects the trans population in Canada. Among ASOs generally there is an acknowledged need and willingness but limited resources to enhance capacity to serve members of the trans communities. There are some excellent resources already available through various organizations to help accomplish this goal. Development of additional resources would help build capacity in trans cultural competence.

O109

ADVANCING RESEARCH AND PRACTICE IN HIV AND REHABILITATION: A FRAMEWORK OF NEW AND EMERGING RESEARCH PRIORITIES IN HIV, DISABILITY AND REHABILITATION

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OBJECTIVE: To identify new and emerging research priorities in HIV, disability and rehabilitation.

METHODS: We implemented the first ever International Forum on HIV and Rehabilitation Research held in Toronto, Ontario in June 2013. The aim of the two-day Forum was to translate research evidence on HIV and rehabilitation to international stakeholders and establish

new research priorities in the field. We used qualitative approaches to conduct a collaborative multi-stakeholder consultation. Specifically we asked Forum participants to identify new and emerging issues and research priorities in the area of HIV, disability and rehabilitation. We collected information from both written and verbal data sources including speaker notes, a Forum Workbook exercise, rapporteur notes, and an evaluation form. Information was collated and analyzed using content analytical techniques.

RESULTS: Ninety-two participants attended the Forum, including people living with HIV, academic and community-based researchers, clinicians, representatives from community-based organizations, funders and policy stakeholders from Canada, United Kingdom, Ireland and the United States. The Framework of New Research Priorities in HIV, Disability and Rehabilitation includes six research priorities in HIV, disability and rehabilitation: 1) episodic health and disability; 2) aging with HIV across the lifespan; 3) concurrent health conditions; 4) access to and models of rehabilitation service delivery; 5) effectiveness of rehabilitation interventions; and 6) enhancing outcome measurement in HIV and rehabilitation research. These priorities overlap within three larger content areas: A) episodic health and disability across the lifespan; B) rehabilitation; and C) methodological advances in HIV, disability and rehabilitation research. The Framework includes methodological considerations; and environmental and personal contextual factors (or lenses) through which to approach HIV and rehabilitation research. Knowledge translation should be considered throughout the development and application of research knowledge generated from these priority areas into clinical practice and policy.

CONCLUSIONS: These priorities outline a future plan for HIV and rehabilitation research. This Framework may be used by researchers, clinicians, people living with HIV and the broader HIV community, to help increase our knowledge, and enhance HIV practice, programming and policy.

O110
CRIMINALIZATION OF SEX BUYERS IN CANADA: POTENTIAL IMPACTS ON SAFETY AND HIV SEXUAL RISK REDUCTION AMONG SEX WORKERS

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BACKGROUND: In December 2013, the Supreme Court of Canada deemed Canada's sex work laws unconstitutional, leaving Parliament one year to implement new legislation. While research globally, and relevant UN/WHO guidelines, called for the decriminalization of sex work as critical to an effective response to the HIV epidemic, the Canadian government has asked for more research on the criminalization of purchasing sexual services. Vancouver provides a unique opportunity in Canada to evaluate the potential impact of legislation that criminalizes sex buyers as the Vancouver Police Department (VPD) in January 2013 adopted sex work enforcement guidelines that prioritize sex workers' safety over arrest and, in effect, shifted enforcement efforts towards clients.

METHODS: This study draws on 31 qualitative interviews with sex workers about their experiences with police and on ethnographic observations in Vancouver from January-November 2013 following the implementation of the new VPD guidelines. Interview transcripts and ethnographic data were analyzed thematically with a focus on how policing shaped sex work transactions and HIV-risk.

RESULTS: Participants' narratives and ethnographic observations indicated that while police sustained a high level of visibility they eased charging or arresting sex workers and showed increased concern for their safety. However, participants' accounts and police statistics indicated continued police enforcement of sex buyers. This profoundly impacted the safety strategies sex workers employed. Sex workers continued to mistrust police, had to rush screening clients, and were displaced to outlying areas with increased risks of violence, including being forced to engage in unprotected sex.

IMPLICATIONS: These results provide among the first evidence in Canada that, in a context where sex buyers are criminalized, sex workers continue to be at increased risk of violence including HIV infection. The current findings support decriminalization of sex work to ensure work conditions that support the health and safety of sex workers in Canada.

O111
THE MIGRATION OF DESIRE: CHINESE IMMIGRANTS' ACCOUNTS OF SEXUALITY AND INTIMATE RELATIONSHIPS IN TRANSNATIONAL CONTEXTS

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The current generation of Chinese immigrants to Canada occupy what are increasingly recognized as "transnational spaces" – spaces that, with the ubiquity of the internet and the availability of daily direct flights between the Canada and China, span the territorial boundaries of the host country and the home country. This paper draws from interviews conducted as part of a study that aims to understand the vulnerability to HIV faced by the current generation of Chinese immigrants to Canada. In it we consider interview participants' narratives of what they desire and what they do in terms of sex and intimate relationships. More generally we reflect on how immigration and experiences in Canada have shaped sexuality and its expression, sexual identity, desires for partnership and the nature of the partner desired. Movement between geographical and social spaces both prompts and is prompted by new opportunities for sexual expression, particularly for men who have sex with men but also for some heterosexual women. Transnational lives are also, however, subject to new limits, pressures and constraints; downward social mobility after immigration, for example, appears as a persistent source of stress in heterosexual relationships, and was sometimes cited as the cause of extramarital sexual relationships. We examine the values that interview participants activate and endorse in their narratives of sex and intimate relationships, especially how values or worldviews deemed Chinese intersect with 'foreign' worldviews, or values considered Canadian. Our central intent with the paper is to highlight ways that sexual and partner desirability is (re)constructed in relation to immigrants' new social and cultural circumstances in Canada, and in relation to their ongoing opportunity for transnational connections to China.

O112
"WE ARE NOT SAYING THAT GAY MEN SHOULDN'T HAVE SERVICES": EXPERIENCES OF HETEROSEXUAL BLACK MEN IN ACCESSING HIV AND HEALTH SERVICES IN ONTARIO

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Epidemiological trends in Ontario show disproportionate numbers of HIV infections among heterosexual black men. Yet, heterosexual black men face complex issues that limit their access to HIV-related and health services that are configured to satisfy a peculiar intersection of race, gender, and sexual orientation. These issues include a mistaken belief that heterosexual black men are socially advantaged because of their heterosexuality, wantonly detrimental to the wellbeing of black communities, or unwilling to acknowledge and engage their vulnerability.

The iSpeak research study explored the HIV-related needs, challenges and priorities of heterosexual black men in Ontario through a series of focus groups in Toronto and London with heterosexually-identified HIV-positive (n=7) and HIV-negative (n=7) black men, and community-based service providers (n=6) who deliver HIV programs to black communities in Ontario. In-depth interviews were also conducted with researchers (n=4) working on black people's health and well being. Data was analyzed by collaboratively among research team.

Heterosexual black men expressed concerns about competition with (or opposition to) black women and gay men in accessing HIV services. They found care and support from significant others in close relationships, despite appearing predisposed to cope with vulnerability as solitary individuals. Black men and service providers identified structural and interpersonal challenges (such as barriers accessing employment, secrecy/confidentiality about their health status, and understanding community vulnerability to HIV), but also opportunities to productively engage themselves and their communities around HIV, health and wellbeing.

An environment that is more supportive of black men's needs, potential and aspirations may include: development of health promotion materials, programs and policies that are inclusive and diverse in relation to the experiences of heterosexual black men; programs and interventions to support leadership among heterosexual black men in community responses to HIV; and resources to apprise newcomers about HIV trends, risks and related services available in Ontario.

BASIC SCIENCES
SCIENCES FONDAMENTALES

Co-morbidities, Including HCV

Comorbidités, dont le VIH-VHC

P001
IDENTIFICATION AND FUNCTIONAL CHARACTERIZATION OF A NOVEL DRUG TARGET IN HIV-ASSOCIATED PATHOGEN CRYPTOCOCCUS NEOFORMANS FOR PREVENTION AND THERAPY OF MENINGOENCEPHALITIS COMORBIDITY IN HIV/AIDS PATIENTS

Attarian, Rodgoun
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Opportunistic co-infections are one of the predominant causes of morbidity and mortality among HIV/AIDS patients. Cryptococcus neoformans (CN) is an opportunistic fungal pathogen that causes life-threatening cryptococcal meningoencephalitis (CM) in HIV/AIDS patients. Before the advent of ART, 6% to 8% of HIV infected patients in developed countries acquired CM, and recent reports highlight the alarming issue of CM in certain HIV-infected populations in Sub-Saharan Africa (SSA). It is estimated there are more than 700,000 cases of CM in SSA annually with a mortality rate of more than 500,000. This tragic situation in SSA and other resource limited sites clearly reflects an urgent need for design and development of new therapies against CM in HIV/AIDS patients.

Iron is an essential element for both host and pathogen, and CN senses iron in the host to regulate elaboration of major virulence factors during infection. The prevalence of this disease in SSA has been associated with nutritional aspects of iron loading in the background of the HIV/AIDS epidemic. In this study we report discovery of a monothiol glutardexon3 (Grx3) that has a central and critical role in maintaining iron homeostasis. We showed that Grx3 physically binds and interacts with the main iron-responsive transcription factor in CN (Cir1) in vitro and in vivo. Also, upon deletion of GRX3, CN loses the ability to perceive iron, and grx3 mutant displays the same iron-related phenotypes as cir1 mutant. Most importantly grx3 mutant is avirulent in a mouse model of infection.

Our findings indicate that Grx3 is involved in iron sensing, maintenance of iron homeostasis and regulation of virulence in CN. Our study suggest that Grx3 in CN can serve as a novel drug target, as targeting Grx3 is targeting the iron homeostasis network of CN or in other words targeting Achilles' heel of CN.

This study is funded by Canadian Institutes of Health Research (CIHR) Doctoral Research Award (RFN: R9004).

P002
REDUCED ACTIVITY OF CD8+ T CELLS IN RESPONSE TO IL-7 IN HCV MONO- AND HIV-HCV CO-INFECTION

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BACKGROUND: Effective immune responses against hepatitis C virus (HCV) are dependent on CD8+ T cells, however their function is impaired in chronic viral infections, including HIV. HCV is the most prevalent infectious co-morbidity in HIV infection. In HIV infection, CD8+ T cell impairment is associated with decreased activity of IL-7, an important cytokine for T cell development, homeostasis, and function. Whether impaired IL-7 activity contributes to observed CD8+ T cell dysfunction in HCV-mono and HIV-HCV co-infection is unknown.

METHODS: Assessment of membrane-bound IL-7 receptor (IL-7Rα, mCD127) expression, plasma soluble CD127 (sCD127) levels, and cellular responses to IL-7 will determine whether HCV infection results in CD8+ T cell dysfunction, as we described in HIV infection. To evaluate CD8+ T cell phenotype and functions, blood-derived CD8+ T cells were isolated from HCV−/HIV− healthy donors, and untreated chronic HCV mono- or HIV-HCV co-infected individuals on HAART.

RESULTS: There was no significant difference in mCD127 expression on bulk CD8+ T cells or plasma sCD127 levels between groups, as measured by flow cytometry and immunobead assays respectively. Cells from HCV+ individuals expressed lower levels of phosphorylated STAT5 and Bcl-2 compared to controls, as did cells from HIV-HCV co-infected individuals. Preliminary data indicate distinct differences in cell division between PHA and IL-7 stimulated CD8+ T cells from HCV+ and control individuals, and complete division impairment in HIV-HCV co-infection.

CONCLUSIONS: CD8+ T cell impairment in HCV infection is characterized by inherently impaired cytokine signaling, independent of mCD127 expression, in contrast to what we observed in HIV infection. The mechanism by which this occurs remains to be determined. A defect in the STAT5 pathway may contribute to CD8+ T impairment, as IL-7 functions depend largely on STAT5 signaling. Identifying the cause of CD8+ T cell impairment in HCV infection can enhance design of novel treatments, including cytokine-directed immunotherapies.

P003
ASSESSMENT OF NOVEL ACYLGUANIDINE-BASED SMALL MOLECULES AS BROAD-SPECTRUM VIROPORIN INHIBITORS

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BACKGROUND: Recent advances in HIV-1 and Hepatitis C (HCV) therapies are highly encouraging; however, the risk of drug resistance necessitates continued development of new antiviral agents. Viroporins are virally-encoded ion channels essential for virus replication, making them attractive therapeutic targets. Here we describe a series of novel acylguanidine-based small molecules with broad-spectrum activity against viroporins.

METHODS AND RESULTS: To measure viroporin function, we developed a mammalian cell assay using a pH-sensitive fluorescent dye that localizes to intracellular vesicles. Consistent with known viroporin-regulated proton transport and vesicle alkalinization, transient expression of the p7 viroporin of HCV (genotype 1b) quenched fluorescence by 38.7% compared to mock-transfected control cells ($P<0.05$). Furthermore, treatment of p7-expressing cells with the control viroporin inhibitor rimantadine at 1 μM, 3 μM, and 10 μM restored fluorescence by 49.2%, 57.8%, and 100.7% ($P<0.05$). We used this assay to screen a panel of acylguanidine-based small molecules and identified a novel compound, SM111, which restored fluorescence in cells expressing viroporins from HCV, Bovine Viral Diarrhea Virus, and Dengue; for example, 10μM SM111 restored fluorescence in HCV-1b p7-expressing cells by 81.2% ($P<0.05$). SM111 also inhibited the Influenza A M2 viroporin with greater potency than control inhibitor amantadine (IC50 0.2±0.1 μM for SM111 versus 0.6±0.2 μM for amantadine). We then generated a series of SM111 derivatives to identify structure-activity relationships. Distinct chemical substituents were found to underlie the ability of compounds to inhibit HCV p7 or Influenza A M2, or to exhibit pan-viroporin blockade activities.

CONCLUSION: Taken together, we suggest that SM111 and related acylguanidine small molecules are promising prototypes for broad-spectrum viroporin inhibitors and antivirals.

HIV Immunology

Immunologie du VIH

P004
HETEROCLITIC VARIANTS OF HUMAN IMMUNODEFICIENCY VIRUS PEPTIDES ENHANCE CD8+ T CELL PROLIFERATION AND REDUCE PD-1 EXPRESSION

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Heteroclitic peptides are sequence variants of native peptide epitopes that stimulate T cell responses superior to the native epitope. The amino acid substitutions can improve peptide-binding affinity for human histocompatibility linked leukocyte antigens (HLA) and/or alter the pHLA–TCR complex interaction. We previously showed that heteroclitic peptides enhance interferon-gamma (IFN-γ) and interleukin-2 (IL-2) production by HIV-specific CD8+ T cells, therefore, we tested whether they can also enhance CD8+ T cell proliferation and reduce phenotypic evidence of exhaustion. Twenty-four variant peptides were generated from reference HLA-A2-restricted HIV peptide epitopes Nef 83–91, Nef 135–143, Gag 433–440 and Gag 77–85 with conservative and semi-conservative amino acid substitutions at positions 3, 5 and 7 or 3, 5 and 8 of Gag 77–85. Heteroclitic peptides were identified by ELISPOT assays with peripheral blood mononuclear cells (PBMC) from 20 HIV-infected HLA-A2 individuals when they stimulated ≥100 more IFN-γ or 50 more IL-2 sfu/106 PBMC than the reference peptide. Thirty-four instances of heteroclitic peptide activity were observed. The heteroclitic peptides identified by ELISPOT were then used to stimulate PBMC from the same donor for seven days, after which total CD8+ T cell proliferation and PD-1 expression on proliferating cells were assessed relative to CD8+ T cells stimulated with the reference peptide. Heteroclitic peptides augmented CD8+ T cell proliferation by >20% in 10 of 34 cases and reduced PD-1 expression by >65% in five of 34 cases, in one case eliminating PD-1 expression completely. Heteroclitic peptides elicit stronger HIV-specific CD8+ T cell cytokine and proliferative responses relative to reference peptides and modulate the differentiation status of responding cells, indicating their unique immunotherapeutic potential.

Supported by CIHR and the Faculty of Medicine Memorial University

P005
A POTENTIAL HOST BENEFICIAL ROLE OF IL-37 IN THE PATHOGENESIS OF AIDS

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BACKGROUND: Interleukin 37 (IL-37), is the 7th member of the IL-1 family. However, unlike these members of the family, IL-37 is an anti-inflammatory cytokine and has both intercellular and extracellular functions. Both its precursor and mature forms bind with the IL18 receptor alfa chain (IL-18Ralfa) with very low affinity. IL-37 does not antagonize IL-18 but can form a complex with IL-18 Binding Protein (IL-18BP), and increases the ability of IL-18BP to neutralize mature IL-18. IL-37 exerts anti-inflammatory effects, we investigated its role in HIV infection. We show here for the first time that this cytokine may have a host beneficial role in the course of HIV infection.

METHODS: We measured soluble IL-37 in the circulation of 20 healthy controls and 49 HIV-infected individuals in different categories ie, 20 ART-treated patients, 20 ART-naive patients, nine elite controller patients. Human monocyte-derived macrophages (MDM) were infected in vitro with dual tropic HIV strain (89.9) in the presence or absence of IL-37. Supernatants were collected every 24 h for three days. HIV production in the supernatants was measured by a commercial P24 ELISA kit. We also tested the ability of IL-37 to reduce the expression of PD-1; a marker for T cell exhaustion.

RESULTS: No significant difference was observed in the concentrations of IL-37 between HIV-infected and healthy control individuals. Surprisingly, the elite controller group of the HIV-infected individuals had significantly higher levels of this cytokine than those of the other HIV-infected patient categories. The cytokine levels in the elite group were even higher than those of the healthy control individuals. The cells MDM produced less of the virus in presence of IL-37. The cytokine also reduced the LPS-induced expression of PD-1 on T cells. It also increased survival of the cells in freshly thawed PBMC.

CONCLUSIONS: The cytokine reduces production of the virus in human cells, reduces T cell exhaustion and increases their survival. Higher IL-37 levels in the elite group of HIV-individuals may have a host protective effect in these patients.

P006
ANALYSIS OF MYELOMONOCYTIC POPULATIONS DURING HIV INFECTION

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INTRODUCTION: To determine if there are phenotypic and functional changes in human monocytes subpopulations during HIV infection that persisted in spite of spontaneous or therapy-induced viral suppression. We hypothesized that alterations in the monocytic and myeloid-derived suppressor cells (MDSCs) subsets may contribute to impaired T cell function in HIV infection. Based on expression levels of CD14 (LPS receptor) and CD16 (FcgRIII), three monocyte populations were identified: CD14++CD16− classical, CD14+CD16+ intermediate and CD14lowCD16+ non classical monocytes. CD14+HLA-DRlow/neg immunosuppressive monocytes, which are known for their ability to suppress T-cell responses, were classified as monocytic MDSCs.

METHODS: FACS analysis of surface markers (CD40, HLA-ABC, HLA-DR, CD86, CCR2) and intracellular molecules (IL-12p70/40, IL-23p19, TNF-α) were performed on freshly isolated PBMC from 16 healthy donors (HD) and compared to HIV-infected subjects at different stages of infection: 11 treated subjects (ARTC), nine untreated progressors (CP) and eight elite controllers (EC). In order to define responses to stimulatory signals, cells were incubated overnight with recombinant IFN-g and/or LPS (Lipopolysaccharide). Plasma from these individuals was collected to analyze bio-inflammatory markers.

RESULTS: Untreated CP had significantly higher HLA-DR-CD14+CD33+CD11b+ MDSC frequency than HD, ARTC and EC. Furthermore, CP also had higher relative frequencies of all monocyte subsets than HD and ARTC. Irrespective of treatment status, monocytes of HIV+ subjects expressed less HLA Class I and II molecules than HD, with a trend for lower CD86 levels. In contrast to TNF-a production, there was a marked decrease in IL-12p70/40 secretion in CP upon stimulation.

CONCLUSION: Our data show that compared to HD, myelomonocytic subsets in HIV+ individuals present phenotypic and functional differences that are not fully corrected by spontaneous or therapy-induced viral control. Perturbations of these subsets can contribute to ongoing immune dysfunction in treated and untreated HIV-infected subjects and may represent a target for therapeutic interventions.

P007
PROTEOMIC ANALYSIS IDENTIFIES INCREASED ACUTE PHASE RESPONSE PROTEINS IN THE VAGINAL MUCOSA AND PLASMA OF HIV-RESISTANT WOMEN UPON VACCINE CHALLENGE

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The primary receptive portals of entry for HIV are through mucosal surfaces. Our previous studies show that HIV-exposed seronegative individuals (HESN) from Pumwani, Kenya have unique innate responses associated with resistance to HIV infection. However, we do not know whether this immune state is static or induced upon viral exposure. To answer this question we challenged HESN women with a live attenuated Flumist vaccine

and analyzed their mucosal and systemic immune responses using a systems biology approach.

METHODS: HESN women (n=10) and HIV-susceptible controls (n=10) were challenged with an intranasal Flumist vaccine. Mucosal and plasma samples were collected 0, 1, and 7 days post-challenge and analyzed by a combination of mass spectrometry, cytokine bead arrays, hierarchical clustering, and pathway analysis.

RESULTS: HESN women exhibited significant changes both mucosally and systemically post-exposure. Of the >450 proteins identified in CVL and 220 in plasma, 62 and 48 were overexpressed ($P<0.05$) in HESN women, respectively, over that of controls seven days post-exposure. Hierarchical clustering identified functional pathways distinguishing HESN individuals, including the acute phase response (APR), LXR-RXR, and complement pathways ($P<1\times10^{-17}$), with significant overlap between compartments. These factors included antiproteases (serpins), apolipoproteins, complements, and SAA proteins which have known anti-viral activity, factors previously observed as important for controlling early stage viremia in HIV+ individuals, supporting the hypothesis that these factors are contributing to reduced susceptibility to infection. Pro-inflammatory cytokines remained unchanged between groups. These results indicate HESN-unique responses may be inducible and understanding their role in mucosal susceptibility to HIV may help guide microbicide/vaccine strategies.

This work is supported by the Gates Foundation, the Canadian Institute for Health Research, and the Public Health Agency of Canada

P008

THE PAUCITY OF NAIVE TH17 PRECURSORS AS A NEW MECHANISM OF TH17 DEFICIENCY IN HIV-INFECTED SUBJECTS: PARTIAL RESTORATION UPON EARLY ART

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BACKGROUND: Th17 responses are altered during HIV-1 infection, particularly at mucosal sites, and this deficiency is only partially restored under viral suppressive ART. Mechanisms contributing to Th17 deficiency during HIV-1 infection are not fully elucidated. Here we hypothesized that Th17 deficiency in HIV-infected subjects is associated with an impaired Th17 polarization potential of naive CD4+ T-cells.

METHODS: Leukapheresis from HIV+ subjects, recently-infected untreated (RI, n=15) and chronically-infected ART-treated (CI-ART, n=18), were available for this study. Also, n=4 subjects included in the HIV primary-infection cohort were followed up longitudinally during the first years of infection. Uninfected individuals served as controls. Naive and memory T-cell subsets sorted by FACS were stimulated via CD3/CD28 and cultured under Th17 polarizing conditions. The intracellular expression of lineage-specific cytokines and the ex vivo frequency of Th17 precursors (nTregs:CD45RA+CCR7+CD25+CD127-FoxP3+), memory Th17 (CD45RA-CCR6+CD26+CD161+), and induced Tregs (CD45RA-CCR7+CD25+CD127-FoxP3+) were assessed by FACS.

RESULTS: Naive T-cells from HIV+ subjects compared to uninfected controls were impaired in their Th17 differentiation potential ex vivo and were significantly depleted in natural regulatory T-cells (nTregs). nTregs were enriched in Th17 precursors in uninfected controls and harboured HIV-DNA in CI-ART subjects. The nTreg paucity coincided with decreased Th17 and induced Treg counts. nTreg counts were negatively correlated with age in uninfected controls, suggesting a process of premature ageing not restored by ART in HIV-infected subjects. Finally, a cross-sectional study in CI-ART subjects and a longitudinal follow up in HIV-infected subjects during the first years of infection indicated that early ART initiation was beneficial for the restoration of nTreg and Th17 counts, likely by limiting HIV infection of these cells.

CONCLUSIONS: The paucity of naive Th17 precursors represents a novel mechanism for Th17 deficiency in HIV-infected subjects. New strategies of early ART initiation are needed to prevent infection and subsequent depletion on naive Th17 precursors.

P009

T CELL RECEPTOR EXCISION CIRCLE FREQUENCY AND IMMUNE RESILIENCE IN HUMAN IMMUNODEFICIENCY VIRUS INFECTION

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Immune resilience in human immunodeficiency virus (HIV) infection refers to the capacity for reconstitution of lymphocyte numbers following periods of depletion and for maintenance of appropriate lymphocyte subset distributions over time. Aging, low nadir CD4+ T cell counts, and co-infection with cytomegalovirus (CMV) are factors associated with reduced immune resilience. T cell receptor excision circle (TREC) frequency in peripheral T cells represents a composite measure of thymic output and peripheral T cell turnover, two factors that influence immune resilience. Therefore, we measured (TREC) frequency by quantitative polymerase chain reaction (qPCR) in CD4+ and CD8+ T cell subsets of HIV-infected individuals with different ages, lymphocyte subset distributions and histories of CMV infection to investigate relationships with TREC frequency. HIV-infected individuals seronegative for CMV infection had a higher median CD8+ T cell TREC frequency (7540 versus 3160; $P=0.0222$), and CD4+/CD8+ T cell ratio (0.82 versus 0.51; $P<0.05$) than age-matched HIV-infected individuals with CMV. Phenotypic evidence of CD8+ T cell senescence was also reduced in CMV-seronegative individuals including lower percentages of CD28− (28% versus 56%, $P=0.0089$) and CD57+ (22% versus 38%, $P<0.05$) CD8+ T cells. Linear regression analysis indicated significant direct relationships between TREC frequency, CD4+ T cell count ($P=0.0328$), CD4+/CD8+ T cell ratio ($P=0.0012$), and the percentage of CD8+ T cells expressing CD28 ($P=0.0058$), but not with absolute CD8+ T cell numbers. TREC frequency inversely correlated with the percentage of CD8+ T cells expressing CD57 ($P=0.0089$). The magnitudes of CMV-specific T cell or humoral responses did not correlate with TREC frequency. Co-infection with CMV and low TREC frequencies are associated with reduced CD4+ T cell counts and accumulation of CD8+ T cells with phenotypic markers of senescence in HIV infection. Supported by CIHR.

P010

CHARACTERIZATION OF IMMUNE ACTIVATION OF T-CELLS IN HIV-1 POSITIVE PATIENTS WITH AND WITHOUT ANTIRETROVIRAL TREATMENT (ART). CALI-COLOMBIA, 2013

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BACKGROUND: Chronic immune activation among people living with HIV-1 may be critical for deterioration of the immune system. CD38 and/or HLA-DR molecules, expressed by T-cells, seem to be better markers for monitoring immune activation and predicting disease progression than CD4+ cell count. Immune activation of T-cells in HIV-1 positive patients, with and without ART, was determined by measuring the expression of these molecules.

METHODS: A cross-sectional study was conducted among 96 HIV-1(+) and 29 HIV (−) individuals. According to clinical and immune-virological parameters, HIV(+) individuals were classified in four groups: (1) ART-naive patients without indication for starting ART (CD4+ count >500 cells/μL and viral load <10000 copies/mL), (2) ART-naive patients with indication for starting ART (CD4+ count <500 cells/μL), (3) patients receiving ART responding successfully to therapy (CD4+ count >350 cells/μL, and viral load <400 copies/mL), and (4) patients in treatment failure (viral load >800 copies/mL). The expression of CD38 and HLA-DR was quantified by flow cytometry. The count of CD38+; HLA-DR+; and CD38+/HLA-DR+ cells, in both CD4+ and CD8+ T-cells, was compared between the groups. Correlation between the expression of these markers with CD4+ count and viral load was also analyzed.

RESULTS: Higher levels of activated T-cells were found in participants of both groups 2 and 4. For all the T-cell subpopulations analyzed, the activation level of T-cells in patients responding successfully to treatment (group 3) was very similar to the HIV-negative participants group. Immune activation levels were positively correlated with plasmatic viral load and inversely correlated with CD4+ cell counts.

CONCLUSIONS: T-cell immune activation, measured by CD38 and/or HLA-DR expression, is a good marker of disease progression and response to ART in Colombian HIV+ patients.

P011
IMMUNE ACTIVATION AND HIV/AIDS: ESTIMATION OF DIAGNOSTIC ACCURACY OF CD38+ AND HLA-DR+ EXPRESSION IN T-CELLS. CALI-COLOMBIA 2013

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BACKGROUND: Activation levels of T-cells are related to the speed of HIV-1 disease progression and with the response to antiretroviral treatment (ART). Currently, however, there is no clarity about the cut-off points of the level of markers expression for differentiating between stages of the infection, and for predicting disease progression and response to ART. The accuracy of quantifying the expression of activation molecules in CD4+ and CD8+ T-cell subpopulations, for discriminating patients according to their clinical and immune-virological status, was estimated.

METHODS: A subanalysis from a cross sectional study, in which expression of CD38 and HLA-DR was quantified by flow cytometry, was conducted among 96 HIV-1(+) individuals. Participants were classified in four groups: (1) ART-naive patients without indication for starting ART (CD4+ count >500 cells/μL and viral load-VL <10,000 copies/mL) (n=24); (2) ART-naive patients with indication for starting ART (CD4+ count <500 cells/μL) (n=32); (3) patients receiving ART responding successfully to therapy (CD4+ count >350 cells/μL, VL <400 copies/mL) (n=23); and (4) patients in treatment failure (VL >800 copies/mL) (n=17). The accuracy for discriminating patients between the groups was assessed via area under the curve (AUC) in a ROC analysis.

RESULTS: The immunological markers that differentiated participants in group 1 from participants in group 3 included: percentage[%] of CD38+ CD8+ T-cells; mean fluorescence intensity(MFI) of CD38 molecule in CD8+ T-cells; percentage[%] of HLA-DR+ CD8+ T-cells, and percentage[%] of CD38+/ HLA-DR+ CD8+ T-cells. These markers had a high discriminating accuracy (AUC >87), the MFI of CD38 expression in CD8+ T cells being the most relevant.

CONCLUSION: These results suggest that changes in the immune activation of CD8+ T-cells could precede phenotypic changes in CD4+ and their diminishment in peripheral blood. The expression of CD38 molecule (mainly MFI) by CD8+ T-cells better discriminated ART-naive patients without indication for starting ART from patients responding successfully to therapy.

P012
EVALUATION OF α4β7 T-CELL CHANGES FOLLOWING VIH PRIMARY INFECTION

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BACKGROUND: Massive CD4 T-cell depletion in gut mucosa within the first few weeks of HIV infection plays an important role in suboptimal systemic CD4 T-cell recovery. New data in macaques has shown that the loss of mucosal CD4 T-cells expressing α4β7 integrin, a gut homing marker, occurs within a few days of SIV infection. Here we prospectively assessed the changes in circulating memory α4β7 T-cells following primary HIV Infection (PHI).

METHODS: Plasma and PBMCs were longitudinally collected in 41 PHI patients (infection <90 days) and one year later, 24 remained untreated in the chronic phase (ART-naive) and 17 were ART-treated. Frequency of α4β7, CCR5 and HLA-DR/CD38 co-expression were assessed on T-cells.

RESULTS: In all groups, CD4 T-cell subsets expressed lower levels of α4β7 compared to CD8 T-cells. A negative association was observed between total CD4 cell counts and α4β7+ CD4 T-cells only in the chronic phase. In contrast, no correlation was observed between viral load and α4β7+ T-cell frequency. The frequency of α4β7+ was associated with HLA-DR/CD38 expression only for CD8 T-cells in PHI. α4β7+ cells expressed higher levels of CCR5 compared to total CD4 and CD8 T-cells in both primary and chronic phases of infection. No significant difference was observed between α4β7+ T-cell frequencies in PHI compared to ART-naive or ART-treated patients. However a significant decrease was observed on CCR5+ and memory α4β7+ T-cells in both ART-naive and ART-treated patients compared to PHI.

CONCLUSION: The higher expression of CCR5+ and memory α4β7+ T-cells in HIV primo-infection can favor the preferential depletion of α4β7 in early phase of infection resulting in a lower gut mucosal immunity.

P013
POSITIONING OF APOBEC3G/F MUTATIONAL HOTSPOTS IN THE HUMAN IMMUNODEFICIENCY VIRUS GENOME FAVORS REDUCED RECOGNITION BY CD8+ T CELLS

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The Cytidine deaminases APOBEC3G (A3G) and APOBEC3F (A3F) have been classically considered as agents of innate immunity, since they are expressed pre-infection in T cells, dentritic cells and macrophages and since they limit HIV propagation by editing the negative strand of the viral DNA during its replication; an activity that is indiscriminant to all cytoplasmic single-stranded DNA. We hypothesized that these enzymes may also influence the adaptive arm of anti-viral immunity. Recently, this role has been examined by others by measuring the response of Cytotoxic T cells (CTL) bearing transgenic receptors to target cells that were infected by viruses produced in cells that either did or did not express APOBEC. However, the in vivo effect of APOBECs on adaptive immunity in patients has not been evaluated. Here, we measured the ex-vivo response of CTL from HIV+ individuals to peptide epitopes of HIV bearing simulated A3G/F mutations. We found that the mutated epitopes elicited a diminished CTL response as compared to wild type counterparts, particularly in epitopes restricted to HLA types known to correlate inversely with disease progression. This suggests that A3G/F mutations contribute to CTL escape. A prediction of this model is that the HIV genome may have evolved to enrich A3G/F mutational hotspots in portions that encode the most immunogenic CTL epitopes. Indeed, we found that the most frequently mutated motif by A3G (CCC) is enriched in portions of the viral genome encoding CTL epitopes within gag, nef and pol, which contain the most immunogenic epitopes. Our results reveal that mutations of the HIV genome by A3G and A3F may induce or accelerate the escape of HIV from the CTL response.

P014
IL-7-INDUCED SCD127 RELEASE BY HUMAN CD8+ T-CELLS IS MEDIATED BY THE JAK/STAT5 SIGNALING PATHWAY AND INVOLVES MMP ACTIVATION

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BACKGROUND: Interleukin-7 (IL-7) has a crucial role in the development, homeostasis and cytotoxic (CTL) activity of CD8+ T-cells. IL-7, which is upregulated in HIV infection, downregulates the expression of the membrane bound IL-7 receptor α (mCD127) and induces the release of a soluble form (sCD127). sCD127 alters IL-7 activity and plasma concentrations are increased during HIV infection. Despite the potential biological importance of sCD127, the mechanisms of its production and release have been only partially described.

METHODS: Human blood-derived CD8+ T cells and thymocytes were treated with IL-7 and TcR-stimulating antibodies (anti-CD3/CD28) to induce sCD127 release. Culture supernatants were collected every 24 h over 96 h and sCD127 concentration was measured by ELISA. To characterize the signaling pathways leading to sCD127 release, pharmacological inhibitors for Jak, STAT5 and PI3k were used. To evaluate the contribution of direct shedding of mCD127, surface protein biotinylation assays were performed and analyzed through Western blots. Serine, cysteine and matrix metalloproteinase (MMP) inhibitors were used to determine the implication of proteolytic cleavage in sCD127 release.

RESULTS: IL-7 significantly enhanced TcR-induced sCD127 release by CD8+ T-cells, in part via the Jak/STAT5 pathway. Release of sCD127 appears to be a result of a direct loss of mCD127 as shown by biotinylation assays. The use of inhibitors showed that MMP, but not serine and cysteine proteases contribute to sCD127 release. In thymocytes, IL-7/TcR stimulation did not affect sCD127 release, however basal expression of sCD127 increased over time in culture.

CONCLUSIONS: IL-7 and TcR stimulation results in sCD127 release from CD8+ T-cells but not from thymocytes. This release depends on the activation of IL-7 signaling via the the Jak/STAT5 pathway and appears to involve MMP-mediated cleavage of mCD127 directly from the cell surface. Elucidating the mechanism of release of sCD127 may lead to therapeutic strategies for HIV infection.

HIV Molecular Epidemiology, Including Host Genetics and HIV Evolution

Épidémiologie moléculaire du VIH, dont la génétique de l'hôte et l'évolution du VIH

P016
THE ONCOLYTIC VIRUS MG1 INFECTS AND KILLS HIV-INFECTED MACROPHAGES

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BACKGROUND: Monocytes/macrophages from both untreated and HAART treated HIV-infected individuals harbor latent proviral DNA. The latent HIV carried by monocytes/macrophages can be reactivated following opportunistic infections or appropriate stimulation. In order to establish latency, HIV has evolved several mechanisms to evade the immune response, including the inhibition of the antiviral interferon (IFN) pathway. A class of oncolytic virus (OV), which includes the recombinant Maraba virus (MG1), has been designed to specifically target and kill cancerous cells by exploiting their impaired IFN signaling.

HYPOTHESIS: MG1 will target and kill HIV-infected cells of the monocyte/macrophage lineage.

METHODS: Macrophages were derived from healthy donors' blood monocytes, infected with HIVCS204 (MOI of 1-10) and cultured for seven days. Macrophages were then exposed to GFP-encoding MG1 (MOI of 0.01) for various time points. MG1 infection of macrophages was monitored through GFP expression by flow cytometry. Cell viability was assessed by MTT assay. The effect of MG1 infection on HIV replication was evaluated by p24 production in culture supernatants by ELISA.

RESULTS: After 16 h of incubation with MG1, GFP was detected in 13% of HIV-uninfected macrophages. MG1 infection was associated with a 25% decrease in cell viability after seven days, as measured by MTT assay. HIV infection of macrophages did not affect their infectability by MG1 or their viability following MG1 infection. However, infection with MG1 resulted in a 90% reduction in p24 antigen levels.

CONCLUSION: MG1 can infect and kill macrophages and does not appear to be altered by acute HIV infection. However, MG1 does have a significant impact on HIV replication in this system. Further work will be conducted to increase the specificity of MG1 to HIV-infected cells. Our results suggest that MG1 could represent a candidate OV with the potential to target HIV-infected macrophages, an important contributor to the latent HIV reservoir.

P018
VALIDATION OF SIVMAC239 AS A NON-HUMAN PRIMATE MODEL FOR STUDIES OF HIV INTEGRASE DRUG RESISTANCE

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BACKGROUND: No drug-naive patients treated with DTG have yet developed resistance mutations against this drug. In contrast, our group selected a R263K integrase mutation in culture that confers low-level resistance to DTG, and this substitution has also been rarely observed in DTG-treated individuals naive to integrase inhibitor (INI) therapy. We wished to validate SIV macaque isolate 239 (SIVmac239) as a model to study the effects of resistance to INIs on viral pathogenesis. Integrase (IN) mutations that were selected under drug pressure with RAL, EVG and DTG such as H51Y, Y143R, Q148R, N155H and R263K were examined in SIVmac239.

METHODOLOGY: Genetically homogenous viruses were produced by transfecting wild-type and mutated SIVmac239 plasmids into 293T cells. Viral titers used for infectivity and resistance studies were normalized by RT quantification. SIV infectivity was evaluated using a noncompetitive short-term infectivity assay in TZM-bl cells. SIV susceptibilities to DTG, RAL and EVG were measured in TZM-bl cells with SIVmac239 viruses containing either wild-type or mutated IN.

RESULTS: Sequence alignments of SIVmac239 IN with various HIV-1 isolates showed high sequence conservation of the catalytic triad and key residues involved in resistance to INIs. The H51Y mutation did not confer resistance to INIs, similar to HIV-1, whereas Y143R, Q148R and N155H conferred resistance to EVG (~3-, 18-, 47-fold, respectively), and R263K conferred resistance to DTG (~7-fold). Each of these mutations also resulted in impairment of viral infectiousness.

CONCLUSIONS: Our results show that SIV IN associated-mutations have similar resistance profiles to their HIV-1 equivalent mutations. Introduction of mutations in SIV IN impaired viral infectivity and conferred resistance to INIs as previously observed in HIV. These data suggest that SIVmac239 will serve as a useful non-human primate model for studies of HIV resistance to DTG.

P019
DISTINCT FEATURES OF LARGE CLUSTER VIRAL VARIANTS LEAD TO BETTER TRANSMISSION OF HIV-1

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BACKGROUND: Although improved antiretroviral treatment has led to marked declines in community HIV-1 viral load in Quebec, the rates of new HIV-1 infections have remained stable over the last decade. Phylogenetic analysis has shown that there is a selection for large clustered transmission networks. The proportion of viruses found in large clusters went from 25% in 2001–2005 to 39% in 2005–2009 to 59% in 2009–2012. It is our hypothesis that viruses are evolving to overcome transmission barriers. This study investigated the distinctive features of large clustered viruses in terms of their genetic diversification, viremia and their response to first and second generation NNRTIs.

METHODS: Phylogenetic analysis on sequence databases from the Quebec provincial surveillance program and the Montreal PHI Cohort was assessed to determine clustering patterns of transmitted viruses in the antiretroviral therapy (ART)-naive populations. The viruses were classified into large clusters ($n \geq 5$), small clusters ($n < 5$) and uniques. Viruses associated with large clusters harboring wt, G190A, and K103N, and wild type unique viral variants were expanded in culture and selected for resistance to first and second generation NNRTIs, including efavirenz (EFV),etravirine (ETV) and rilpivirine (RPV) to determine their resistance profiles and response to the drugs.

RESULTS: Viruses found in large clusters have statistically significant lower ambiguity than those found in small clusters and uniques (median of 0.11, 0.22 and 0.33 respectively, $P<0.0001$) in spite of having similar levels of viremia (log10 viral load of 4.72, 4.70 and 4.67 respectively). Select large clustered variants acquired resistance faster than the unique viral variants. Tropism shift was rapid for one cluster.

CONCLUSION: In the mindset of HIV/AIDS eradication and cure, it is of concern to observe increasing transmission of select viral variants. Further investigation is needed in order to understand why those variants are better transmitters than others.

P020
GENETIC DIVERSIFICATION AND POPULATION LEVEL PHYLODYNAMIC ANALYSIS OF THE BRITISH COLUMBIA HUMAN IMMUNODEFICIENCY VIRUS (HIV) AND HEPATITIS C (HCV) EPIDEMICS

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Characterizing historical dynamics and the processes shaping viral epidemics provides crucial information for their assessment and management. RNA viruses evolve measurably on time-scales of transmission among individuals, allowing reconstruction of past epidemic dynamics from the genetic divergence among observable infections over time. We carried out phylogenetic analysis of the genetic diversification of HIV and HCV in British Columbia (BC) to quantify historical dynamics and to compare these to previous estimates in relation to known periods of epidemic change.

We reconstructed distributions of 1,000 time-scaled phylogenetic trees from 27,296 HIV protease and RT sequences sampled from 7747 patients in BC and from 1393 HCV NS5B sequences sampled from ~800 HCV RNA reactive patients. Lineage through time (LTT) plots were used to examine the history of epidemic expansion generally and as a function of clinical, demographic and risk factors (eg, gender, age, intravenous drug use). Birth-death models were used to generate time-structured estimates of HIV and HCV incidence.

Analyses of HIV and HCV yielded median times of global epidemic origin broadly concordant with previous work (~1900 HIV, ~0200 HCV). LTT plots reveal differences in timing of the HIV epidemic between IDU and MSM. IDU experienced increases in rates of HIV lineage accumulation in the mid-1990s, whereas the MSM epidemic grew rapidly in the 1980's followed by a reduction in incidence. LTT plots of HCV reveal rapid diversification of the epidemic 60 years ago, and that most female and male 'baby boomers' currently contribute little to onward HCV transmission. Most HCV transmission is occurring amongst younger individuals. Timing of phylogenetically estimated declines in lineage accumulation, and HIV incidence, are concordant with estimates based on the numbers of new HIV diagnoses, providing independent evidence that reductions in HIV incidence are associated with periods of expanded access to HAART.

P021
DEVELOPMENT OF NANOTOOLS TO TARGET HIV RESERVOIRS

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Following infection, HIV establishes reservoirs within tissues that are inaccessible to optimal levels of antiviral drugs, or within cells where HIV lies latent, thus escaping the action of anti-HIV drugs. Macrophages are a persistent reservoir for HIV and may contribute to the rebound viremia observed after HAART is stopped. New strategies to enhance penetration of antiviral therapeutics in viral reservoirs are urgently needed. Nanoparticles (NPs) represent new potential strategies to transport therapeutic compounds through natural barriers and hence have gained much interest in the past few years including in HIV/AIDS.

Here, we report the development of a polymer-based nanocarrier for the transport of therapeutic agents in macrophages. We have synthesized stable PLGA NPs and evaluated their capacity to transport an active molecule into the human monocyte/macrophage cell line THP-1 using bovine serum albumin (BSA) as a proof-of-concept compound.

The size of the PLGA NPs carrying fluorescent tagged BSA (PLGA-BSA) was approximately 171 nm in diameter and they were negatively charged at their surface (zeta potential: −24 mV). Our confocal microscopy studies and flow cytometry data showed that PLGA-BSA NPs are rapidly and efficiently taken up by THP-1 macrophages at low doses and persist in cells for many days following exposure. When compared to equivalent concentrations of BSA alone and empty NPs, PLGA-BSA NPs induced cell proliferation in vitro and leukocyte infiltration in a murine air pouch model of acute inflammation, demonstrating that BSA delivery is enhanced, both in macrophage cells and in animals, when encapsulated into polymer NPs. Altogether these results indicate that using nanopolymer carriers, it is possible to enhance the transport of active molecules into macrophages and thus to use them as a drug delivery strategy to target HIV sequestered in the reticuloendothelial system.

This work was supported by PHAC and NRC.

P022
COMPARISON OF 454 (ROCHE) VERSUS MISEQ (ILLUMINA) DEEP SEQUENCING TECHNOLOGIES IN CLINICAL SAMPLES FROM THE (ANRS) 139 TRIO TRIAL

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OBJECTIVE: '454 deep sequencing' has been popular in HIV drug resistance testing, but is also known to be susceptible to sequencing errors at homopolymer regions. MiSeq is a promising replacement. Here, we compared the prevalence of amino acid variants in HIV reverse transcriptase (rt) and integrase (int) regions reported by 454 versus MiSeq from samples derived from the (ANRS) 139 TRIO study in France.

METHODS: TRIO evaluated efficacy of raltegravir, etravirine, and darunavir in heavily treatment-experienced HIV-infected patients naive to all three drugs. Here, we sequenced TRIO baseline samples using standard Sanger, 454 and MiSeq methods. For each sample, we performed one reverse transcription with first-round PCR amplification, then three different "nested-PCRs," one specific for each technologies. Nucleotides were translated into amino acids for this comparison. To reduce noise, we excluded positions with MiSeq depth-of-coverage below 10,000 and variants of <1% prevalence by 454. Paired 454 and MiSeq results were obtained in n=79 RT and n=59 INT samples at positions RT96-194 and INT83-193.

RESULTS: Overall concordance was good (RT r2=0.886, 8014-pairs; INT r2=0.940, 6149-pairs). In RT and INT respectively, 138 of 8014-pairs (2%) and 68 of 6149-pairs (1%) had discordance ≥20%. The majority of these discordances, 125 of 138 (91%) and 60 of 68 (88%), were found at homopolymer regions, with the most frequent homopolymer-related RT error 99 of 125 (79%) observed in the vicinity of a critical resistance-associated position K103; MiSeq and Sanger were concordant at these positions, implying 454 homopolymer errors. The remaining pairs with ≥20% discordances were nucleotide-mixtures by Sanger-sequencing. Finally, we focused on prevalence range 1% to 20% because 20% is roughly Sanger method's sensitivity limit: Concordance was extremely poor (RT r^2=0.143, 205-pairs; INT r^2=0.200 131-pairs).

CONCLUSION: Majority of discordances over 20% were found around homopolymer regions, where MiSeq outperformed 454 in predicting Sanger sequences. Even though overall concordance was good, concordance below Sanger-sequencing's sensitivity limit was poor.

P023
DRB1 ALLELES ASSOCIATED WITH DIFFERENT OUTCOMES OF HIV-1 INFECTION RECOGNIZE DIFFERENT HIV GAG EPITOPES

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Human Leukocyte antigens (HLAs) are centrally involved in the adaptive immunity against infectious pathogens by presenting antigenic peptides to CD4+ and CD8+ T cells to initiate immune responses. Analysis of epitopes of HLA alleles associated with different outcome of HIV-1 infection is a key step to understand adaptive immunity to HIV-1. In a previous study we have identified several DRB1 alleles associated with different outcomes of HIV-1 infection in the Pumwani sex worker cohort. Among them DRB1*15:03 is associated with rapid seroconversion, whereas DRB1*01 (*01:01 and *01:02) and DRB1*11:02 are independently associated with slower seroconversion. In this study we systematically analyzed HIV-1 clade A and D Gag CD4+ T cell epitopes of these DRB1 alleles. REVEAL™

Rapid Epitope Discovery System (Proimmune) was used to screen 305 Gag peptides (15mer overlapping by 12) incorporating sequence variations of subtype A and D consensus. The identified positive binders were validated by ELISPOT assays with patient PBMCs. DRB1*15:03 can present five peptides among them four are clad A specific and one clad D variant. DRB1*01 binds to 23 peptides, among them six are clad A specific, 12 are clad D specific, five are A and D consensus. DRB1*11:02 can bind to four peptides in p24, two for each clad. Although peptide binding spectrum is very different it appears that DRB1*01 and DRB1*11:02 can present peptides from both clad A and D, while DRB1*15:03 is less likely to recognize clad D gag peptides. Class II antigens are constitutively expressed by the professional APCs, such as dendritic cells and macrophages, to prime helper naive T cells. The balance of cytokines secreted by APCs influences the naive helper T cell differentiation. These will be investigated.

P025
RETENTION RATES IN HIV BIOMEDICAL PREVENTION RESEARCH USING SERODISCORDANT COUPLES IS DEPENDENT ON FACTORS THAT AFFECT THE HIV+ PARTNER

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BACKGROUND: Retention in clinical trials is critical for the accumulation of data over time for comprehensive analysis and retaining enough power. We studied the dynamics between partners in a serodiscordant relationship during a two year follow up as that could have significant impact on retention rates. Understanding this provide clues for maintaining high retention rates in biomedical prevention studies with this cohort.

METHOD: We conducted a prospective cohort study to enroll and follow up for two years 500 HIV negative partners with at least three months in a sero-discordant relationship. Relevant ethical approvals and informed consent were obtained; standardized questionnaires on risk behavior and clinical examinations were done and samples collected for safety labs. CD4 counts and viral load test for their HIV positive partner was done.

RESULTS: 534 enrollees were eligible for 10 follow-up visits. Retention declined gradually from 96% at visit 2 to 88% at visit 6 due to the cumulative termination of 63 participants. Death of the HIV+ partners; unwillingness to continue and separation/divorce of the couple accounted for 67% of the termination (table1). Among the death of partner subset, 70% had VL >1000 copies/mL and CD4 count <400 cells/μL.

Table1: Dot Plot showing reasons for study termination

Reason for termination	Study visit 2	Study visit 3	Study visit 4	Study visit 5	Study visit 6	TOTAL
Adverse event	0	0	1	1	1	3
Death of partner	0	2	3	7	2	14
Migrated from study area	3	0	0	0	0	3
Participant withdrew consent	0	1	0	1	0	2
Pregnant at follow up	1	4	0	2	1	8
Separated/ Divorce at follow up	4	1	2	1	1	9
Serocnverted at follow up	2	0	0	1	1	4
Unable to reach	0	0	0	0	1	1
Unwilling to continue study	8	1	2	3	5	19
TOTAL	18	9	8	16	12	63

CONCLUSION: Our study demonstrated the importance of the wellness of the HIV+ partner as indicated by their viral load and CD4 count in the retention of the HIV- partner in clinical trials. Separation/divorce is another major reason which underscores the importance of couple testing and counseling in improving retention.

P026
THE ONCOLYTIC VIRUS MG1 PREFERENTIALLY TARGETS AND KILLS LATENTLY HIV-INFECTED U1 CELLS

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BACKGROUND: Oncolytic viruses (OVs) have been engineered to selectively target and kill cancer cells, while sparing healthy cells. A class of OV has been designed to exploit significant alterations in IFN-mediated antiviral responses present within tumor cells. HIV-infected cells demonstrate similar impairments in their IFN-mediated responses due to immune evasive strategies utilized by HIV-1, thereby providing the foundation for the study of OVs for their potential to selectively target and kill latently HIV-infected cells.

HYPOTHESIS: Oncolytic virus MG1 will selectively target and kill HIV-infected cells, including latently HIV infected cells.

METHODS: HIV-infected monocytic cell line U1 and parental HIV-uninfected cell line U937 were infected with increasing MOIs (0.000 01 to 0.1) of recombinant, GFP-expressing Maraba virus (MG1). After 16 h, 20 h, and 24 h, cells were collected and analyzed by flow cytometry for GFP expression to assess productive infection. The effect of MG1 infection on cell viability was assessed by MTT and Alamar Blue assays at each time point.

RESULTS: Chronically HIV-infected cell line U1 was more susceptible to MG1 infection than the HIV-uninfected U937 at all studied time points and MOIs. After 20 h, 81.3±4.2% U1 were infected compared to 49.1±12% of U937 at an MOI of 0.005. U1 cells were more sensitive to the cytopathic effects of MG1 infection than the HIV-uninfected U937 cells, as demonstrated by the decrease in cell viability of U1 compared to U937. MG1 infection (MOI of 0.005) of U1 cells resulted in a 38.4±10.3% loss in viability compared to 17.4±6.4% in U937 cells.

CONCLUSION: Chronically HIV-1 infected U1 cells are more susceptible to infection with MG1 when compared to their uninfected parent U937 cells, suggesting that MG1 can target and kill latently HIV-infected cells. Further experiments will be conducted to examine the consequences of HIV reactivation on MG1 infectivity, cell viability, and HIV production.

P027
MEMBERS OF THE PGT FAMILY OF BROADLY NEUTRALIZING ANTIBODIES BLOCK THE TRANSITION OF HIV-1 ENVELOPE GLYCOPROTEINS TO THE CD4-BOUND CONFORMATION

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INTRODUCTION: HIV-1 entry, mediated by the envelope glycoproteins (Env), is a central process of the viral infectious cycle. The HIV-1 Env trimer is the only virus-specific antigen present on the virion surface; therefore, it constitutes the sole target for HIV-1-nAbs. A family of highly-potent bNAbs that recognizes the HIV-1 envelope glycan shield was recently described. Some members of the PGT Abs neutralize >70% of circulating viruses and are around an order of magnitude more potent than other broadly-neutralizing antibodies such as PG9/PG16 and VRC01. However, their mechanism of neutralization remains to be fully elucidated.

RESULTS: Here we describe that some members of this family; PGT 121, 126, 128 and 130, interfere in cell-based ELISA and FACS experiments with a step required for the transition of HIV-1 envelope glycoproteins to the CD4-bound conformation. This block does not appear to exclusively involve CD4 engagement but rather more drastically affects exposure of specific CD4-induced conformational epitopes as probed by A32 and 17b binding. On the other hand, PGT135 and 2G12, which also target the N332 site of vulnerability on Env, do not appear to restrict changes toward the CD4-induced conformation. These results are interpreted in light of the recently solved crystal structure of PGT122 in complex with the BG505 SOSIP.664 Env trimer.

CONCLUSIONS: These data add to our understanding of the mechanism of inhibition by the PGT121 and PGT128 family of antibodies,

for which their epitopes are attractive targets for vaccine design. These results may help explain the remarkable potency achieved by some N332-targeted antibodies.

P028
IDENTIFICATION OF AN ACCESSIBLE RIBOZYME AND SMALL INTERFERING RNA TARGET SITE IN THE GAG CODING SEQUENCE OF HIV-1 RNA

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BACKGROUND: Antisense molecules targeting HIV-1 RNA have the potential to be used as part of gene or drug therapy to treat HIV-1 infection. Several candidate ribozymes and small interfering RNAs have been identified and some of them have reached the stage of clinical trials. As HIV-1 has diverged significantly into multiple subtypes, the number of target sites that are highly conserved and available for the binding of antisense molecules is limited. In this study, we screened HIV-1 RNA to identify optimal target sites for antisense molecules based on the hepatitis delta virus ribozyme.

RESULTS: A ribozyme targeting a highly conserved site in the Gag coding sequence with improved efficacy compared to our previously described candidates targeting the overlapping Tat/Rev coding sequence was identified. We demonstrate that this target site is highly accessible to short hairpin directed RNA interference, suggesting that it may be available for the binding of antisense RNAs with different modes of action. We also provide evidence that this target site is structurally conserved in diverse viral strains and that it is sufficiently different from the human transcriptome to limit off target effects from antisense therapies. The target site was also shown to be accessible to several dicer substrate small interfering RNAs that may be used in combination drug therapies for HIV-1 infection.

CONCLUSION: Our results validate the potential of a new target site in HIV-1 RNA to be used for the development of antisense therapies and work is in progress to evaluate the safety and efficacy of molecules targeting it in different preclinical gene and drug therapy models.

HIV Virology/Pathogenesis, Including Antiviral Mechanisms

Virologie/pathogénie du VIH, dont les mécanismes antiviraux

P029
HIV INFECTION ALTERS PACT-MEDIATED PKR ACTIVATION

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BACKGROUND: The Interferon response pathway is an important antiviral mechanism. PKR is an Interferon-stimulated gene (ISG) that senses RNA viruses, such as HIV. PKR is one of the most studied ISGs and a potent HIV suppressor. It phosphorylates the translation initiation factor eIF2α, resulting in the inhibition of protein synthesis and a block in viral replication. Our laboratory has shown that PKR is activated at the beginning of HIV infection in Jurkat cells followed by a deactivation when the virus replicates. This is in part attributed to a deactivation of PKR by the cellular proteins TRBP and ADAR1.

HYPOTHESIS: Our hypothesis is that other cellular factors, such as the PKR activator protein (PACT), play a role in PKR inhibition in HIV infected cells and contributes to viral replication.

RESULTS: In this study, we show that PKR is deactivated in HIV-infected PBMCs. In addition, when IFN α/β, was added to HIV-infected PBMCs, PKR activation was restored. By co-immunoprecipitating PKR, we found that the PKR activator protein, PACT, binds to PKR during HIV-infection of Jurkat cells. PACT overexpression in HIV-transfected HEK293T cells resulted in an increase of HIV expression and a decrease in PKR activation. Interestingly, PACT knockdown in HEK293T cells decreased HIV expression, suggesting that PACT activity has changed during HIV replication. The analysis of PACT-interacting proteins during HIV infection in PBMCs is currently in progress to understand which HIV-induced components mediate the alteration of PACT function.

CONCLUSION: These results indicate that PACT becomes a PKR inhibitor in HIV-infected cells. Understanding PKR regulation by HIV could aid in understanding viral persistence in patients.

P030
CHARACTERIZATION OF A KEY REGION OF THE GP120 V3 LOOP THAT CONFER NONCOMPETITIVE RESISTANCE TO MARAVIROC

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BACKGROUND: The majority of HIV-1 strains not susceptible to maraviroc are X4-variants, although a small number of R5 maraviroc-resistant strains have been reported. Currently, no consensus has been reached on the identity of these mutations. In this study, we employ site-directed mutagenesis on the gp120 V3 loop to characterize maraviroc resistance mutations.

METHOD: One well-characterized maraviroc-resistant variant contained five mutations within the HIV V3 loop: A19T, L20F, T22A, E25D, I26V. Based on that, we introduced these substitutions into HIV-1BaL, and the resultant virus, BaLres conferred a typical noncompetitive resistance to maraviroc. A series of site-directed mutations in BaLres were constructed, consisting of either single back-mutations towards wild-type BaL or additional putative resistance mutations. The resulting viruses were grown in the presence of 0.01 nM to 2000 nM maraviroc to determine the maximal percentage inhibition (MPI), since change in MPI is more relevant than change in IC50.

RESULTS: Replication-competent viruses were constructed bearing mutations at the V3 loop position spanning 19-26. The MPI values from each variant in 2uM maraviroc are listed below:

	19	20	21	22	23	24	25	26	MPI
WT BaL	A	L	Y	T	T	G	E	I	98.8
Previously characterized 5 resistant mutations									
BaLres	T	F	Y	A	T	G	D	V	78.9
resT19A	A	F	Y	A	T	G	D	V	96.4
resF20L	T	L	Y	A	T	G	D	V	97.8
resA22T	T	F	Y	T	T	G	D	V	93.8
resV26I	T	F	Y	A	T	G	D	I	95.0
Additional three mutations									
resY21F	T	F	F	A	T	G	D	V	86.5
resT23S	T	F	Y	A	S	G	D	V	78.9
resG24A	T	F	Y	A	T	A	D	V	96.1

Back-mutating any single mutation in BaLres rendered the variant nearly fully susceptible to maraviroc. The additional mutations Y21F, and T23S in BaLres rendered the variant modestly increase and no effect on MPI value respectively, while G24A mutation rescued MPI to wild-type levels.

CONCLUSION: A combination of at least five specific amino acids within positions 19 to 26 in the V3 loop was required to confer maraviroc-resistant in HIV-1BaL. This study contributes to understanding the rare occurrence of maraviroc resistance in individuals harboring only R5 variants.

P031
IMPACT OF THE POLYMORPHISM OF HIV-1 GROUP O INTEGRASE ON ENZYMATIC FUNCTION AND SUSCEPTIBILITY TO INTEGRASE INHIBITORS

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HIV-1 group O (HIV-O) is characterized by an important genetic polymorphism, in particular on regions coding for proteins targeted by antiretroviral drugs (ARV). The impact of this polymorphism on the response to ARV remains largely unknown. Concerning Integrase inhibitors (IIs), a clinical response was obtained with patients heavily pretreated receiving raltegravir (Depatureaux et al, 2012) but the impact of the genetic polymorphism on the enzymatic function is unknown.

The objective of this work is to analyze the genetic polymorphism of the integrase of representative HIV-O strains and to study its impact on the enzymatic function and IIs suceptibility, in comparison with the HIV-1 group M.

We finalized a specific PCR for amplification and sequencing of the whole region of HIV-O integrase. Genotypic resistance interpretation was performed using Stanford and ANRS algorithms. E. coli strain XL-Gold ultracompetent cells were used for plasmid production and BL21 (DE3) Gold cells for protein expression. Enzymatic function study was performed by strand transfer activity using a donor DNA-LTR. Suceptibility to IIs (RAL, EVG, DTG) were evaluated using competitive inhibition.

Sequencing of the integrase region shows a strong polymorphism with on average 15 mutations compared with the HIV-M consensus sequence, including atypical mutation at positions previously associated with DTG-resistance such as L74(I) and S153(A). However, algorithms interpretation demonstrated a genetical susceptibility to IIs.

Analysis of enzymatic function shows a strand transfer activity similar to HIV-M but a difference statisticaly significant for ratio Vmax/Km demonstrated a lower efficiency of HIV-O integrase for the substrate. Regarding susceptibility, despite higher value of Ki and Fold change for integrase O, we do not observe statistically significant difference between integrase O and integrase M.

To our knowledge, it is the first study of in vitro the molecular characteristics of HIV-O integrase. These data has to be confirmed with phenotypic studies.

P032
PML, A POTENTIAL RESTRICTION FACTOR AGAINST LENTIVIRUSES

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The promyelocytic leukemia (PML) protein, the constitutive protein of PML nuclear bodies (NBs), is involved in many cellular processes including antiviral responses. TRIM5α, a major antiretroviral factor intercepting incoming restriction-sensitive retroviruses, was found to transiently localize at PML NBs. Our objective was to investigate whether PML has a role in restricting HIV-1 and other lentiviruses, in association with TRIM5α or not.

We used WT or PML−/− mouse embryo fibroblasts (MEF) cells and also over-expressed PML in these cells, followed by infection with HIV-1, SIVmac, EIAV, and B-MLV vectors expressing GFP. We found that PML knockout increased the infectivity of the three lentiviral vectors analyzed by up to 30-times. Conversely, PML knockout decreased B-MLV infection by up to 10-fold. In addition, levels of GFP expression in cells infected by the SIVmac- or HIV-1-based vectors were up to eight times higher in the absence of PML, suggesting that PML has the capacity to restrict lentiviruses at both early and late infection stages. Accordingly, transduction of PML in PML−/− cells decreased permissiveness to HIV-1 and SIVmac. HIV-1 was strongly restricted by Rhesus TRIM5α either in the presence or in the absence of PML, showing that PML is not required for TRIM5α-mediated restriction. Surprisingly however, expression of either human or rhesus TRIM5α in MEF cells decreased permissiveness to SIVmac, a lentivirus normally resistant to these two TRIM5α alleles, by several-fold. This particular restriction was lost upon mutating the RING domain of TRIM5α and was regulated by PML. Finally, type I interferons caused a larger inhibition of HIV-1 or SIVmac vectors transduction in cells expressing PML, suggesting a role for PML in the regulation of interferon-mediated restriction mechanisms.

In conclusion, our data suggest that PML has an important role in regulating the restriction of lentiviruses at several levels, including TRIM5α-dependent and -independent mechanisms and interferon-dependent pathways.

P033
C-SRC AND PYK2 REGULATE MULTIPLE STEPS OF EARLY R5 HIV-1 INFECTION IN CD4$^+$T Lymphocytes

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BACKGROUND: During early HIV-1 entry of host T lymphocytes, many non-receptor tyrosine kinases become activated, including the phosphoprotein pp60$^{c\text{-}src}$ (c-Src) and it's binding partner, proline-rich tyrosine kinase 2 (Pyk2). Previously we reported that siRNA knockdown of c-Src, but not Pyk2, reduced viral integration of X4-tropic HXB2. To test this in a more sexually transmissible HIV-1 strain, we hypothesized that c-Src inhibition will also inhibit R5 viral integration after entry into primary CD4$^+$ T cells.

METHODS: CD4$^+$ T lymphocytes were isolated from the PBMC's of healthy human donors, and activated for two days with anti-CD3, anti-CD28 and IL-2. In some experiments, targeted siRNA knockdown was used to reduce c-Src or Pyk2 protein expression. In other experiments, pharmaceutical inhibitors of Src (Dasatinib, Saractinib, KX2-391 or Src Inhibitor-1) were used to inhibit c-Src kinase activity. In both instances, activated CD4$^+$ T cells were then infected with replication-deficient JR-FL (R5) virus carrying a luciferase reporter gene. We then monitored multiple stages of early entry: reverse transcriptase activity; qPCR of reverse transcripts, integrated HIV-1, 2-LTR circles; and luciferase activity.

RESULTS: Neither c-Src or Pyk2 siRNA knockdown had an effect on virus cell-surface receptors or reverse transcriptase activity; however both caused a 16-fold increase in late reverse transcripts, a 4-fold decrease in viral integration, and a 20-fold increase in 2-LTR circles. Luciferase activity measured two-days post-infection also decreased significantly. Similarly, the four Src family kinase inhibitors reduced luciferase activity by as much as 90%.

CONCLUSIONS: Our results show that reducing c-Src and Pyk2 expression causes a buildup of late reverse transcripts and reduces viral integration, suggesting both kinases participate in pre-integration complex (PIC) formation in the cytosol and viral integration in the nucleus. The investigation of effective and well-tolerated Src kinase inhibitors should be explored as potentially viable antiretroviral treatment options for people living with HIV.

P034
SLOW DISSOCIATION KINETICS ENHANCE THE POTENCY OF GSK5750 INHIBITION OF THE RNASE H ACTIVITY OF HIV-1 REVERSE TRANSCRIPTASE

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HIV-1 reverse transcriptase (RT) is a multifunctional enzyme that catalyzes the conversion of the single-stranded, viral RNA genome into double-stranded DNA. It contains both a polymerase and ribonuclease H (RNase H) active site, both of which are required for successful reverse transcription. The polymerase active site catalyzes nucleotidyl transfer reactions, while the RNase H active site hydrolyzes the RNA strand of DNA/RNA hybrids that are generated during reverse transcription. Presently, all clinically available drugs target the polymerase active site and inhibit DNA synthesis. Specific RNase H inhibitors that show antiviral effects have yet to be developed. The rather shallow RNase H active site coupled with its high affinity to the bound nucleic acid presents a significant biochemical obstacle to the development of RNase H inhibitors. Previous studies suggested that formation of a complex with the prototypic RNase H inhibitor β-thujaplicinol is slow, and once formed, it rapidly dissociates. This unfavourable kinetic behaviour limits the potency of RNase H active site inhibitors. GSK5750 is a novel, potent RNase H active site inhibitor that binds tightly and specifically to the RNase H active site of HIV-1 RT enzyme. Although the association kinetics of

GSK5750 remains slow, we demonstrate that this compound forms a longer lasting complex with HIV-1 RT. We conclude that slow dissociation kinetics of the inhibitor improves RNase H active site inhibitors. This definitely circumvents the obstacle posed by the inability of these compounds to bind to a pre-formed enzyme-substrate complex.

P035
THE RESPONSE OF HIV-1 CLONES HARBOURING MUTATIONS IMPLICATED IN DOLUTEGRAVIR RESISTANCE TO FIRST GENERATION INTEGRASE INHIBITORS

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BACKGROUND: In recent clinical trials, patients received dolutegravir (DTG) as part of first-line therapy. After 96 weeks, there was no development of resistance to DTG. When utilized as part of a second-line therapy, only a handful of previously-treated patients experienced virological failure. The R263K mutation was observed, a key mutations arising in our previous selection work, along with H51Y, G118R and E138K. These mutations confer modest levels of resistance to DTG. We have investigated the potential impact of these mutations in the context of susceptibility to two first-generation integrase inhibitors, raltegravir (RAL) and elvitegravir (EVG).

METHODS: Primary cells were infected with recombinant pNL4.3 viruses bearing single and double site-directed mutations (H51Y, R263K, G118R, E138K, H51Y+R263K, H51Y+G118R and E138K+R263K). The cultures were treated with gradually increasing drug concentrations to encourage the escape of resistant variants. Virus growth was monitored by weekly determinations of reverse transcriptase activity. Viral RNA was extracted from tissue culture supernatants and sequenced to identify alterations in the integrase region.

RESULTS: After 30 weeks of RAL pressure, the R263K mutant failed to develop any resistance mutations. The H51Y and E138K viruses, which are associated with integrase inhibitor resistance, were able to withstand extremely high RAL pressure. All of the viruses progressed easily through rising EVG concentrations, to attain highly resistant variants.

CONCLUSION: To date, DTG treatment, both in vitro and in vivo, has not resulted in the emergence of drug resistance pathways and treatment failures. The presence of the R263K mutation conferred a favourable response to RAL treatment and when combined with other mutations, the escalation of drug treatment was hindered. EVG treatment was quickly overcome by all of the viruses. The intricacies of the interplay among mutations to first and second generation drugs provide much-needed information towards the strategic sequential use of integrase inhibitors.

P036
REPLICATIVE COSTS OF HLA-B*13-ASSOCIATED SUBSTITUTIONS IN HIV-1 GAG AND POL

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BACKGROUND: HLA-B*13 is associated with lower plasma HIV loads and slower disease progression. B*13 escape mutations at Gag residue I437 reduce in vitro viral replication capacity (RC). To investigate this further, we assessed the RC of eight known B*13-associated substitutions in Gag and Pol, alone and in biologically relevant combinations.

METHODOLOGY: Published B*13-associated substitutions in Gag (A146S, I147L, K436R, I437L), Protease (L63S) and RT (Q334N, T369A, K374R) were engineered into an NL4-3 backbone alone and in various biologically-relevant combinations defined via analysis of HIV RNA sequences from n=9 acute (longitudinal) and n=69 chronic (cross-sectional) B*13+ patients. RC of recombinant viruses was measured using a GFP reporter T-cell assay and compared to NL4-3.

RESULTS: Among B*13+ patients, I147L and T369A were the most frequently and rapidly occurring substitutions in Gag and Pol, respectively (observed in 69% and 31% of B*13+ persons with chronic infection). The Gag single-mutants A146S, I147L and K436R, and Gag double-mutant A146S/I147L showed no RC impairments (range 98% to 103% compared to NL4-3). Reduced RC was observed for I437L (85%) and combination mutants containing I437L (I147L/I437L and A146S/I147L/I437L; 85% and 86%, respectively). In contrast, RC of combination mutants containing I437L in the presence of K436R (K436R/I437L, I147L/K436R/I437L, A146S/I147L/K436R/I437L) was comparable to NL4-3 (range 100% to 103%). No single (n=4) or combination (n=6) Pol mutants exhibited reduced RC.

CONCLUSION: Consistent with previous reports, Gag I437L conferred a 15% reduction in viral RC. This appeared to be rescued by the adjacent K436R, identifying it as a putative compensatory mutation for I437L. No RC impairments were observed for other single or combination mutants in Gag or Pol. The overall impact of HLA-B*13-associated polymorphisms in Gag/Pol on viral replication capacity is thus likely to be modest. Better understanding of the mechanisms underlying B*13 protective effects may have implications for HIV-1 vaccine design.

P037
UNDERSTANDING THE REGULATION OF LAG-3 EXPRESSION IN HEALTHY AND HIV INFECTED INDIVIDUALS

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RATIONALE: Regulation of the immune system involves the expression of inhibitory markers including LAG-3, PD-1, Tim-3, and 2B4, which inhibit T cell effector functions. During chronic HIV infection, the inappropriate expression of inhibitory markers contributes to immune exhaustion. Although many exhaustion markers are up-regulated during HIV infection, LAG-3 expression is consistently low on T cells for unknown reasons. Factors regulating LAG-3 expression are not well defined in humans. Murine studies have demonstrated the presence of an intracellular store of LAG-3 protein that is rapidly expressed and then cleaved from the cell surface by the metalloproteases ADAM10/17. Whether human LAG-3 is regulated n the same manner is unknown.

METHODS: Human PBMCs, isolated from six healthy donors, were treated with cycloheximide to inhibit de novo protein synthesis. Cells were stimulated for 6 h with PMA and ionomycin, and LAG-3 and cytokine production measured by flow cytometry. ADAM10 and ADAM17 were inhibited by the compound GM6001 or TAPI during PMA stimulation. The effects of GM6001/TAPI1 on LAG-3 expression/maintenance were measured by flow cytometry.

RESULTS: After inhibiting de novo protein synthesis, PMA-induced LAG-3 expression was unaffected, (P=0.8438) while cytokine production was significantly reduced (P=0.0313). This observation combined with the relatively rapid expression (<6hrs) of LAG-3 post stimulation suggests the presence of a preformed store in human T cells. Inhibition of metalloprotease activity during stimulation trended toward an enrichment of LAG-3 surface expression, suggesting a role for ADAM proteins in LAG-3 cleavage.

SIGNIFICANCE: The low expression of LAG-3 in HIV infection is unique, and the mechanisms involved not understood. This work will provide insight into factors regulating LAG-3 expression in the context of chronic viral infection and help to clarify its role in regulating T cell function.

P038
CD16+ MONOCYTE-DERIVED DENDRITIC CELLS CONTRIBUTE TO HIV PATHOGENESIS BY A SUPERIOR TRANS-INFECTION ABILITY AND AN IMPAIRED IMMUNOGENIC POTENTIAL: AUTOPHAGY IMPAIRMENT?

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BACKGROUND: Peripheral blood monocytes expressing the FcγRIII/CD16 are highly expanded during HIV infection and represent a source of pro-inflammatory cytokines. Monocytes are precursors for dendritic cells (DC). However, the functional characteristics of CD16+ monocyte-derived DC (MDDC) remain unknown. To determine whether CD16+ MDDC contribute to HIV pathogenesis, we investigated the

trans-infection ability and the immunogenic potential of CD16+ versus CD16- MDDC in relationship with the process of authophagy.

METHODOLOGY: Monocyte subsets were isolated from uninfected subjects by negative selection using magnetic beads (Miltenyi) and then FACS (BD-AriaII). MDDCs were obtained upon monocyte culture in presence of GM-CSF/IL-4. MDDC maturation was induced by LPS. MDDC phenotype was analyzed by FACS (BD-LSRII). The trans-infection ability (intracellular HIV-p24) and immunogenic potential (CFSE dilution assay) were evaluated by co-culture of MDDC with autologous CD4+ T-cells in the presence or absence of HIV (NL4.3BaL) and antigens (SEB, CMV, *C albicans*, *S aureus*). Western blotting was used to investigate changes in autophagy (LC3, p62, Atg5, mTOR) in MDDC constitutively or upon exposure to HIV, rapamycin, and bafilomycin.

RESULTS: Both CD16+ and CD16− MDDC expressed a typical DC phenotype (CD14low/-HLA-DRhighCD1c+) and upregulated CD83 and CCR7 upon maturation. CD16+ versus CD16− MDDC exhibited a superior trans-infection potential and reduced ability to induce the antigen-specific proliferation of CD4+ T-cells. Differences in the autophagy pathway will be discussed.

CONCLUSION: CD16+ and CD16− MDDC play distinct roles during HIV infection, with CD16+ MDDC contributing to viral dissemination and altered T-cell responses. These differences appear to be linked to differences in the autophagy pathway. Our findings suggest that new therapeutic strategies aimed at restoring autophagy in CD16+ MDDC may contribute to promote potent antiviral responses while limiting HIV dissemination in HIV-infected subjects.

P039
EXPOSURE OF HUMAN ASTROCYTES TO LEUKOTRIENE C4 PROMOTES A CX3CL1/FRACTALKINE-MEDIATED TRANSMIGRATION OF HIV-1-INFECTED CD4+ T CELLS ACROSS AN IN VITRO BLOOD-BRAIN BARRIER MODEL

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Eicosanoids, including cysteinyl leukotrienes (cysLTs), are found in the central nervous system (CNS) of individuals infected with HIV-1. Few studies have addressed the contribution of cysLTs in HIV-1-associated CNS disorders. We demonstrate that conditioned medium from human astrocytes treated with leukotriene C4 (LTC4) increases the transmigration of HIV-1-infected CD4+ T cells across an in vitro blood-brain barrier (BBB) model using cultured brain endothelial cells. Additional studies indicate that the higher cell migration is linked with secretion by astrocytes of CX3CL1/fractalkine, a chemokine that has chemoattractant activity for CD4+ T cells. Moreover, we report that the enhanced cell migration across BBB leads to a more important CD4+ T cell-mediated trans-infection of macrophages with HIV-1. Altogether data presented in the present study reveal the important role that LTC4, a metabolite of arachidonic acid, may play in the HIV-1-induced neuroinvasion, neuropathogenesis and disease progression.

CLINICAL SCIENCES
SCIENCES CLINIQUES

Adherence and Engagement in Care

Respect des soins et engagement envers les soins

P041
FACTORS ASSOCIATED WITH RECOMMENDED AND LOW ENGAGEMENT IN HIV CARE AFTER INITIATING COMBINATION ANTIRETROVIRAL THERAPY

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INTRODUCTION: Regular HIV care is critical to achieving and maintaining optimal health outcomes in HIV-positive individuals. It is of interest to determine patterns of HIV care and factors associated with movement among recommended and low engagement care states.

METHODS: Six states of HIV care were defined for individuals who had initiated cART: (1) cART initiation (first year), (2) optimal HIV care (VL<50 copies/mL and CD4 >200 over a year follow-up, no gaps in cART >3 months, no gaps in CD4 or VL measurement >6 months), (3) successful care with decreased frequency of follow-up (as above except no gaps in CD4 or VL measurement >12 months), (4) suboptimal care (VL>50 or CD4<200 on two consecutive visits over a year follow-up, ≥1 gaps in cART >3 months), (5) loss to follow-up (no contact for 18 months), and (6) death. Classification and regression tree analysis was conducted on Canadian Observational Cohort (CANOC) collaboration participants to determine factors associated with transitioning from cART initiation to optimal or successful engagement in care.

RESULTS: Data were available for 8143 participants; median 4.46 years of follow-up. Each year of follow-up for each participant was classified into a state of care. After transitioning from cART initiation, the majority of individuals remained stably engaged: optimally or successfully engaged participants remained so for 85% of follow-up, while suboptimally engaged participants remained suboptimal for 69% of follow-up. Low baseline CD4 count, hepatitis C co-infection, year of cART initiation and injection drug use were inversely associated with transitioning from cART initiation to optimal or successful engagement in care.

CONCLUSIONS: The transition from cART initiation to continued care may be most important. Subgroups of patients are at higher risk for poor engagement trajectories.

Proportions of CANOC Participants Optimally or Successfully Engaged in Care in their Second Year of Combination Antiretroviral Therapy

Split					Results	
	First	Second	Third	Fourth	N	Proportion highly engaged
Total					8143	56%
	Baseline CD4 <100				1710	31%
	Baseline CD4 ≥100				6433	63%

		HCV-			4889	69%
		HCV+			1544	43%
			First year of ARV <2002		285	24%
			First year of ARV ≥2002		1259	47%
				IDU	941	42%
				Non-IDU	318	62%

P042
CROSS-CULTURAL VALIDATION OF THE HIV KNOWLEDGE QUESTIONNAIRE: A GUYANIAN PERSPECTIVE

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BACKGROUND: The HIV Treatment Knowledge scale is a 21-item tool for assessing knowledge about complex HIV treatment issues. It is well validated in a Canadian context however, its cross cultural validity in a developing context has not been established. Estimates suggest that 1.3% (7200 individuals) of the adult population in Guyana are HIV+, just over half of whom are women (UNAIDS) and about 70% of those needing ART are receiving it. Treatment knowledge improves adherence, reduces drug resistance and helps in coping with side effects. The goal of this study is to examine the psychometric properties of the HIV treatment knowledge scale in Guyana, South America and to provide comparative data between Canadian and Guyanese HIV+ patients.

METHODS AND RESULTS: 266 participants participated in this cross-sectional study. Participants were patients living with HIV (n=159) as well as local students and pharmacists (n=107). Reliability: Internal consistency of the scale was high with a coefficient alpha of 0.79 and a mean inter-item correlation of 0.16 (n=263). Corrected item-total correlations ranged from 0.24 to 0.47. Validity: HIV+ patients that were treatment naive (n=24) scored significantly lower on the treatment knowledge scale than those that were treatment experienced (n=130; U=1147, Z=−2.065, P=0.04). Students and pharmacists who completed an educational workshop on HIV care (n=72) scored significantly higher than those who had no experience with HIV(n=30; U=783.5, Z=−2.184, P=0.03). In both groups, the treatment knowledge scale was correlated with general HIV knowledge: patients (r=0.74), students and pharmacists (r=0.45).

CONCLUSIONS: This study provides the first cross-cultural validation of the HIV Treatment Knowledge Scale. Developing countries are in need of empirically sound tools to assist in assessing HIV treatment readiness and improving treatment adherence. The HIV Treatment Knowledge Scale is a psychometrically valid and useful tool for assessing understanding of HIV treatment across different cultures.

P043
SOCIAL AND PSYCHOSOCIAL FACTORS RELATED TO ART ADHERENCE AMONG PEOPLE LIVING WITH HIV/AIDS RECEIVING CARE IN CALI, COLOMBIA

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BACKGROUND: The social and psychosocial factors determining adherence to ART in Colombia have not been sufficiently studied. Therefore, we conducted a study to explore how such factors affect ART adherence in PHAs in attending the Corporacion de Lucha contra el SIDA (CLS).

METHODS: A convenience sample of 87 patients presenting for routine HIV care to a specialized HIV clinic in the City of Cali, Colombia was enrolled into this study. A structured questionnaire was administered, which included questions on basic demographics, previous incarceration, and use of alcohol, tobacco and other drugs. Scales for measurement of depressive symptoms, HIV related stigma and HIV treatment knowledge were also administered. Suboptimal adherence was self-reported and defined as missing one dose of ART in the last two weeks. Chi-squared and t-test analyses were conducted to determine significant association of these characteristics with adherence.

RESULTS: The participants ranged in age from 22 to 71 years, with a median age of 41 years. The majority were males (73%). Low education levels were found (only 47% had completed high school). Over 60% of participants reported stigma experiences, 50.6% had CES-D scores ≥16, suggesting clinical depression. High adherence rates were low, 49.4% (n-43) reported having taken all of their prescribed doses in the past two weeks. Bivariate analysis yielded a significant association (P<0.05) between suboptimal adherence and the following characteristics: Currently living with children, being a smoker, being dissatisfied with current housing, higher stigma and depression scores, and low knowledge score.

CONCLUSION: Social support, HIV knowledge, stigma and depression are associated with ART adherence in Colombian PHAs. This suggests that consistent assessment of such factors is necessary in this population. Similarly, interventions aiming to reduce negative feelings, increase social support and reduce misconceptions regarding HIV treatment will be of great benefit.

P044
VALIDATION OF THE BERGER'S HIV STIGMA SCALE AMONG PEOPLE LIVING WITH HIV IN CANADA AND COLOMBIA

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OBJECTIVES: Reduction of HIV related stigma is a key component of the goal to achieve an AIDS-free generation. Thus, validated stigma scales are needed to assess levels of stigma and evaluate interventions. Thus, we assessed the construct and convergent validity of the 10 item-Berger's HIV stigma scale (BS) among PHAs from Colombia and Canada.

METHODS: A sample of 146 PHAs attending a clinic in Ontario, and a sample of 103 attending a clinic in Cali, Colombia were included in this analysis. Spanish-English back translation of the BS was performed. Exploratory factorial analyses were done to assess the factor structure and construct validity. ANOVA and t-test were used to determine the convergent validity of the BS by exploring associations with mental health, smoking and drug consumptions and social factors. Pre-post-test reliability (15 days) was estimated with the Intra-class correlation coefficient (ICC) in the Colombian sample.

RESULTS: High levels of HIV related stigma were found in both clinics, with disclosure and public attitudes related stigma reported by more than 60% of the participants. Factor analysis resulted in three-factor solution close to the original scale. Cronbach alphas of 0.82 and 0.72 were found in the Canadian and the Colombian samples, respectively. In the Colombian sample, significant associations (P<0.05) between higher stigma and previous incarceration, female gender, high depression scores, heterosexual orientation, and not using condom were found. In the Canadian sample, lower stigma was related to living with family/parents, while high stigma was found among those with previous incarceration and those with more severe depression. The ICC in Colombia was: 0.74 (95% CI 0.62 to 0.82).

CONCLUSION: HIV related stigma is a serious concern in PHAs attending in both Colombia and Canada. The BS is a good instrument to assess stigma in both settings and can be used to implement and evaluate anti-stigma interventions among PHAs.

P045
CLINIC TO COMMUNITY: INTER-PROFESSIONAL COLLABORATION IN ENHANCED ADHERENCE TO ANTIRETROVIRAL THERAPY

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BACKGROUND: Saskatchewan (SK) is facing an HIV epidemic with two unique characteristics: it is driven primarily by injection drug use, and it predominately affects Aboriginal people. The use of antiretroviral therapy (ART) reduces rates of HIV transmission and is essential to fighting the epidemic. Socioeconomic challenges make ART adherence inconsistent.

METHODS: Seven community locations which dispense the majority of antiretrovirals were engaged by HIV clinic team members with information sessions outlining: the current HIV epidemic, education on

ART, and importance of adherence. Enhanced Adherence (EA) strategies implemented included: directly observed therapy, daily dispense, and weekly/monthly adherence packaging. EA methods were often associated with a client's methadone maintenance program, with consistent interaction with the community pharmacists. Interviews were conducted with community partners.

FINDINGS: Forty-five HIV positive individuals with a risk factor of injection drug use were enrolled. Thirty-seven of 45 participants (82%) were receiving methadone, 32 of 45 (71%) were co-infected with hepatitis C, and 19 of 45 (42%) were ART naive. Of those with available data, 38 of 38 (100%) confirmed a viral load (VL) of <200 copies/mL, with 71% (n=27) being fully suppressed (VL <40 copies/mL), after at least three months of enrolment. In the same group, only 13% (n=5) were virologically suppressed prior to enrolment. The average increase in CD4 over at least a three month enrolment period was 107 cells/mm^3. 46% (n=21) were weekly dispensed, 24% (n=11) were dispensed monthly, while only 26% (n=12)were dispensed daily with or without witness. Qualitative analysis indicated that participating pharmacists and nurses were supportive of the initiative and found few challenges in the administration of the program.

CONCLUSION: A collaborative model for enhanced adherence was effective in reducing VL and increasing CD4 counts for participating clients. Expanding programming based on a similar model may be valuable in further reducing the rates of HIV transmission in the province.

Clinical Trials of Antiretrovirals

Essais cliniques sur les antirétroviraux

P046
OUTCOMES OF UNBOOSTING ATAZANAVIR (ATZ) IN REGIMENS WITH A TENOFOVIR (TDF) BACKBONE

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BACKGROUND: Unboosting ATZ in TDF-containing regimens may be a safe and advantageous strategy in selected patients.

METHODOLOGY: An ongoing open-label 48-week randomized controlled trial is enrolling HIV+ adults with viral load (VL) <40 copies/mL while on ATZ/ritonavir(r) 300 mg/100 mg with TDF and FTC or 3TC. Eligible consenting subjects are randomized 1:1 to continue ATZ/ r (control) or switch to ATZ 400 mg while continuing TDF and FTC or 3TC. A preliminary 36-week analysis of treatment failure (VL >200 copies/mL ×2 or regimen change), CD4, total bilirubin (TBR), renal and lipid outcomes was conducted using Friedman's nonparametric test.

RESULTS: Of the first 40 subjects enrolled (37 male, median 46 years), 21 were randomized to control and 19 to switch. At baseline, CD4 count and time on ATZ/r were similar between two arms. One subject in the switch arm was lost to follow-up at four weeks. Treatment failure occurred in one subject in each arm (4.8% control, 5.5% switch). No significant changes between baseline and 36 weeks were observed in either arm with respect to CD4, creatinine, eGFR, phosphate, UACR, C-reactive protein, total cholesterol (TC), LDL, HDL, or apolipoprotein B. However, significant changes were observed only in the switch arm for triglycerides (TG), non-HDL cholesterol, logTG/HDL, and TBR.

Median % changes (p-value) between baseline and 36 weeks	TG	Non-HDL	logTG/HDL	Total bilirubin
Switch arm	-44.67% (0.002)	-3.34% (0.037)	-96.00% (0.008)	-47.74% (0.003)
Control arm	+4.72% (0.983)	+0.18% (0.997	-44.76% (0.947)	-4.71% (0.999)

CONCLUSIONS: In this preliminary 36-week analysis of subjects randomized to continue ATZ/r or switch to unboosted ATZ with a TDF backbone, treatment failure rates were similar in both arms. Favourable changes in bilirubin and lipid parameters were observed in the unboosted ATZ arm.

P048
WHO STAYS ON HAART IN EARLY/ACUTE INFECTION?

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BACKGROUND: Studies have reported on predictors of non-adherence to HAART in patients clinically indicated to initiate HAART. We report on differences in rates of completion of a 48-week course of HAART among newly HIV-infected individuals in a randomized clinical trial.

METHODS: Participants: Individuals with HIV infection for <12 months randomized to receive HAART for 48 weeks on study entry (CTN 214 TL-HAART trial).

ANALYSIS: Relationship between baseline participant characteristics (age, sex, race, HIV viral load, CD4 cells, transmission route, acute vs early infection) and completion of therapy was investigated using logistic regression.

RESULTS: Forty-six of 57 (81%) participants randomized to receive immediate HAART completed 48 weeks of therapy. Non-completion rates were higher in participants who were non-white (36%) versus white (9%) and who were aged <30 (33%) versus ≥30 (11%) years, and especially high (55%) in those both non-white and age <30 years. No other factors strongly predicted completion rates. In models including race and age (as a continuous measure), odds ratios for non-completion were 5.32 (95% CI 1.17 to 24.39) for non-white vs white and 1.98 (95% CI 0.94 to 4.12) per decade of lower age.

	Completed 48 wks therapy?					
	White			Non-white		
Age	Yes	No	% No	Yes	No	% No
<30	9	1	10%	5	6	55%
30-39	11	2	15%	4	0	0%
40+	12	0	0%	5	2	29%

DISCUSSION: The higher rates of non-completion in non-white and younger individuals with acute/early HIV infection are congruent with findings from clinical use of HAART. Additional support for these people when initiating HAART soon after HIV infection should be considered. Adherence may also improve under new guidelines that encourage individuals to initiate HAART as soon as they are ready to do so.

Coinfections

Co-infections

P049
PREDICTORS OF PULMONARY TUBERCULOSIS CO – INFECTION AMONG NIGERIANS WITH HUMAN IMMUNODEFICIENCY VIRUS INFECTION AND ACQUIRED IMMUNODEFICIENCY SYNDROMES

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BACKGROUND: Human immunodeficiency virus induces oxidative stress to deplete immune active cells and selenium constitution. Signifi-

cant morbidity and mortality have been attributed to PTB co infection in sub sahara Africa.

METHODS: A cross sectional design for probability sampling of 140 HIV positive subjects that satisfied inclusion criteria was made. Subjects were physically examined, radiologically and microbiologically screened for tuberculosis. Serum selenium was assessed using atomic absorption spectrophotometer and CD4 count estimated. Bivariate and multivariate analysis was done using SPSS version 17.0.

RESULTS: Mean ages of HIV patients with and without PTB were not significantly different: 34.76±6.79 vs 35.17±9.43 years (P=0.847), while HIV patients were significantly females (85.4%), P=0.008. Chronic cough was significantly and equally present in both groups 50.0% (P<0.001). Weight loss 60.8% (P<0.001), skin rash 61.8% (P=0.004), palor 63.2% (P=0.004), xerosis 56.5% (P=0.003), fluffy hair 56.2% (P=0.002), blue nail 55.6% (P=0.008), and oral candidiasis 57.1% (P=0.001) were significantly associated with HIV mono infection. The mean ±SD of serum selenium (0.32±0.31 vs 0.65±0.43 µmol/L; P=0.002), CD4 count (137.72±110.95 vs 324.30±229.29 cells/mm^3; P<0.001), and body mass index (19.96±3.31 vs 22.03±3.43; P=0.005) were significantly low among patients with HIV-PTB co-infection compared with those with HIV mono infection. In multivariate analysis, low serum selenium 5.7 times (95% CI 1.3 to 25.7, P=0.021), chronic cough was 5.1 times (95% CI 1.8 to 14.1; P=0.002) predicts PTB co-infection among HIV patients.

CONCLUSION: Chronic cough and low serum selenium predicts pulmonary tuberculosis co-infection among Nigerians with HIV infection. Selenium supplementation may reduce immune depletion and PTB associated morbidity.

P050

AN OBSERVATIONAL STUDY INVESTIGATING THE MANAGEMENT OF G1 HEPATITIS C ADULTS PATIENTS WITH BOCEPREVIR IN COMBINATION WITH PEGIFN/RBV IN CANADA (THE S.I.M.P.L.E. STUDY)

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BACKGROUND: Current Canadian guidelines for the treatment of HCV genotype 1 (HCV G1) involve PegIFN/RBV combined with telaprevir or boceprevir.1 However, the efficacy and safety of triple therapy in the real-world Canadian population has not been completely characterized.

AIM: To describe the real life use of BOC/PegIFN/RBV for the management of HCV G1 in Canada.

METHODS: This is an observational, prospective, multicenter, non-interventional study of 150 patients enrolled in 25 academic and community centers in Canada.

RESULTS: In the interim analysis performed on 143 patients, 75% were treatment naive, 73% males, 78% Caucasians and 52% people who inject drugs (PWIDs). The median age was 54 (21 to 69) years. Half the patients had advanced liver fibrosis (F3 and F4) and 28% had cirrhosis. At the time of analysis, 94 patients had reached at least treatment week 8. At week 4, 25% had undetectable viral load. At week 8, 68% had undetectable viral load and 82% had experienced a ≥3 log10 reduction. Anemia (Hb <100 g/L) occurred in 58% of patients. Anemia management included: observation alone (39%), ribavirin dose reduction (47%), Erythropoietin (24%),blood transfusions (11%) and combined interventions (14%).

CONCLUSION: The patient population in this study is representative of the HCV epidemic in Canada. Early results suggest that the proportion of Canadian patients with undetectable viral load at week 8 is similar to that observed in phase 3 studies. RBV dose reduction is the most commonly used strategy to manage anemia.

References:

1. Myers R, et al. Can J Gastroenterol 2012;26:359-75.

P051

MARIJUANA USE DOES NOT AFFECT LIVER HISTOLOGY OR TREATMENT OUTCOMES IN HCV AND HIV-HCV

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BACKGROUND: Marijuana (MJ) smoking is common in HIV and HCV-infected patients. The literature assessing the influence of MJ on liver disease progression and HCV antiviral treatment outcomes is conflicting.

METHODS: We evaluated HCV RNA positive patients followed at The Ottawa Hospital Viral Hepatitis Clinic from 2000 to 2009. Information was extracted from our database regarding demographics, HIV status, alcohol use, liver biopsy results, treatment outcomes and self-reported MJ use. Biopsy characteristics and HCV antiviral treatment outcomes were assessed for association with categorized MJ use by multivariable logistic regression; covariates were specified by clinical relevance a priori.

RESULTS: Information on MJ use was available for 550 of 1228 (44.8%) patients: Ever Used MJ = 225 (40.9%), Current MJ Use = 159 (28.9%). 11% were HIV co-infected (89% on antiretrovirals). Biopsy fibrosis stage and MJ use data was available for 377 (F0–2=72.3%). Age (1.98 [1.05 to 1.13]), IDU history (2.09 [1.20 to 3.67]) and HIV (2.63 [1.10 to 6.29]) but not current MJ use predicted advanced biopsy fibrosis stage (F3,4). Biopsy inflammation grade and MJ use data was available for 376 participants. Neither MJ use or HIV status predicted inflammation grade. Biopsy steatosis and MJ use data was available in 348 participants. Genotype 3 and increasing age use predicted steatosis but not current MJ use or HIV status. Sustained virologic response (SVR) and MJ use data was available for 359 participants of which 211 (58.8%) achieved an SVR. MJ use did not predict likelihood of interruption HCV treatment for adverse events or SAEs; likelihood of completing HCV antiviral treatment; or SVR. Treatment completion (0.25 [0.09, 0.69]) and SVR (0.42 [0.16, 1.13]) were reduced in HIV co-infected patients.

CONCLUSION: Irrespective of HIV status, MJ use at the time of biopsy does not influence liver histology scores. SVR rates were not improved and the likelihood of interrupting treatment due to side effects was not reduced in MJ users in HIV seropositive and negative patients.

P052

TUBERCULOSIS DRUG-INDUCED LIVER INJURY IN TB-HIV CO-INFECTION: EXPERIENCE WITH TREATMENT RECHALLENGE

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BACKGROUND: Tuberculosis drug-induced liver injury (TB-DILI) is the most common adverse event necessitating therapy interruption. The optimal re-challenge strategy for anti-tuberculous therapy remains unclear, especially in HIV co-infected individuals. We describe our experience with the management of TB-DILI in an area of high HIV prevalence. We also attempted to identify potential risk factors associated with recurrence of DILI.

METHODS: Hospital records for individuals with TB-DILI were identified from King Edward VIII Hospital Infectious Diseases clinic, Durban, South Africa. TB-DILI was defined as either 1) ≥3-fold rise above the upper limit of normal (ULN) in alanine aminotransferase and/or aspartate aminotransferase, 2) rise in bilirubin >1.5 ULN or 3) any rise of transaminases above baseline with nausea, vomiting, anorexia and right upper quadrant pain with no other cause. Information on demographics, laboratory data at the time of TB diagnosis and TB-DILI, method of anti-TB treatment re-challenge and outcomes were collected.

PRELIMINARY RESULTS: Fifty-one individuals with TB-DILI (including 45 HIV-co-infected) were identified. Forty-one individuals (80%) were re-challenged. Thirty-five individuals were re-challenged with either full dose in sequence (n=18) or full dose simultaneously (n=17) whereas method of re-challenge was unclear in the remaining six individuals. Among individuals re-challenged, 11 (27%) experienced recurrent TB-DILI, the majority of whom were re-challenged with ≥2 drugs simultaneously (n=8 versus n=3; P=0.0861, Fischer exact test). Of the various parameters examined, jaundice at initial presentation was more common in individuals experiencing recurrent TB-DILI (100 versus 48%; P=0.001, Fisher's exact test).

CONCLUSION: Restarting ≥2 medications simultaneously at full doses may be associated with a greater risk of recurrent TB-DILI than restarting full dose medications sequentially. Jaundice at time of DILI appears to be a risk factor for recurrent DILI. A prospective, randomized controlled trial in HIV-TB co-infected individuals is needed to decide on the best re-challenge strategy in regions of high HIV-TB co-infections.

P053
COMPLEX ANTIMYCOBACTERIAL AND ANTIRETROVIRAL DRUG INTERACTIONS AND DOSING IN HIV AND TUBERCULOSIS CO-INFECTED PATIENTS

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OBJECTIVE: To report two cases of HIV and tuberculosis co-infected individuals requiring drug dose adjustments guided by therapeutic drug monitoring.

CASE SUMMARY: Case 1: A 36 year-old HIV-positive male (CD4+ 97 cells/μL, HIV RNA 105,543 copies/mL) taking Atripla® daily was diagnosed with Mycobacterium bovis cervical lymphadenitis. Over the course of the nine-month treatment, drugs that required increased doses due to low serum concentrations included: efavirenz (EFV) (800 mg) and rifampin (RIF) (900 mg) and isoniazid (INH) (450 mg). Higher drug doses were well tolerated until the end of treatment. Case 2: A 46 year-old HIV-positive male (CD4+ 90 cells/μL, HIV RNA 760,000 copies/mL) with culture-confirmed pulmonary *Mycobacterium tuberculosis* was initiated on Atripla® + EFV 200mg daily. Over the 12-month course of therapy, incomplete and/or delayed absorption required increased doses of: RIF (1500 mg), moxifloxacin (MOXI) (800 mg) and ethambutol (ETB) (1600 mg). With the exception of INH, higher drug doses were well tolerated until the end of treatment.

DISCUSSION: Due to delayed/incomplete drug absorption and weight gain during therapy, higher antimycobacterial doses may be required in HIV-TB co-infected patients. Taking samples at 6 h post-dose may help to identify delayed absorption when the 2-hour concentration is low. Efavirenz 800mg daily was therapeutic and well-tolerated in both patients (weight over 70kg).

CONCLUSION: Managing patients with HIV-TB co-infection is complex and therapeutic drug monitoring can help guide clinical decision making.

MONTH	DRUG	DOSE (mg)	DOSE (mg/kg)	2h POST-DOSE (ug/mL)	6h POST-DOSE (ug/mL)	10h POST-DOSE (ug/mL)	THERAPEUTIC RANGE (ug/mL)	INTERPRETATION
CASE 1								
2	RIF	600	8.5	6.37			8-24	low; ↑ to 900 mg
2	INH	300	4.2	3.6			3-6	normal
2	EFV	600	8.0			1.1*	1-4	low-normal; ↑ to 800 mg *24h trough
4	EFV	800	10.3			1.5*	1-4	normal; *24h trough
4	RIF	900	11.6	8.71			8-24	normal
4	INH	300	3.9	2.04			3-6	low; ↑ to 450 mg
CASE 2								
1	INH	300	4.1	2.53	1.79		3-6	low; ↑ to 450 mg
1	RIF	600	8.3	6.21	2.91		8-24	low
1	INH	450	6.2	trace	2.68		3-6	low & delayed; D/C - hepatotoxicity
1	RIF	600	8.3	0	5.8		8-24	low & delayed; ↑ to 900 mg
3	RIF	900	12.4	trace	4.01		8-24	low & delayed; ↑ to 1200 mg
4	RIF	1200	15.9	trace	4.76		8-24	low & delayed;↑ to 1500 mg
5	RIF	1500	19.9	0	2.75		8-24	low
6&7	ETB	1000	11.5	0.82	0.71	0.39	2-6	low; ↑ to 1600 mg
7	EFV	800	9.2			4.84*	1-4	slightly high; *10h post-dose
7	RIF	1500	17.3		19.71	8.55	8-24	delayed, but adequate
6&7	MOXI	600	6.9	2.01	1.86	1.49	3-5	low & delayed; ↑ to 800 mg
8	RIF	1500	17.3	trace	17.64		8-24	delayed, but adequate
8	MOXI	800	9.2	0.27	3.2		3-5	delayed, but adequate
8	ETB	1600	18.5	0.44	2.64		2-6	delayed, but adequate

P054
IMPACT OF SCREENING ON SURVIVAL OF HEPATOCELLULAR CARCINOMA (HCC) IN HIV/HEPATITIS B VIRUS (HBV)-COINFECTED PATIENTS

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BACKGROUND: Current recommendations for HCC screening in chronically HBV-infected patients are based on a randomized controlled trial from China. However, no data are available on the effectiveness of HCC screening in HIV/HBV-coinfected patients.

METHODS: HIV/HBV-coinfected patients with HCC were retrospectively identified from 1992 to 2011 in 38 centres worldwide. Patients were considered "screened" if they initially presented with an abnormal alpha-fetoprotein level or imaging study, and "not screened" if they presented with symptoms.

RESULTS: Among 54 HIV/HBV-coinfected patients with HCC, 30 (56%) were screened. Compared to the 24 unscreened patients, screened patients had the same mean age (49 years) as well as similar median CD4+ cell count (310 cells/mm^3 versus 338 cells/mm^3; P=0.96) and rate of HIV RNA <400 copies/mL (76% versus 63%; P=0.29); however, they had a lower mean Child-Turcotte-Pugh score (5.9 versus 7.6; P=0.004). Screened patients also had a smaller median tumour size (3.8 cm versus 8.7 cm; P=0.002), and more commonly met Milan criteria for liver transplantation (43% versus 5%, P=0.007). They presented more frequently with early Barcelona-Clinic-Liver-Cancer stages A+B (70% versus 17%, P<0.001) and more often received effective HCC therapy (77% versus 25%, P<0.001). With adjustment for lead time of 9.4 months, screened patients had a longer median survival (99 versus 2.6 months; P<0.001, log rank) and a higher estimated one-year survival (68% versus 18%). In multi-variable Cox proportional hazard analysis, independent predictors of survival were screening (hazard ratio for death [HR], 0.146 [95% CI 0.06 to 0.37]; P<0.001), younger age (HR per year, 1.082 [95% CI 1.02 to 1.14]; P=0.006), and lower HIV RNA level (HR per log10 copies/mL, HR 1.65 [95% CI 1.21 to 2.27]; P=0.002).

CONCLUSION: Many HIV/HBV-coinfected patients with HCC were not diagnosed through screening. Yet, screening was associated with earlier HCC stages, more HCC therapy, and better survival.

P055
INFECTIOUS SYPHILIS DOES NOT RESULT IN SIGNIFICANT HIV VIRAL LOAD BLIPS IN A COHORT OF HIV-INFECTED INDIVIDUALS, VANCOUVER, CANADA

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BACKGROUND: Infectious syphilis (primary, secondary, early latent) is common amongst HIV-infected individuals. HIV viral load blips are associated with intercurrent illness, but limited data exists for the impact of intercurrent syphilis infection. We evaluated the effect of infectious syphilis on HIV viral load (pVL) in a cohort of HIV-infected individuals.

METHODS: Individuals in the BC CFE Drug Treatment Program 07/2012 – 11/2013 were eligible for inclusion if they had baseline HIV pVL within 60 days prior to, and at least one repeat pVL during syphilis infection. Episodes of infectious syphilis were defined as periods starting 30 days before the first new positive RPR titre higher than 1:4, with documented prior negative within the last 12 months. Factors associated with infectious syphilis were analyzed using multivariate logistic regression adjusted for age, HIV risk group, ART use and residence in Vancouver's West-End. The proportion of individuals suppressed on ART experiencing a change in pVL during a syphilis episode was determined.

RESULTS: Overall, 541 individuals with 42 episodes of infectious syphilis were included. The majority of individuals were male (n=483 [89%]) with median age 39 years (Q1-Q3 32 to 46 years), and 54% had pVL <40 copies/mL on ART. The incidence of infectious syphilis amongst those suppressed on ART was 15.45 per 100 person-years (PY) compared to 13.38/100 PY in those not on ART (P=0.977). The median diagnosis RPR titre was 1:64. In multivariate analysis, only MSM status was associated with infectious syphilis (adjusted Odds Ratio 7.48 [95% CI 1.73 to 32.34]). Amongst those suppressed on ART (n=30) during a syphilis episode, the majority (n=22, 73%) did not experience change in pVL. For those with rise in pVL (n=8), 75% were 40 copies/mL to 100 copies/mL, n=1 100 copies/mL to 500 copies/mL and n=1 >1000 copies/mL.

CONCLUSION: Infectious syphilis was common and was associated with MSM status. For individuals with documented pVL suppression prior to syphilis, the majority remained suppressed. For those with pVL blip during syphilis, the majority were of low copy number. Further study in larger cohorts is required.

P056
VIRAL CONTROL AND IMMUNE ACTIVATION IN HIV HCV PATIENTS: CONTRIBUTION OF LIVER FIBROSIS AND TRYPTOPHAN CATABOLISM IN ART-TREATED HIV/HCV INFECTED PATIENTS

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BACKGROUND: Tryptophan (Trp) is catabolized into immunosuppressive Kynurenine (Kyn) by indoleamine 2,3-dioxygenase (IDO) expressed by dendritic. We reported an association between Trp catabolism, immune activation, and T-cell responses in HIV mono-infection. Here, we assessed Trp catabolism in HCV/HIV (with or without liver fibrosis), HBV/HIV co-infected and HIV mono-infected patients and healthy controls.

METHODS: Plasma samples were collected from ART-treated (HIV-RNA <40 copies/mL) HCV/HIV co-infected patients with or without liver fibrosis (n=20 per group), HBV/HIV co-infected patients (n=25), ART-treated (n=30) and ART-naive (n=30) HIV-mono-infected and healthy subjects (HS, n=30). Furthermore, 17 additional HCV/HIV co-infected patients with sustained virological response (SVR) were also assessed longitudinally six months after completion of INF-α/ribavirin treatment. IDO enzymatic activity (Kyn/Trp ratio) was measured using isotope dilution tandem mass spectrometry.

RESULTS: HCV/HIV patients with fibrosis compared with non-fibrosis had higher APRI scores and Kyn levels, while their Kyn were similar to those with HBV/HIV co-infection. The Kyn/Trp ratio was similarly high in three co-infected groups. Both Kyn levels and Kyn/Trp ratios were higher in ART-naive mono-infected patients, while similar to those in ART-treated patients and HS. Importantly, HCV/HIV fibrotic and HBV/HIV groups but not the non-fibrotic group had higher Kyn/Trp ratio compared to the ART-treated and HS groups. Unlike HIV viremia, HCV viremia was not correlated with the Kyn/Trp ratio. The APRI score and Kyn/Trp ratio were correlated, in all HCV/HIV co-infected patients. In the longitudinal study, successful HCV treatment improved APRI score, contrasting with unchanged elevated Kyn/Trp ratio six months after SVR.

CONCLUSION: HCV/HIV and HBV/HIV co-infected patients successfully treated with ART had a higher immunosuppressive Kyn/Trp ratio than mono-infected HIV-treated patients and were similar to those with untreated HIV mono-infection. Liver fibrosis in HCV, but not HCV viremia, was associated with an enhanced immunosuppressive Tryptophan catabolism in ART-treated HIV/HCV co-infected patients.

P057
THE IMPACT OF SMOKING TOBACCO AND OTHER DRUGS ON RESPIRATORY ILLNESSES AMONG HIV/HCV CO-INFECTED PATIENTS

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BACKGROUND: Smoking is associated with impaired immune responses and increased risk of respiratory disease. We evaluated the impact of smoking tobacco and other drugs on respiratory outcomes in HIV/HCV co-infected.

METHODS: Data were analyzed from a Canadian multicentre prospective cohort of 1151 HIV/HCV co-infected patients with at least two consecutive visits between 2003 and 2013. Primary respiratory outcomes were: a first episode of pneumonia, upper respiratory tract infection [URTI] and respiratory symptoms based on patient self-reported reasons for using a walk-in clinic or emergency room and having an overnight hospital stay. We used multivariate discrete-time proportional hazards models, adjusted for baseline age, sex, ethnicity, body mass index [BMI] and time-updated tobacco, marijuana and other drug smoking, CD4 cell count and HIVRNA.

RESULTS: At baseline, 52% smoked marijuana, 22% drugs other than marijuana and 76% cigarettes, in the past six months (median duration of cigarette smoking: 30 years (IQR 23 to 36 years) and median 10 cigarettes/day). Median age was 45 years, CD4 380 cells/μL and 61% had undetectable HIVRNA. 61 (7%) reported at least one episode of pneumonia [IR=2.9/100 PY; 95% CI 2.1 to 3.6], 36 (4%) URTI [IR=1.7; 95% CI 1.1 to 2.2], and 102 (11%) respiratory symptoms [IR=5.0; 95% CI 4.0 to 5.9]. Factors associated with respiratory illnesses are shown in the table.

	Pneumonia (n= 61/908)	URTI[1] (n= 36/916)	Respiratory symptoms[2] (n= 102/911)
Independent Variables	aHR (95% CI)	aHR (95% CI)	aHR (95% CI)
Female sex	1.06 (0.520, 2.145)	1.44 (0.653, 3.191)	1.14 (0.706, 1.853)
Aboriginal ethnicity	0.82 (0.313, 2.135)	2.06 (0.857, 4.961)	1.02 (0.562, 1.851)
Baseline			
Age (per 5 years)	1.22 (1.023, 1.454)	1.05 (0.833, 1.326)	1.00 (0.861, 1.160)
BMI (per 5 kg/m2)	0.88 (0.661, 1.167)	1.18 (0.863, 1.621)	1.00 (0.844, 1.175)

Continued on next page

Time-updated			
Tobacco smoking	1.34 (0.645, 2.780)	0.75 (0.293, 1.922)	2.72 (1.305, 5.652)
Illicit drugs smoking*	1.23 (0.565, 2.659)	2.68 (1.143, 6.299)	1.09 (0.616, 1.913)
Marijuana smoking	0.72 (0.392, 1.319)	0.95 (0.452, 1.991)	0.74 (0.472, 1.148)
CD4 count (per 100 cells/μL)	0.77 (0.649, 0.911)	1.05 (0.887, 1.254)	1.02 (0.953, 1.088)
HIVRNA (per log10 copies/mL)	1.23 (0.959, 1.566)	1.38 (0.979, 1.938)	1.13 (0.936, 1.352)
Note: Sample size varies by outcome as risk set of two consecutive visits were necessary for the analysis.			
*Crack and Heroin used without injection			
[1] Defined as: sinusitis, pharyngitis, laryngitis, otitis, cold, swollen throat infection			
[2] Defined as: flu, bronchitis, COPD, emphysema, cough, dyspnea, asthma, pneumothorax, sore chest			

CONCLUSION: Pneumonia was associated with aging and impaired immunity. Smoking drugs (other than marijuana) and cigarettes were associated with developing URTI and respiratory symptoms, respectively. Enhanced efforts to reduce both tobacco and illicit drugs smoking are essential to reduce the high rate of self-reported respiratory illness among co-infected patients.

Complications of Antiretroviral Therapy

Complications liées aux traitements antirétroviraux

P058
FACTORS ASSOCIATED WITH FREQUENCY OF MONITORING LIVER AND RENAL FUNCTION AND METABOLIC LABORATORY MARKERS AMONG INDIVIDUALS INITITATING COMBINATION ANTIRETROVIRAL THERAPY

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INTRODUCTION: In studies that use clinical data based on routine medical care, failure to account for differences in rates of laboratory marker measurement may bias analysis of factors associated with toxicities or comorbidities.

METHODS: We examined predictors of the frequency of liver function (AST and/or ALT), renal function (creatinine) and metabolic (HDL, LDL, triglycerides and/or total cholesterol) tests in participants of the Canadian Observational Cohort (CANOC) collaboration at sites and for time periods for which electronic data were available (n=4588; median 3.5 person-years follow-up per person; 2000 to 2011).

RESULTS: Overall, 92% of participants had ≥1 measure of AST/ALT, 83% had ≥1 creatinine measure and 76% had ≥1 cholesterol measure. For all tests, the probability of ≥1 measure differed by race, by IDU status, hepatitis C status, and baseline CD4 count (Table 1). Rates of measurement of liver, renal and metabolic tests were significantly lower for females, Black and First Nation participants and those infected through IDU. HCV-positive individuals who were also infected through IDU had significantly lower rates of measurement than HCV-positive non-IDU and HCV-negative individuals. Those initiating PI-based regimens had higher rates of measurement.

CONCLUSIONS: In our analysis, liver function tests were more commonly and routinely conducted than assessment of renal and metabolic markers. Testing patterns differed significantly by gender, race, HIV risk factor, Hepatitis C positivity and type of cART regimen first initiated. We are exploring zero-inflated negative binomial regression models to assess the independent association of the described factors with the rate of measurement of liver, renal and metabolic laboratory markers.

	Liver (AST/ALT)		Renal (Creatinine)		Metabolic (Cholesterol)	
	Probability of ≥1 Measurement	Median Rate of Measurement	Probability of ≥1 Measurement	Median Rate of Measurement	Probability of ≥1 Measurement	Median Rate of Measurement
Variable	Estimate (P-value)	Estimate (P-value)	Estimate (P-value)	Estimate (P-value)	Estimate (P-value)	Estimate (P-value)
Male	92% (0.83)	2.78 (<0.001)	84% (<.0001)	2.43 (<0.0001)	78% (<.0001)	1.41 (<.0001)
Female	93%	2.60	75%	1.93	71%	0.80
Age <55	92% (0.59)	2.72 (<.0001)	82% (0.32)	2.32 (<0.0001)	77% (0.17)	1.26 (<.0001)
Age ≥	93%	3.10	85%	2.78	80%	1.72
Race						
Caucasian	95% (<.001)	3.12 (<.0001)	85% (<.0001)	2.31 (<0.0001)	83% (<.0001)	1.55 (<.0001)
Black	96%	2.78	58%	1.22	57%	0.42
First Nation	86%	1.90	70%	0.63	62%	0.26
Other	97%	3.39	86%	2.47	84%	1.67
Risk Factor						
MSM	95% (0.04)	2.99 (<.0001)	88% (<.0001)	2.65 (<0.0001)	82% (<.0001)	1.47 (<.0001)
Non-MSM	93%	2.60	74%	1.78	68%	0.71
IDU	89% (<.0001)	2.28 (<.0001)	77% (<.0001)	1.35 (<0.0001)	68% (<.0001)	0.58 (<.0001)
Non-IDU	95%	2.90	83%	2.50	78%	1.29
Endemic	96% (0.02)	2.76 (0.35)	72% (<.0001)	2.20 (<0.001)	68% (<.0001)	0.86 (<.0001)
Non-Endemic	93%	2.87	84%	2.42	78%	1.22
PI-Based First Regimen	93% (0.03)	2.85 (<.0001)	84% (<0.001)	2.46 (<0.001)	78% (0.11)	1.39 (<0.001)
Non-PI Based	91%	2.67	81%	2.26	76%	1.20
Baseline CD4 count						
<200	94% (<.0001)	2.82 (<.0001)	84% (<.0001)	2.35 (<0.001)	79% (<.0001)	1.33 (0.02)
200-350	92%	2.79	84%	2.47	78%	1.29
≥350	87%	2.55	76%	2.14	70%	1.16
Hepatitis C						
Positive (HCV+)	90% (<.0001)	2.57 (<.0001)	78% (0.001)	1.69 (<0.0001)	71% (<.0001)	0.79 (<.0001)
Negative (HCV-)	93%	2.79	83%	2.44	78%	1.39
Interaction of Hepatitis C and IDU						
HCV+ and IDU	88% (<.0001)	2.03 (<.0001)	75% (<0.001)	1.10 (<0.0001)	65% (<.0001)	0.42 (<.0001)
HCV+ and non-IDU	96%	3.28	83%	2.74	79%	1.50
HCV- and IDU	95%	2.85	86%	2.05	78%	1.05
HCV- and non-IDU	95%	2.90	82%	2.49	78%	1.29

P059
OFTEN MENTIONED, SELDOM SEEN? SEVERE ALOPECIA ASSOCIATED WITH LAMIVUDINE AND EMTRICITABINE: TWO CASE REPORTS AND A REVIEW OF THE LITERATURE

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BACKGROUND: Alopecia is a potential side effect of several combination antiretroviral therapy (cART) agents. This distressing side effect has been associated most commonly with the protease inhibitors, but other agents, including nucleoside reverse transcriptase inhibitors (NRTIs), have also been implicated.

CASE 1: A 56-year-old woman on cART including ritonavir-boosted atazanavir for three years reported a 1.5 year history of progressive alopecia, beginning around the time of a switch from tenofovir/emtricitabine (TDF/FTC) to abacavir/lamivudine (ABC/3TC). Though her adherence was initially sporadic, she noted increased hair loss coinciding with improved adherence. Lab investigations revealed no other etiologies considered likely. Following 3TC cessation, the patient experienced significant hair regrowth, which returned to normal within three months.

CASE 2: A 32-year-old, cART-naive woman was initiated on TDF/FTC and ritonavir-boosted darunavir. Within four weeks of treatment initiation, she began experiencing significant hair loss. Laboratory investigations done at this time revealed no nutritional or other abnormalities as possible culprits. The FTC was discontinued, raltegravir was initiated, and the patient's hair returned to normal within four months.

LITERATURE REVIEW: A review of the published literature and HIV conference abstracts yielded one published paper where 3TC was the sole cART agent implicated in five cases of alopecia. A review of the Canada Vigilance Adverse Reaction Database revealed two cases where 3TC was suspected but not confirmed as the etiology for hair loss. No cases of FTC-related alopecia were found.

DISCUSSION: The NRTIs 3TC and FTC are considered safe and effective cART agents, and make up many current-day HIV regimens. Though alopecia has been rarely described with 3TC, it has not – to our knowledge – been described with FTC. We present two cases of severe alopecia likely associated with 3TC and FTC, highlighting the importance of remaining vigilant to this distressing adverse event in individuals receiving these agents.

P060
MANAGEMENT OF HIV-POSITIVE PATIENTS WITH EGFR ≤ 70ML/MIN ACROSS TWO LARGE, URBAN CENTERS IN CANADA; A RETROSPECTIVE DATABASE REVIEW

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INTRODUCTION: As HIV patients are aging, long-term utilization of combination antiviral therapy (cART) has become secondary to the burden of chronic diseases such as chronic kidney disease (CKD), diabetes, hypertension and cardiovascular disease. The main objective of this retrospective study was to describe how HIV-positive patients with eGFR ≤70 mL/min are managed. This objective is of particular interest since existing literature primarily considers patients with eGFR>70 min/mL.

METHODS: Patients with eGFR ≤70 mL/min prior to starting ARV, were recruited from two community clinic in Montreal and Toronto. Data on cARV, CD4 and Viral load (VL) evolution, kidney function were collected as well as demographics and medical history. Comparisons were done by log Rank non-parametric tests and Kaplan-Meier analyses.

RESULTS: 17 patients were included. Median age was 59 years and 35% of patients were diagnosed with HIV within the last three years. 35% of patients begun ART with TDF and 24% had eGFR<50 at cART initiation. At the end of study period, all but one were undetectable (VL<50), all had significant gain in their CD4 count (360 cells/µL, P<0.001), 65% remain with eGFR<70. Overall, 53% stop their first-line treatment in less than one year (75% of eGFR<50 versus 46% of eGFR 50 to 70, P=0.576; compared with 22% for patients with eGFR>70 in our main cohort). Mean time for first-line regimen was 76 weeks for those with TDF in the first-cART versus 173 weeks for those beginning with other ARVs (P=0.273). 56% of D/C was due to safety and tolerability problem, 11% to lack of efficacy, and 33% for other reason. One patient died from non kidney related problems during the study period.

CONCLUSIONS: In an era of aging HIV patients, it will be important to consider how patients with declining eGFR are managed. Even if the difference were not statistically significant, patients with kidney impairment seems to have more problems maintaining their cART. More data are needed to evaluate those at risk patients.

P061
ADVERSE DRUG REACTIONS ARE MUCH MORE COMMON IN TREATED HIV POSITIVE INDIVIDUALS THAT WE THINK

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BACKGROUND: Adverse drug reactions (ADRs) are known to be a determinant of non-adherence to ART. Many studies report a gap between physician and patient reporting of ADRs. We were interested in assessing the attitude of physicians on the burden of ADRs on their patient's lives as well as the determinants of patient's satisfaction regarding ART.

METHODS: Between July-October 2011, nine physicians participated in a cross sectional study on ADRs of ARVs at Clinique l'Actuel in Montreal. An auto-administered questionnaire about potential ADRs, ART satisfaction and self-reported adherence was distributed to HIV-treated patients as they came for a follow up visit. At the end of the visit, physicians answered questions regarding their perception of the ADRs reported by the patients. The data was analysed using correlation and logistical regression analyses.

RESULTS: 305 HIV patients on ART had been enrolled. Overall, 280 (92%) patients reported the following ADRs, with a mean of five ADRs (IQR three to seven): fatigue (69%), anxiety (56%), sexual problems (56%), sleeping disturbance (52%), GI symptoms (50%), depression (42%), dizziness (40%), and skin problem (40%). Patients considered themselves highly adherent to ART (94%) even if 149 (50%) reported some missing doses. 244 (81%) patients were satisfied of their ART. The only statistically significant determinant of adherence was the presence of sleeping problem (OR=0.350; P=0.049), and the non-adherence rate was directly proportionate to strength of the disturbance (ρ=−0.118; P=0.041). Physicians discussed the reported ADRs in 60% of cases. Physicians felt that the ADRs were related to the ART in less than 7% of patients. Medication was changed consequently in 8% of cases.

CONCLUSION: ADRs to ART was highly reported in this study, much more than expected by physicians. The only ADR that affected adherence to ART was sleep disturbances. These results reinforce the importance of talking proactively about ADRs with patients.

HIV and Aging

Le VIH et le vieillissement

P062
ESTIMATING FRAILTY FROM DATA ROUTINELY COLLECTED IN AN OUTPATIENT HIV CLINIC

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BACKGROUND: Frailty describes a state of vulnerability arising from the cumulative effects of deterioration in multiple physiological systems. Frailty has been estimated in HIV-negative populations using a frailty index (FI), calculated as the proportion of age-related, general health deficits individuals have accumulated. The concept of frailty holds

promise for the care of those living with HIV, but has not been well characterized in this population.

METHODS: Cross-sectional analysis of initial visits (1983 to 2013) to an outpatient HIV clinic. Electronic medical record variables were screened for inclusion in an FI. We created one FI ("FI-HIV") with 38 items, and a second FI ("FI-Age") with 12 of the 38 items that were age-associated and used in previous FIs. Frailty was also estimated categorically (FI≥0.25). CD4 and RNA viral load measurements within three months of clinic visits were included.

RESULTS: FIs were constructed for 1120 participants, 18 to 79 years of age (mean 37.1±10.5 years; 13% women). FI-HIV ranged from 0 to 0.61 (mean 0.20±0.13; median 0.18). FI-Age ranged from 0 to 0.92 (mean 0.25±0.19; median 0.25). Both FI-HIV (r=0.12) and FI-Age (r=0.19) were modestly correlated with age (P<0.01). Scores in both FIs increased 0.9% per year of age, on a log scale. CD4 and viral load were correlated with FI-HIV (r=−0.17 & r=0.21, P<0.01) and FI-Age (r=−0.17 & r=0.16, P<0.01), but not with age (p>0.05). Participants with HCV co-infection were frailer than those without (FI-HIV: 0.26±0.13 versus 0.20±0.12; FI-Age: 0.36±0.19 versus 0.24±0.18, both P<0.001). Both FIs predicted survival and time to AIDS diagnosis; adjusting for age and sex, only time to AIDS diagnosis remained significant. Categorically, 33% (FI-HIV) and 52% (FI-Age) of participants were frail.

CONCLUSIONS: People presenting to outpatient HIV care exhibited high levels of frailty, as estimated through a deficit accumulation approach. Further work is needed to determine how frailty can be best conceptualized among people ageing with HIV.

P063

SURVEY OF PRACTICE PATTERNS AND ATTITUDES ABOUT BONE DISEASE PREVENTION AND MANAGEMENT IN HIV-INFECTED PATIENTS

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OBJECTIVE: Increased risk of bone disease in HIV patients may be due to traditional and HIV-related risk factors. Not all HIV practitioners may be aware of risk factors or recommendations for screening and managing bone disease. This study determined HIV practitioners' beliefs and attitudes, as well as practice patterns for screening and managing bone disease in HIV-infected patients.

METHODS: An on-line survey was distributed via email to HIV practitioners (infectious disease and family physicians, pharmacists, nurses and dietitians) across Canada using professional networks/associations and known contacts of the researchers. Survey questions included current practice patterns, use of guidelines for bone disease management, and beliefs/attitudes regarding bone disease. Logistic regression (univariate) was used to examine the association between independent (eg, demographics) and dependent variables (eg, practice patterns).

RESULTS: There were 72 respondents to the survey. The majority (83%) believed it was important to prevent bone disease in HIV patients. 32% of respondents reported routinely screening for bone disease risk factors and 50% reported being aware of guidelines or resources for bone disease prevention. The most common barriers to addressing bone disease reported were competing priorities in patient care, pill burden, and lack of expertise/comfort with managing bone disease. HIV practitioners who worked in HIV specialty clinics were more likely to report that they screened for risk factors of bone disease (OR 4.76; P=0.007). Practitioners who reported lack of expertise as a barrier to addressing bone disease were less likely to report screening for risk factors (OR 0.31; P=0.036).

CONCLUSIONS: HIV practitioners believe bone disease is important however a number of barriers prevent routine screening for bone disease in practice. Further education may be needed to promote the use of existing guidelines as well as research to evaluate the benefits of screening for bone disease in the HIV population.

P064

ENVIRONMENTAL SCAN OF IN-PROCESS RESEARCH ACTIVITIES IN CANADA: IS RESEARCH MOVING US TOWARD IMPROVED CLINICAL CARE FOR PEOPLE AGING WITH HIV AND COMORBIDITIES?

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BACKGROUND: Older people living with HIV (PLHIV) experience greater prevalence of multimorbidity than their HIV-negative peers and face significant barriers to accessing clinical care appropriate to their needs. According to the Stage Theory of Organizational Change, the step-wise process to address these barriers at the systems level includes: understanding challenges facing the system, conceiving of solutions, garnering buy-in, implementing new ideas and institutionalizing change. Research into the healthcare needs and experiences of older PLHIV can help drive this process.

METHODS: We conducted a scan of in-process quantitative and qualitative research (funded research for which findings were not yet published in peer reviewed journals) in Canada related, explicitly or implicitly, to health, HIV and aging. We searched the websites of 62 research institutions and funders for studies funded from 2010 to 2013. We coded each project by health domain(s) and associated category(s) using an existing HIV and aging focused framework.

RESULTS: We catalogued 80 relevant research projects, creating duplicate entries for studies addressing multiple health domains. Of the 104 resulting records, 33 related to physical health, 28 to mental health, 26 to health services, six to social participation, five to antiretroviral therapies, three to sexual health and three to other domains. We found a similar number of research activities related to comorbidities, cognitive disorders, healthcare service utilization and access to health services but noted inequities in funding between these areas.

IMPLICATIONS: Our scan of in-process research demonstrates knowledge-building to support the earliest stages of systems change. Most resources are currently being used to define the 'problems' of HIV and aging, with significantly fewer dedicated to studying the creation, implementation and evaluation of healthcare solutions. The cohort of older PLHIV in Canada is burgeoning and more research is needed to inform individual-level clinical care and system-level change so that health services keep pace.

P065

THE VETERAN AGING COHORT STUDY INDEX AS A MARKER OF NEUROPSYCHOLOGICAL IMPAIRMENT IN PEOPLE WITH HIV/AIDS: RESULTS FROM THE ONTARIO HIV TREATMENT NETWORK COHORT STUDY

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OBJECTIVES: A recent study has shown that the Veterans Aging Cohort Study (VACS) Index, an index comprised of HIV and non-HIV disease markers, predicts neuropsychological (NP) impairment in people with HIV. The objective of this study is to replicate and extend this work among people with HIV in Canada.

METHODS: 835 adults with HIV receiving care in Toronto; mean age 45 years; 76% men; 57% gay/bisexual; 58% Caucasian; 83% on cART; and 70% had undetectable HIV RNA. VACS Index score was calculated using published guidelines. Data on medical comorbidities (diabetes, hypertension, cardiovascular diseases, and lung diseases) were obtained. Brief NP test battery administered: HVLT–R, Grooved Pegboard, WAIS-R Digit Symbol, and WMS-III Spatial Span. Global Deficit Score (GDS) were computed from demographically corrected T-scores. Individuals were classified into NP impairment (NP-I) and NP normal (NP-N) using

GDS cut-off of 0.5. Logistic regression methods were used to examine association between VACS Index and NP-I.

RESULTS: More than half (58%) of the sample had NP-I. VACS Index score ranged from 0 to 111 (median score: 16; IQR 6 to 27). In bivariate regression, 5-point increment in VACS Index was associated with NP-I (OR 1.07 [95% CI 1.02 to 1.13]; P=0.003). In multivariate regression, 5-point increment in VACS Index was associated with 8% increased odds of NP-I (AOR 1.08 [95% CI 1.02 to 1.15]; P=0.01), after adjusting for CD4 nadir, cART, depression, substance use, and medical comorbidities. In addition, diabetes (AOR 2.62 [95% CI 1.21 to 5.66]; P=0.014) and low CD4 nadir (<200 cells/mm^3) (AOR 1.61 [95% CI 1.16 to 2.24]; P=0.005) were associated with NP-I.

CONCLUSIONS: Neuropsychological performance is influenced by level of physiologic injury and that interventions to prevent or mitigate this injury may help to maintain or improve neuropsychological function. Clinical measures collected as part of routine care may be useful in the assessment and management of neuropsychological impairment.

HIV in Children and Adolescents

Le VIH chez les enfants et les adolescents

P067
SUSTAINED VIROLOGIC SUPPRESSION WITH EARLY INITIATION OF COMBINATION ANTIRETROVIRAL THERAPY IN HIV-1-INFECTED NEWBORNS: IS FUNCTIONAL CURE POSSIBLE?

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BACKGROUND: Triple combination antiretroviral therapy (cART) has been routinely prescribed in our institutions to infants born to HIV-infected mothers with suboptimal virologic control prior to delivery. We reviewed the rate of vertical transmission (VT) in this context and measured the level of HIV-1 reservoir in a subset of these infants.

METHODS: Children were eligible if they received cART within 72 h of birth, were confirmed HIV-1 infected by standard diagnostic guidelines, and achieved sustained virologic suppression (SVS). HIV-specific T-cell responses were measure by ELISPOT assay. Plasma viremia and level of cell-associated HIV-1 RNA were determined by Cobas Amplirep/Cobas Taqman HIV-1 Test, level of cell-associated HIV-1 DNA by real-time PCR, and presence of replication competent virus by co-culture of stimulated CD4+ T-cells.

RESULTS: VT occurred in 12 of 129 newborns (9%) who received cART; at least six (50%) were infected in utero based on positive HIV-1 PCR within 48 h of birth. SVS (from time of initial suppression) was achieved in 4/12 (33%) at a median of 100.5 days (65 to 189 days). These four children underwent further investigation at 2.5 to 7.3 years of age. HIV-1 serology (ELISA and Western blot) and HIV-1 specific T-cell responses to gag and nef were negative as was ultrasensitive viral load testing (detection limit 1.5 copies/mL). Cell-associated proviral DNA was not detected (detection limit 2.6 copies/µg DNA), whereas cell-associated RNA was detected (20 to 130 copies/1.5 µg RNA). No replication competent virus was demonstrated in stimulated CD4+ T-cell co-culture (5.4 to 8.0 million cells).

CONCLUSIONS: One-third of HIV-infected newborns placed on cART within 72 h of birth achieved SVS. The detection of RNA, but not DNA or replication competent virus may be due to transcription of defective HIV-1 genome. Supervised treatment interruption may be needed to determine if eradication of HIV-1 is possible in children who achieve SVS with cART initiated within 72 h of birth.

P068
TRANSITION NEEDS OF CHILDREN AND YOUTH LIVING WITH HIV IN VIETNAM

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BACKGROUND: Pediatric antiretroviral therapy (ART) was introduced in Vietnam in 2005, and children and youth living with HIV (CYLH) are now increasingly surviving into adolescence. CDC/PEPFAR supports pediatric HIV treatment sites in 20 provinces, representing aproximately 40% of CYLH nationwide. Pediatric care focuses on ART provision and opportunistic infection treatment, with limited time or capacity for transition preparation. National regulation requires that CYLH transfer to adult clinics after age 15. We assessed the transition needs of CYLH and staff at CDC/PEPFAR-supported sites.

METHODS: A cross-sectional review of CYLH enrolled at 21 sites was conducted, including collection of demographic and clinical data. Health care workers (HCWs) at each site were surveyed regarding staff preparedness and concerns about transition.

RESULTS: Of 1660 CYLH, 27% were aged >10 and 42% were orphaned (lost one or both parents). Among CYLH >10, 33% were fully disclosed, 10% had adherence <95% and 15% were on second-line ART. Sites had transitioned 30 patients in the previous three years; 3% refused transfer and returned to pediatric clinic, and 7% were lost to follow-up (LTFU). Six sites continued providing care for patients >15. Only five sites had social workers and/or psychologists on staff. 26% of HCWs had received training on pediatric HIV disclosure, 7% on adolescent sexuality/reproductive health, and 3% on transition. Common concerns regarding adolescents related to lack of social support (81%), sexual/reproductive health education (43%), adherence and LTFU (33%), and disclosure (14%).

CONCLUSIONS: More than one-quarter of CYLH in Vietnam will transition to adult care in the next five years, but only one-third of these know their HIV status and many have risk factors for poor outcomes. A locally adapted adolescent transition program and national guidance for HCWs are being developed to support CYLH to acquire necessary knowledge and skills for self-care, adherence, safer sex, and reproductive health.

P069
CHANGES IN MORBIDITY AND MORTALITY BETWEEN THE PRE- AND POST-COMBINATION ANTIRETROVIRAL THERAPY (CART) ERAS IN HIV-INFECTED CHILDREN

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BACKGROUND: With the advent of combination antiretroviral therapy (cART), HIV-associated childhood mortality and morbidity have declined dramatically in many jurisdictions. However, currently there are no published data on outcomes for HIV-infected children in Canada.

METHODS: The charts of all HIV-infected children born between 1991 and 2014 followed by the Family-Centered HIV Program at SickKids were retrospectively reviewed. Outcomes for the pre-cART era (1991 to 1996) and cART era (1997 to 2014) birth cohorts were compared. Standard statistical methods were used (Log-rank for survival analysis, χ^2 for proportions, Mann-Whitney U for non-parametric comparisons).

RESULTS: 142 children were included (54% female); 66 were born during the pre-cART era and 76 during the cART era. All but eight (5.5%) were perinatally infected. There were 12 deaths, all in children born during the pre-cART era (P<0.001); the median age at death was one year (range one to seven years). AIDS defining conditions occurred in 41% and 18% of those in the pre-cART and cART eras, respectively (P=0.006); the most common AIDS defining conditions (category C) were similar in both time periods and included HIV-associated encephalopathy (n=17), *Pneumocystis jirovecii* pneumonia (n=15), cytomegalovirus disease (n=10), HIV-associated wasting syndrome (n=6) and *Mycobacterium avium-intracellulare* infection (n=3). The median number of antiretroviral regimens received by pre-cART and cART era children was three (range one to eight) and two (range one to six), respectively (P=0.002). Dual or triple class resistance in the corresponding two groups was 46% and 25% (P=0.025). The proportion with an undetectable viral

load and normal CD4 percentage at last visit was 42% and 45% for pre-cART era children and 61% and 85% for cART era children (P=0.03 and P<0.001, respectively).

CONCLUSIONS: The outcome of pediatric HIV infection has dramatically improved, but incomplete virologic suppression and antiretroviral drug resistance remain major problems. There is a need for published national Canadian data on pediatric HIV outcomes.

P070
PERCEIVED BARRIERS AND FACILITATORS TO SUCCESSFUL TRANSITION OF YOUTH LIVING WITH HIV FROM PEDIATRIC TO ADULT CARE: PRELIMINARY RESULTS FROM A NATIONAL SURVEY OF CANADIAN HIV CARE PROVIDERS

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BACKGROUND: Transition of youth living with HIV/AIDS (YLHA) from pediatric to adult care is challenging, and outcomes have not been optimal. We conducted a national survey of Canadian HIV care providers (HCPs) to determine perceived barriers and facilitators to successful transition.

METHODS: A 32-item questionnaire was developed to assess current practices and perceptions of HCPs with respect to transition of YLHA to adult care. Questions on barriers and facilitators were answered in four-point Likert scales, ranging from 'large' to 'not a barrier/facilitator' as possible responses. The on-line questionnaire was piloted and then distributed to physicians, nurses and allied health professionals providing pediatric or adult HIV care across Canada.

RESULTS: There were 96 respondents, including 59 adult HCPs and 37 pediatric HCPs. Major barriers and facilitators are summarized in Table 1. Most pediatric and adult HCPs believed that not all YLHA were developmentally ready for transition at 18 years (86% and 71%, respectively).

CONCLUSIONS: Despite previous commentary regarding challenges to transition based on cultural differences between pediatric and adult care provision, there was strong agreement between pediatric and adult HCPs on most aspects of transition for YLHA. The majority of pediatric and adult HCPs agree on the importance of developmental readiness, health literacy, acceptance of diagnosis, family support, communication between providers, and post-transition interventions. Our results support the development and implementation of specialized programs designed to address these barriers and incorporate the identified facilitators.

Barriers	Pediatric HCPs		Adult HCPs	
	Large/ moderate	Small/not	Large/ moderate	Small/not
Developmental readiness of child	94%	6%	84%	16%
Youth lack of autonomy	94%	6%	88%	12%
Youth lack of life skills	94%	6%	91%	9%
Cultural differences between pediatric and adult providers	61%	39%	57%	43%
Little patient awareness/ knowledge of transition	74%	26%	68%	32%
Facilitators				
Health literacy of youth	97%	3%	94%	6%
Acceptance of HIV diagnosis	100%	0%	89%	11%
Parental/family support	97%	3%	89%	11%
Effective communication between pediatric and adult providers	94%	6%	81%	9%
Post-transition reminders (e.g. cell/text/e-mail)	80%	20%	80%	20%

P071
ZAMBIAN HIV-EXPOSED UNINFECTED (HEU) INFANTS EXPOSED TO HAART DURING PREGNANCY AND ONE YEAR OF BREASTFEEDING SHOW NO EVIDENCE OF NEURODEVELOPMENTAL DELAY COMPARED TO HIV-UNEXPOSED UNINFECTED (HUU) INFANTS FROM THE SAME COMMUNITY

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BACKGROUND: The 2013 WHO Guidelines on preventing HIV mother-to-child transmission recommend HAART for mothers throughout pregnancy and breastfeeding. While the benefits of HAART in that context are undeniable, exposure to antiretrovirals could affect human development. The neurocognitive impact of prolonged HAART exposure on HEU infants is unknown. This prospective cohort study sought determine whether there is a higher risk of neurodevelopmental delay amongst HEU Zambian children exposed to a lopinavir/ritonavir, zidovudine and lamivudine throughout pregnancy and one year of breastfeeding, versus HUU children born to HIV-negative mothers.

METHOD: Children were 15 to 36 months of age. HEU children were born to HIV+ women enrolled in the Aluvia Study while HUU children were from the under-5 health clinic, both at the Chelstone Clinic in Lusaka, Zambia. The standardized Capute Scales, consisting of the Cognitive Adaptive Test and Clinical Linguistic and Auditory Milestone Scale, were used to assess the children's nonverbal problem-solving and language skills. A score <85 on the Capute Full Scale Developmental Quotient (FSDQ), indicative of developmental delay, was the primary outcome compared between the two groups.

RESULTS: Among HEU, eight of 97 (8.3%) had an FSDQ score <85, while 15 of 103 (14.6%) of HUU participants did. In univariate logistic regressions, lower income (OR 0.93; P=0.02), older infant age (OR=1.08, P=0.03), and lower birth weight (OR=0.16, P=0.0002) were associated with the probability of FSDQ <85, while group (HEU versus HUU) was not (OR=1.88, P=0.16). Multivariately, only lower birth weight (OR=0.17, P<0.001) and older age (OR=1.10, P=0.03) remained associated with FSDQ <85.

CONCLUSIONS: Our study shows no evidence of a higher proportion of delayed infants in the HEU group compared to HUU children from the same community, suggesting treatment with this regimen during pregnancy and breastfeeding does not impact early childhood cognitive development. This finding is timely and reassuring given the increasing perinatal and postpartum use of HAART worldwide.

P072
TRANSITION OF YOUTH LIVING WITH HIV FROM PEDIATRIC TO ADULT CARE IN CANADA: PAST, PRESENT, AND FUTURE

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BACKGROUND: Pediatric HIV has now become a manageable, chronic disease such that increasing numbers of youth are transitioning from pediatric to adult HIV care. We described the epidemiology of the transitioned and current Canadian pediatric HIV cohorts.

METHODS: Data collected on HIV-infected children from the Canadian Perinatal HIV Surveillance Program was reviewed for the period January 1990 – December 2012. Demographic characteristics were described and compared between those currently in pediatric care and those who transitioned to adult care.

RESULTS: Of 591 patients diagnosed with HIV in childhood, 113 had died (90% AIDS-related, 10% non-AIDS illnesses), and seven had transferred to another country. 202 patients were presumed or known to have transitioned to adult care (age ≥18), the oldest of whom included

25 patients currently 25 to 30 years of age. The current pediatric cohort included 269 patients, among whom 139 (51%) were currently >12 years of age. When comparing the transitioned and current cohorts (Table 1), there was a decrease over time in proportion of children with maternal white race (30% versus 13%, P<0.01) and blood product exposure (4% versus 1% P=0.02), and an increase in children with maternal Aboriginal ethnicity (6% versus 13% P<0.01) and currently under care in Alberta (6% versus 13%, P<0.01).

CONCLUSIONS: Over half of the current pediatric cohort in Canada will transition to adult care by 2017, and changes in the demographics of transitioning patients have occurred over time. The transition to adult care, and potential sequelae of lifelong HIV infection, may warrant targeted resources and attention by these patients' adult care providers.

		Transitioned (n=202)	Current (n=269)	p*
Maternal risk factor	Heterosexual	68% (138)	65% (175)	0.50
	Intravenous drug use	15% (31)	13% (34)	0.40
	Blood product	4% (8)	1% (2)	0.02
	Unknown/ other	12% (25)	21% (58)	0.01
Maternal race/ ethnicity	Black	54% (110)	61% (165)	0.13
	White	30% (60)	13% (33)	<0.01
	Aboriginal	6% (12)	13% (34)	0.01
	Other/Unknown	10% (20)	13% (37)	0.20
Child birthplace**	Canada	58% (117)	57% (151)	0.70
	Abroad	37% (75)	43% (117)	0.17
Province of care	Ontario	39% (79)	40% (109)	0.60
	Quebec	39% (79)	29% (78)	0.03
	British Columbia	12% (24)	11% (29)	0.78
	Alberta	6% (12)	13% (36)	<0.01
*Chi2 test of proportions or Fisher's Exact test				
** 11 patients with child birthplace not reported				

P073
YOUNG AND RESILIENT: HIV-INFECTED ADOLESCENTS AFTER TRANSITION TO ADULT CARE

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BACKGROUND: Little is known on outcomes after transition and in early adulthood among the first wave of survivors of perinatal HIV infection. The objective of this study was to assess clinical outcomes and quality of life measures after transfer to adult care.

METHODOLOGY: Clinic records were reviewed to identify all youth who transitioned from the Centre Maternel et Infantile sur le Sida pediatric HIV clinic (Montreal) at age 18 to an adult care provider between 1999-2012. A standardized questionnaire was administered by telephone or in-person interview, and copies of current medical records obtained from treating physicians.

RESULTS: Forty-five patients were transferred between 1999 and 2012, among whom 25 consented to the study, eight were lost to follow-up, eight refused participation, and four were deceased. Mean time since transfer was 3.83 years (range 1.11 to 6.78). Overall, 83% of patients remained engaged in care, defined by at least one physician visit within six months of the interview. 56% had obtained a high school degree or higher, and 61% were still in school. Among women, 40% had had a first pregnancy, and overall, 22% of the youth had become parents themselves. 65.2% of patients reported difficulty with drug adherence to their current regimens, with 17.4% not taking any medication. A third of patients did not know their current CD4 count or viral load. At one-year post-transfer, there was a statistically significant decrease in absolute CD4 count (mean 370 cells/mm^3 vs 524 cells/mm^3, P=0.04), however, there were no significant changes in viral load (mean 2.42 vs 2.55 log10 copies/mL; P=0.47).

CONCLUSIONS: This group of youth remained engaged in care without significant change to their medical status post-transition, though selection bias was likely present among those who participated. Nonetheless, difficulties with adherence and lack of disease-related knowledge were identified as issues in their post-transition care.

P074
NEVIRAPINE (NVP) PHARMACOKINETICS IN HIV-EXPOSED NEONATES RECEIVING TRIPLE COMBINATION ANTIRETROVIRAL THERAPY AS POST-EXPOSURE PROPHYLAXIS

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BACKGROUND: As recommended by an Ontario Expert Advisory Committee, neonates at increased risk of HIV infection receive nevirapine (NVP)-based combination antiretroviral therapy (cART) as HIV-post exposure prophylaxis (HIV-PEP). Our aim was to evaluate the pharmacokinetics (PK) of NVP in neonates.

METHODS: Neonates given NVP-based cART-HIV-PEP were included. Empiric NVP dosing was 150 mg/m^2 orally once daily for 14 days, then 150 mg/m^2 every 12 h for 14 days (total four weeks). NVP trough levels (NVP-T) were measured at 1, 2 and 4 weeks, and levels 1 and 4 h post-dose at week 4. Doses were adjusted at the 1 and 2 week visits if NVP-T fell outside the therapeutic range (3 mg/L to 8 mg/L). Informed consent was obtained for the 4week PK evaluation.

RESULTS: At least one NVP-T was obtained for 19 infants; median gestational age (GA) was 37.9 weeks (30 to 41.7) and median birth weight (BW) was 2.83 kg (1.05 kg to 3.61 kg). Median NVP-T's were 9.9 mg/L (1.6 mg/L to 25.4 mg/L) and 4.1 mg/L (1.6 mg/L to 26.1 mg/L) at week 1 and 2, respectively. The proportion of therapeutic NVP-T increased from 38.5% (five of 13) at week 1, to 54.5% (six of 11) at week 2 and 71.4% (10 of 14) at week 4. Supra-therapeutic NVP-T's were observed in 53.8% (seven of 13) and 9.1% (one of 11) at week 1 and 2, respectively. Median oral clearance (ClssF) was 2.99 L/kg/h (0.39 L/kg/h to 6.91 L/kg/h) and median drug exposure (AUC_tau) was 11.3 mg/kg/L*hr (2.4 mg/kg/L*hr to 38.5 mg/kg/L*hr); reduced clearance was associated with lower GA (r=0.416; P=0.097) and lower BW (r=0.338; P=0.170). Adverse events, including hyperlactatemia and vomiting, occurred more often in patients with supratherapeutic NVP-T (60.9% versus 39.1%). No cases of vertical transmission, rash, or transaminitis occurred; premature treatment discontinuation was not required.

CONCLUSIONS: The current nevirapine dose achieved therapeutic levels for most patients as drug clearance increased with maturity. Lower empiric dosing given less frequently may be required for low BW or premature infants.

P075
USE OF FILE REVIEWS TO ENSURE CONTINUOUS QUALITY IMPROVEMENT OF PEDIATRIC HIV/AIDS SERVICES: EXPERIENCE FROM THE AIDS SUPPORT ORGANISATION-RUKUNGIRI CENTER

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ISSUES: On- going file reviews are key and of great benefit in identifying gaps and managing in a quality manner pediatric clients in TASO setting. TASO Rukungiri is one of the centers offering pediatric HIV/AIDS services among other services to children in its catchment area since 2004.

DESCRIPTION: As a way of improving the quality of pediatric HIV/AIDS care services offered, file reviews were conducted for a period of 12 months targeting maximum 20 files for children per clinic. (period January 2013 to December 2013) and these were done to identify documentation gaps and identify quality issues for quality improvement of the Pediatric HIV/AIDS care at the TASO Rukungiri center. Data capturing forms for service offered were scrutinized to identify information and form filling gaps for the children accessing medical care from the center both ART and non-ART. Issues noted were captured on file review form which at the end was filed in same reviewed file.

LESSONS LEARNED: File reviews have provided an opportunity for supervisors to identify best practices as well as identify challenges in service delivery to the children attending center clinics in TASO Rukungiri, staff have been adequately supported to offer quality pediatric care services with special improvement noted in documentation especially basic parameters related to growth monitoring, CD4 testing for children and information giving.

CONCLUSION: File reviews are key in the identification of gaps in pediatric HIV/AIDS service delivery and thus is an avenue for support to service providers thus quality improvement in long run.

P076
NEUROCOGNITIVE DEVELOPMENT IN YOUNG HIV-EXPOSED UNINFECTED CHILDREN EXPOSED PRE- OR PERINATALLY TO ANTIRETROVIRAL MEDICATIONS

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BACKGROUND: The nucleoside reverse transcriptase inhibitors inhibit mitochondrial DNA gamma polymerase, altering mitochondrial replication and function. Since brain development requires considerable energy, medications affecting mitochondrial energy production during fetal life and infancy could affect brain development. We report here on neurodevelopmental outcomes of young HIV-exposed uninfected (HEU) children exposed in utero and perinatally to these medications.

METHODS: The SickKids Family-Centered HIV Clinic follows HEU children exposed to ARVs pre/perinatally to 5.5 years of age. Neurodevelopmental assessments are performed at 1.5, 3.5 and 5.5 years of age. The Bayley Scales of Infant Development are administered at 1.5 years; older children are given the Wechsler Pre-School and Primary Scales of Intelligence. The Vineland Adaptive Behaviour Scales are given at all ages.

RESULTS: Results are presented for 292 HEU children at 1.5 years of age, 113 at 3.5 years of age, and 70 at 5.5 years of age. Their families are from an ethnically diverse, largely immigrant background: 58% from Africa (21% Ethiopia, 10% Zimbabwe, 10% Nigeria, 8% Somalia, smaller numbers from Congo, Uganda, Tanzania, etc), 16% Caribbean, 13% Canadian, 9% South/Southeast Asia, and others from Central and South America. At 1.5 years of age, mental and perceptual-motor development fell within the average range, but scores were statistically lower ($P<0.01$) than the population mean, as were communication, daily living and socialization skills ($P<0.001$). At 3.5 years of age, children showed normal IQs, but had lower language scores than expected based on population norms ($P<0.001$). Adaptive function was below expectation in all domains ($P<0.001$). The 5.5-year-olds differed from expected performance on IQ, processing speed, language, and adaptive function ($P<0.001$).

CONCLUSIONS: Approximately 25% of HEU children had developmental delays. These findings may be related to early exposure to ARVs. However, the potential confounding effects of social and demographic circumstances relating to immigration, poverty, language and cultural barriers need to be explored.

P077
CANADIAN PERINATAL HIV SURVEILLANCE PROGRAM (CPHSP): WILL 2012 BE THE FIRST YEAR WITH NO VERTICAL TRANSMISSION IN CANADA?

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OBJECTIVES: To describe demographics of mother-infant pairs (MIP), treatment during pregnancy and vertical transmission (VT) rates in the Canadian perinatal HIV surveillance cohort of births to HIV+ mothers from 1990 to 2012.

METHODS: Maternal and infant data are collected annually from 22 Canadian pediatric and HIV centres. VT rates are obtained from the "perinatally identified cohort" defined as MIP delivered in Canada and identified within three months after birth. Data collected include maternal characteristics, antiretroviral usage and infant outcome.

RESULTS: Among 2710 MIP identified during the combination antiretroviral therapy (cART) era (1997 to 2012), the VT rate was 2.3% overall, 0.8% in MIP receiving cART and 0.1% in MIP receiving >4 weeks of cART. The proportion of pregnant women not on cART steadily decreased from 21.3% in 1997 to 5.6% in 2012. In 2012, 226 HIV-positive women who gave birth in Canada were identified; maternal risk groups for HIV acquisition included: 73% heterosexual exposure, 15% injection drug use, and 1% perinatal transmission. 60% of mothers were black and 15% were Aboriginal. 45% were identified in Ontario, 16% in Québec, 14% in Alberta, 11% in BC, 8% in Saskatchewan and 7% in Manitoba. There were no documented cases of VT in 2012 despite 8% of women receiving no or suboptimal treatment. Aboriginal women were overrepresented in the group who did not receive cART (11%). Postnatal management of infants consisted of zidovudine alone in 74% and combination antiretroviral regimens in 24%; three infants received no treatment postnatally.

CONCLUSIONS: 2012 is the first year with zero cases of VT documented since surveillance began in 1990. However, suboptimal treatment of some women remains a significant concern. Efforts to identify and support all pregnant HIV-positive women to enhance their health and that of their infants must continue.

HIV in Vulnerable Populations and Global Health Issues

Le VIH dans les populations vulnérables et problèmes de santé mondiale

P078
LOWER BASELINE CD4 COUNT IS ASSOCIATED WITH A GREATER PROPENSITY TOWARDS VIROLOGICAL FAILURE IN A COHORT OF SOUTH AFRICAN HIV PATIENTS

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BACKGROUND: The antiretroviral(ARV) service at Edendale Hospital in Pietermaritzburg, KwaZulu-Natal, South Africa has initiated more than 9000 adults on therapy since 2004; however, virological outcomes among this patient cohort have not been systematically assessed. Therefore, we conducted a retrospective chart review of patients initiating ARVs in recent years of the antiretroviral roll-out to determine the efficacy of this program. A secondary objective was to identify potential correlates associated with virological failure.

METHODS: Clinic records were randomly selected for patients who had initiated ARVs between January 2009 to December 2012. Demographic and virological data were collected. Virological failure was defined as failure to achieve a plasma viral load (VL) <25 copies/mL after six to 12 months of ARV initiation or >2 consecutive HIV-RNA VLs

>400 copies/mL following suppression <25 copies/mL. Numbers of individuals lost to follow-up, defined as having missed a clinic appointment by >3 months, were also examined.

RESULTS: Records for 228 individuals were reviewed. Twenty-one (9%) of individuals experienced virological failure necessitating a regimen change. Median (± standard error) duration of antiretroviral exposure was 19±1 months. Individuals experiencing virological failure did not differ from individuals experiencing success with regards to sex, age, baseline haemoglobin, creatinine, alanine aminotransferase level or weight (p>0.05) except for having lower baseline CD4 (median 74±14.07 cells/μL versus 142±7.09 cells/μL; P=0.0036 [Mann-Whitney t-test]). No differences were observed between groups in type of ARV regimen, WHO stage at time of ARV initiation or tuberculosis status. Twenty-five (11%) individuals were lost to follow-up and the rate was similar between individuals experiencing virological success and failure.

CONCLUSION: Using a relatively strict definition of virological failure, we observed that virological success was achievable in >90% of individuals at the Edendale Hospital ARV clinic. Lower baseline CD4 was associated with greater propensity towards virological failure. The retrospective nature and relatively small sample size may have precluded us from identifying other predictors of virological failure.

P079
IMPACT OF UNSTABLE HOUSING ON HIV INFECTIONS CONTROL IN NORTHERN BRITISH COLUMBIA

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BACKGROUND: Current research strongly links housing status as a key determinant of worsening HIV health disparities. The objective of this study was to examine the link between unstable housing and engagement in primary care and HIV viral suppression among clients of Central Interior Native Health

METHODS: HIV viral load levels, primary care encounters and housing stability were obtained from the EMR from May 2012 to April 2013. A (Chi-Square) was used for statistical analysis to compare relevant clinical measures. The indicators examined included, number of clients with three or more viral loads done in first year on HAART, number of clients with sustained viral load suppression (three most recent VL <200 copies/mL or at VL <200 copies/mL in past year), and number of clients with at least one primary care visit in the previous four months

RESULTS: A total of 51 clients met criteria for inclusion in the first indicator with 89% (32 of 36) of the clients stably housed having three or more viral loads on record. For the clients who were unstably housed 93% (14 of 15) had three or more viral loads on record. The χ^2 statistic is 0.2365 with a P value of 0.62673. 64 clients met criteria for inclusion in the second indicator with 81% (30 of 37) of the stably housed achieving sustained HIV viral load suppression. For the unstably housed 44.4% (12 of 27) achieved sustained HIV viral load suppression. The χ^2 statistic is 9.2876 with a P value of 0.002. 57 clients met criteria for inclusion in the third indicator with 100% (33 of 33) of the stably housed having at least one primary care visit in the previous four months. For the unstably housed 75% (18 of 24) had at least one primary care visit in the previous four months. The Chi-square statistic is 9.2206 with a P value of 0.0024.

CONCLUSIONS: Patients at CINHS who are unstably housed are not as engaged with Primary care and do not experience the same level of viral load suppression compared to clients who are stably housed.

P080
HIGH HIV INCIDENCE IN A COHORT OF MALE INJECTION DRUG USERS IN DELHI, INDIA

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BACKGROUND: India has an estimated 177,000 injection drug users (IDU) with a national HIV prevalence of 7.1%. Delhi state has an estimated 17,173 IDUs, fourth largest IDU population in the country, with a HIV prevalence of 18.2%. Reliable estimates of HIV incidence are not available for this population.

METHODS: Population Council, in collaboration with the Arise Program/PATH and funded by CIDA, initiated a prospective cohort study to examine HIV incidence as part of an evaluation of a comprehensive prevention program for IDUs. We report HIV incidence in a cohort of male, HIV-negative IDUs recruited through peer-referral, targeted outreach and as walk-in clients in Delhi from May-October 2011. Fourth-generation antigen-antibody tests were used to diagnose new infections and results were confirmed using Western blot tests. HIV incidence based on HIV seroconversion was calculated as number of events/person-years. Cox regression was used to identify predictors of seroconversion (P<0.05).

RESULTS: A total of 2790 male HIV-negative IDUs were recruited at baseline; 67.4% (n=1880) returned for their first follow-up visit and 96% (n=1806) underwent HIV testing. Participants were followed for a median of 9.7 months. A total of 112 new HIV infections occurred over a cumulative 1398.53 person-years of follow-up resulting in an incidence rate of 8.01 new infections/100 person-years (95% CI 6.65 to 9.64); 74% of these participants reported risky injection practices in the past month. In bivariate analysis, higher frequency of injections/day, higher number of injection days, risky injection practices and utilization of needle-syringe-exchange services were associated with new infections. In multivariate analysis, only moderate/high risky injection behaviors (Adjusted Hazard Ratio: 2.59;95% CI 1.45 to 4.62) were associated with a higher risk of new infections.

CONCLUSIONS: Male IDUs in Delhi continue to practice unsafe injection behaviors despite the availability of HIV prevention services offered through targeted intervention programs, resulting in high rates of HIV transmission in this population.

P081
LONG-TERM FOLLOW-UP OF HIV-INFECTED PEOPLE WHO INJECT DRUGS ON ONCE-DAILY COMBINATION ANTIRETROVIRAL THERAPY

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BACKGROUND: Up to 15% of HIV-infected individuals in Canada are people who inject drugs (PWID). Over the past decade, novel strategies have been employed to engage and maintain them in care, including the use of simplified regimens in a monitored setting. Little is known about the long-term success of this approach in a group where disengagement from treatment may be more common.

METHODS: The Vancouver Infectious Diseases Centre is a low-threshold tertiary care referral centre in serving over 200 HIV-infected PWID and has provided cART to the majority of these individuals, with an emphasis on once daily regimens in the context of multidisciplinary support, including social and nursing services, weekly peer support groups and facilitated access to physician intervention. We report on demographics and clinical and laboratory-based outcomes in participants for whom a minimum of 48 weeks follow-up data are available. Only patients receiving triple therapy were considered.

RESULTS: We present data on 148 patients (124 male) with baseline median CD4 count and plasma viral load of 400 cells/mm^3 and 121 copies/mL, respectively. All had a recent history of recreational drug use. Current regimens included Truvada (57) or Kivexa (43), along with NNRTIs (27), protease inhibitors (66), integrase inhibitors (55) or CCR5 inhibitors (23) as the third agent. Long-term virologic suppression was maintained in 75%. There was no difference in rates of virologic suppression in patients receiving either Truvada or Kivexa (79% versus 72%), or as a function of the third agent (74/74/78/83%). The median CD4 count at the most recent follow-up visit was 520 cells/mm^3.

CONCLUSION: Long-term virologic suppression can be achieved and maintained in difficult-to-treat PWID without directly observed therapy. The likely correlates of success are the use of simplified once daily regimens in a more structured multi-disciplinary environment favoring engagement in care.

HIV in Women and in Pregnancy

Le VIH au féminin et chez les femmes enceintes

P082

MOTHER-TO-CHILD TRANSMISSION (MTCT) OF HIV IN NORTHERN ALBERTA

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OBJECTIVE: To describe the effectiveness of antiretroviral therapy (ART) in the context of opt-out prenatal screening and a patient-centered perinatal support team in northern Alberta with the outcomes being maternal viral suppression and prevention of MTCT of human immunodeficiency virus (HIV).

METHODS: Retrospective analysis of HIV-infected pregnant women who delivered between March 2006 and October 2013. Infants were considered uninfected if they sero-reverted or had two negative HIV PCRs after two months of age.

RESULTS: 125 women had 143 deliveries (including five sets of twins) resulting in 148 live born infants. Mean age was 31 years (18 to 44 years); 52 (42%) women were Aboriginal and 50 (40%) were African immigrants. Alcohol or illicit drug use was reported during pregnancy by 17% and 28%, respectively. Thirty-three (26%) of women were newly diagnosed HIV seropositive during routine pre-natal screening; another was diagnosed during labor using rapid HIV testing and one was diagnosed post-delivery. 116 (93%) of women received ART during pregnancy. Maternal VL closest to delivery was <200 copies/mL (83%); 200 copies/mL to 1000 copies/mL (7%); 1001 copies/mL to 10,000 copies/mL (4%); >10,000 copies/mL (6%). Two infants were confirmed to be HIV infected. In one case, the mother tested negative for HIV during prenatal screening but became infected during pregnancy and was diagnosed post-delivery. In the other case, the mother was non-adherent to ART despite numerous attempts to engage her in care and had a high VL (53,000 copies/mL) at delivery.

CONCLUSIONS: Previously unrecognized HIV in pregnant women continues to be significant. MTCT of HIV in northern Alberta remains low despite a high rate of substance use and cultural/language barriers. Recent expansion of rapid HIV tests in acute care hospitals across the province, and re-testing of high risk women late in pregnancy or at the time of delivery may further reduce the risk of HIV MTCT.

P083

ADVERSE NEONATAL OUTCOMES AMONG WOMEN LIVING WITH HIV IN ONTARIO: A POPULATION-BASED STUDY

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BACKGROUND AND OBJECTIVES: Population-based studies describing the risk of adverse neonatal outcomes among women living with HIV in Ontario are lacking. Accordingly, we compared the risk of preterm birth, low birth weight and small for gestational age births among women living with and without HIV infection between the ages of 18 to 49 years who had a singleton live birth between April 1, 2002 and March 31, 2011.

METHODS: We conducted a population-based study using Ontario's health administrative data. Generalized estimating equations with a logit link function were used to derive adjusted odds ratios (aORs) and 95% CI for the association of HIV infection with adverse neonatal outcomes.

RESULTS: Between 2002/3 and 2010/11, a total of 1,113,874 singleton live births were available for analysis, of which 615 (0.06%) were to women living with HIV. The proportion of singleton births that were small for gestational age (14.6% versus 10.3%), preterm (14.6% versus 6.3%) and low birth weight (12.5% versus 6.6%) were higher among women living with HIV relative to women not living with HIV. Following multivariable adjustment for demographic variables, maternal comorbidity, adequacy of prenatal care and neighborhood instability and deprivation, the risk of preterm birth (aOR 1.70 [95% CI 1.34 to 2.16]), small for gestational age births (aOR 1.43 [95% CI 1.12 to 1.82]) and low birth weight (aOR 1.85 [95% CI 1.44 to 2.38]) was higher for women living with HIV relative to women not living with HIV.

CONCLUSION: The risk of adverse neonatal outcomes among women with living HIV is heightened relative to women not living with HIV in Ontario. Further research is required to identify factors explaining these differences that are amenable to prenatal risk reduction initiatives.

HIV Prevention

Prévention du VIH

P085

AWARENESS OF PRE-EXPOSURE PROPHYLAXIS (PREP) AMONG A COHORT OF MEN WHO HAVE SEX WITH MEN (MSM) IN VANCOUVER, BC

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BACKGROUND: Pre-exposure Prophylaxis (PrEP) is gaining attention as a potential strategy to prevent HIV acquisition amongst high-risk populations. Although PrEP has been highlighted in popular media, it is not not licensed for use in Canada, although off-label use may be possible. This study aims to characterize PrEP awareness amongst MSM in a cohort recruited from Greater Vancouver, BC.

METHODS: Participants were ≥16 years, gender-identified as a man and reported sex with a man in the past six months. Participants completed a self-administered computer-based survey. Multivariable logistic regression was used to identify independent covariates of PrEP awareness.

RESULTS: Of 361 participants included in this analysis, 210 (58%) had heard of PrEP and 151 (42%) had not heard of PrEP. The median age of those aware of PrEP (32.5 years; 1st – 3rd quartile 25 – 46) was not significantly different from those who had not heard of PrEP (31 years; 1st – 3rd quartile 25 – 43). PrEP awareness was less common amongst participants of Indigenous ancestry (6/23; 26%) compared to white participants (174/ 285; 60%), but was similar for Asian and other ethnic groups. More HIV positive individuals had heard of PrEP (66% versus 56% for HIV-negative participants) but these differences were not statistically significant (P=0.111). In adjusted models, PrEP aware respondents were less likely to be of Indigenous ancestry (adjusted odds ratio [AOR] 0.13 [95% CI 0.04 to 0.44), more likely to have heard of BC's STOP HIV/AIDS program (AOR 2.38 [95% CI 1.34 to 4.24]) and treatment as prevention (AOR 2.66 [95% CI¸1.62 to 4.35]), more likely to have received drugs in exchange for sex (AOR 2.76 [95% CI 1.33 to 5.73]) and less likely to have used marijuana in the past six months (AOR 0.34 [95% CI 0.19 to 0.61]).

CONCLUSION: Awareness of PrEP is high among MSM in Vancouver and further research is needed to investigate factors associated with its desirability.

P086

TOLERABILITY OF DARUNAVIR/RITONAVIR, TENOFOVIR/EMTRICITABINE FOR HIV POSTEXPOSURE PROPHYLAXIS

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RATIONALE: Postexposure prophylaxis (PEP) for HIV has improved in tolerance and dosing complexity over the past two decades. In March

2013, The Ottawa Hospital (TOH) changed its PEP therapy to darunavir/ritonavir (DRVr) and tenofovir/emtricitabine (TDF/FTC). To date, no studies have assessed the tolerability of this medication combination as PEP. The primary objective of this study was to assess tolerability of this combination and secondarily to explore adherence, discontinuation rates, seroconversion and quality of life.

METHODS: Patients receiving DRVr + TDF/FTC were asked to voluntarily complete three validated self-report questionnaires measuring common adverse effects, adherence and quality of life during the first and fourth (last) weeks of treatment. Participants were recruited from the Immunodeficiency Clinic and Sexual Assault and Partner Abuse Care Program (SAPACP) at TOH.

RESULTS: Fifty-two subjects were enrolled in the study from April to November 2013. Current results are based on interim data from 45 patients with complete data. Sixty percent were female with a mean age of 34 years. DRVr + TDF/FTC were discontinued in 22 subjects (49%), six (13%) were considered treatment-related discontinuations. Commonly reported moderate side effects during weeks 1 and 4 were tiredness/fatigue (60%, 35%), nausea (56%, 5%) and loss of appetite (47%, 50%). Severity was described as at least moderate in 60% and 19% at weeks 1 and 4 respectively. Sign test indicated that the frequency and severity of side effects significantly improved over the course of PEP treatment ($P<0.05$). Mean adherence (VAS) was above 95% at all times. Compared to subjects seen at the ID clinic, SAPACP subjects reported worse tolerance at week 1 but similar at week 4. No HIV seroconversion occurred during the study.

CONCLUSION: Once daily DRVr + TDF/FTC as PEP was convenient, well tolerated, and associated with few treatment-related discontinuations.

P087
CASE MANAGEMENT APPROACH TO IMPROVE LINKAGE OF PEOPLE LIVING WITH HIV/AIDS TO TREATMENT PROGRAMS: A SYSTEMATIC REVIEW OF RANDOMIZED CLINICAL TRIALS

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OBJECTIVES: The objective of this systematic literature review is to explore the impact of case management in linkage of people living with HIV/AIDS (PLHA) to primary care programs and investigate its effect in their morbidity and mortality.

METHODS: We searched PubMed, Current Contents, Scopus, EMBASE, MEDLINE, EMBASE, Database of Abstracts of Reviews of Effects, and ACP Journal Club up to November 2013.

RESULTS: A total of 298 titles were reviewed of which 32 publications were selected for full review. At the end seven studies were selected to be included in the systematic review. Our results indicate that case-management can improve the linkage of PLHA to care, improve their use of primary care resources. However there is a significant heterogeneity among studies included. Results regarding the impact on morbidity and mortality are conflicting.

CONCLUSION: Case management can assist PLHA to access to health care services and improve their utilization of HIV care. Studies with longer duration are needed to answer some of the questions regarding the potential benefits of case-management on mortality and morbidity among PLHA. Also, a universal definition of the case management and the type of the services that are offered by case-managers needs to be defined in advance so that a meaningful comparison of the findings is possible.

P088
REGULATORY CAPACITY BUILDING UNDER THE CANADIAN HIV VACCINE INITIATIVE: ADDRESSING CHALLENGES OF DEVELOPING NATIONAL REGULATORY AUTHORITIES

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Ottawa, ON

BACKGROUND: The Canadian HIV Vaccine Initiative (CHVI) is a partnership between the Government of Canada and the Bill and Melinda Gates Foundation with the goal of developing a safe, affordable, effective and globally accessible HIV vaccine. Health Canada, working in collaboration with the World Health Organization, is responsible for CHVI's regulatory capacity building program which is aimed at strengthening the regulatory capacity of developing national regulatory authorities (NRAs) in order to help protect the ethical and scientific integrity of HIV vaccine clinical trials occurring in these countries. CHVI's capacity building work may have an impact on Canadian researchers that collaborate with researchers from developing countries.

METHODS: The regulatory needs of developing NRAs were identified using surveys, face-to face meetings and teleconferences. Health Canada vaccine and regulatory experts developed and administered training using case studies and interactive group discussions. Training sessions included clinical trial application review, clinical and quality review of vaccines and vaccine lot release.

RESULTS: Since 2010, Health Canada has trained >100 participants from more than 40 countries under the CHVI. This includes the establishment and continued mentorship with regulatory agencies in Nigeria and Malawi and regional training in Southern and Eastern Africa. Health Canada has prepared and delivered regulatory training sessions via vaccine and clinical trial forums, and sponsored NRAs to attend these forums to provide learning opportunities and encourage the exchange of best regulatory practices. This also includes the development and implementation of guidance in the area of HIV vaccine clinical trials.

CONCLUSION: Health Canada has successfully implemented capacity building activities in countries with developing NRAs to help strengthen their capacity in the regulation of vaccines. Moving forward, training efforts will utilize a regional approach in order to maximize training of regulatory staff in countries with similar training needs. The aim of these efforts would help to ensure that Canadian researchers and the partners which they collaborate with, receive the appropriate regulatory guidance when performing research in developing countries.

P089
1.5-YEAR CLINICAL OUTCOMES FROM A PILOT PROGRAM OF NON-OCCUPATIONAL POST-EXPOSURE PROPHYLAXIS (NPEP) IN VANCOUVER, BRITISH COLUMBIA (BC)

Pai, Jayaram; Harris, Marianne; Zhang, Wendy; Shurgold, Susan; Colley, Guillaume; Guillemi, Silvia; Montessori, Valentina; Moore, David; Day, Irene; Montaner, Julio; Hull, Mark
Vancouver, BC

BACKGROUND: In July 2012, the BC Centre for Excellence in HIV/AIDS launched a pilot program offering NPEP at six healthcare facilities in Vancouver. Costs of antiretroviral (ARV) medication were covered by provincial drug insurance. We present updated results of this pilot program over 18 months of operation.

METHODS: A seven-day starter-kit containing lopinavir/ritonavir, tenofovir and lamivudine was administered within 72 h after a potential HIV exposure, followed by re-assessment after seven days to determine the need for a 28-day regimen. Standardized clinical data were collected weekly for 28 days. Among individuals prescribed 28 days of NPEP, characteristics of those who completed therapy were compared to those who discontinued early using Fisher's Exact and Wilcoxon tests.

RESULTS: Between July 2012 and December 2014, 323 individuals initiated NPEP (90% male, median age 32 years [IQR 17 to 72]). Unprotected anal intercourse (UAI) was the most commonly reported exposure-event (74%); only 9% reported needle-sharing as their exposure-event. Median exposure-to-assessment time was 21 h (IQR 12 to 39). Prior to the seven-day reassessment, 96 of 323 (30%) were lost to-follow-up; of the remaining 227, 205 (90%) were prescribed 28-days of NPEP. A total of 190 of 205 individuals had the opportunity to complete treatment at the time of this analysis, and of these, 166 (87%) completed the full course, while 38 (20%) did not. Common side effects of all 323 NPEP users were diarrhea (51%), fatigue (47%) and nausea (34%); however, only three individuals (0.9%) discontinued and 26 (8%) changed their NPEP regimen due to side effects. No HIV sero-conversions were reported during the four-week NPEP period.

CONCLUSION: UAI remains the most common risk-event for individuals initiating NPEP in this pilot program. Although NPEP was well-tolerated, 30% were lost to follow-up before the 1-week re-assessment, while

20% of those prescribed a 28-day course failed to complete it. Additional interventions to support NPEP adherence and follow-up are required.

P090
HIV KNOWLEDGE AND PREP AWARENESS AMONG OF INDIVIDUALS ACCESSING NON-OCCUPATIONAL HIV POST-EXPOSURE PROPHYLAXIS (NPEP) FOR CONSENSUAL SEXUAL ACTIVITY IN VANCOUVER, BRITISH COLUMBIA (BC)

Pai, Jayaram; Harris, Marianne; Zhang, Wendy; Shurgold, Susan; Colley, Guillaume; Guillemi, Silvia; Montessori, Valentina; Moore, David; Day, Irene; Montaner, Julio; Hull, Mark
Vancouver, BC

BACKGROUND: In 2012, a pilot program of NPEP was launched in Vancouver. We conducted a survey to gauge the knowledge of HIV-risk and capacity to negotiate safer sex among individuals presenting for NPEP after consensual sex.

METHODS: Consent was obtained to complete a questionnaire at the 1-week post-exposure assessment. Self-assessed knowledge about HIV transmission and self-efficacy in sexual situations were measured using Likert scales from 1 ("I know a lot about it") to 4 ("I know nothing"), and from 1 ("strongly agree") to 4 ("strongly disagree"), respectively. Participants who were aware of pre-exposure prophylaxis (PrEP) were compared to those who were not, using Fisher's Exact and Wilcoxon tests.

RESULTS: From November 2012 to December 2013, 113 individuals who initiated NPEP after a sexual exposure completed the questionnaire. Overall, participants felt knowledgeable about HIV transmission and how to avoid catching HIV (mean [± SD] 1.59±0.61); however, they were less knowledgeable about the concept of HIV viral load and its role in transmission (2.49±0.89). In sexual situations, participants agreed that they were able to ask their sexual partners to use a condom (1.60±0.68), and to ask about their partner's HIV status (1.61±0.77). They agreed that they could always get condoms (1.28±0.47), and always have condoms with them when they have sex (1.86±0.80). When compared to the 47 (42%) participants who had never heard of PrEP, the 66 (58%) who had were more likely to use the internet to obtain information on HIV/safer sex (P=0.027), were more knowledgeable about HIV viral load (P=0.004), and were more prepared to use PrEP (P=0.047).

CONCLUSION: The majority of surveyed individuals accessing NPEP after consensual sex were aware of PrEP (58%). These individuals, in turn, were more knowledgeable about the role of viral load in HIV transmission. Further evaluation of PrEP knowledge is necessary.

P091
A CLINICAL TRIAL TO EVALUATE THE MUCOSAL IMMUNE RESPONSE INDUCED BY ATTENUATED VARICELLA-ZOSTER VIRUS (VZV): A POTENTIAL HIV VACCINE VECTOR

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INTRODUCTION: After vaccination, VZV persists in a latent state with cycles of sub-clinical reactivation inducing persistent effector T cell memory. We has recently utilized human VZV as a vaccine vector in the SIV macaque model of HIV and demonstrated that approximately a third of cynomolgus macaques vaccinated once with VZV-SIV constructs and challenged with multi-low dose intra-rectal SIV controlled SIV viral load after initial infection down to undetectable. The remaining vaccinees maintained their setpoint viral loads significantly lower than controls (P<001).

METHODS: To further characterize the mucosal immune response induced by VZV we are conducting a crossover study in healthy adult females low-risk for HIV infection in Nairobi, Kenya. VZV naive and VZV seropositive participants will be immunized s.c. with two doses of Varivax® or a single dose of Zostavax® respectively. Blood and multi-site mucosal samples will be collected over a period of one year to evaluate the magnitude and kinetics of the immunity induced by vaccination. Among the parameters to be analyzed are: the expression of activation markers (CD69, CD38, HLA-DR), the expression of homing-marker (a4b7), VZV-specific cellular immunity (T-cell subtypes and polyfunctionality), and VZV-specific humoral immunity (IgA and IgG antibody concentration and avidity).

RESULTS: Through this study we will analyze possible blood surrogates for measuring mucosal immunity, further assess immune activation potential and immune effector mechanisms at multiple sites associated with a VZV vaccine vector. This study will provide us a better understanding of the safety and efficacy of VZV as an HIV vaccine vector in future clinical trials.

P092
MERITS OF USING INTERNET BASED REGISTRATION AND FOLLOW-UP IN RESEARCH AND SERVICE DELIVERY WITH INJECTION DRUG USERS

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BACKGROUND: One in 10 new HIV infections worldwide occur in an injection drug user (IDU). HIV prevalence among IDUs in Delhi, India is 18.3 percent. Providing HIV services to community-based IDUs, and rigorously tracking them, is key to effective HIV prevention but this population is hard to reach. Using computer based registration for research and service delivery can give correct estimates of the number of IDUs and services they avail.

METHODOLOGY: IDUs were enrolled in a CIDA funded project; registered into a live database, developed using windows based software. There were individual site computers (operated from five fixed sites and three mobile vans/ambulances) on which the program was installed which was linked to the program in the central server. The server had a static Public IP address so that it was reachable over the public Internet, and mobile broadband USB modems were used for remote connectivity. The registration was done by noting down IDU's demographic information and linking the same to a photo taken at the time.

KEY FINDINGS: Estimates of IDUs in and around the fixed sites were identified. Duplicate registrations were prevented since the program checked the demographic data and if any matches were shown it was checked against the photograph. Data from service delivery points were coordinated so that the number of needles and syringes accessed per day was tracked (program guidelines set a limit of 4). Distance which was the main barrier to using needle exchange and abscess care minimized through mobile vans.

PROGRAM IMPLICATIONS: T his is an effective tool for tracking IDUs. The linked photo and demographics prevents duplicate registrations, thus maximizing accuracy in calculations of program outcomes (e.g., HIV incidence, Hepatitis C prevalence, reach/use of services). These data are valuable to make decisions on reaching this high risk group with HIV prevention strategies/ services.

P093
IMPACT OF VICTIMIZATION DURING YOUTH ON ADULT HIGH-RISK SEXUAL BEHAVIOUR AMONG GAY AND BISEXUAL MEN

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BACKGROUND: Gay and bisexual men (GBM) continue to have a disproportionately higher HIV prevalence and incidence than any other group in Canada (PHAC, 2010). According to the minority stress model (Meyer, 2003), stressors such as stigma and discrimination that are experienced by minority group members create a hostile social environment resulting in mental health problems. Furthermore, minority stress has been associated with depression symptoms and high-risk sexual behaviour among GBM (Hatzenbuehler, 2008). This study examines the impact of general and gay-specific teasing in childhood on adult high-risk sexual behaviour among GBM, mediated by mental health problems.

METHOD: A total of 238 HIV-negative and HIV-positive GBM recruited from the Polaris Seroconversion Cohort Study and via advertisements in local print media completed self-report questionnaires at baseline and six-month follow-up. Three types of verbal bullying were examined at baseline via retrospective self-report: general teasing, being teased for nonconforming gender presentation, and being teased for nonconforming gendered social activity. The mediating variables of depression and social anxiety were also measured at baseline. High-risk sexual behaviour was measured at 6-month follow-up and was operationalized as 1) the number

of acts of unprotected anal intercourse with a partner of opposite or unknown HIV status, and also as 2) the number of partners of opposite or unknown HIV status with whom an individual engaged in unprotected anal intercourse.

RESULTS: The mediation analysis indicated that gay-specific teasing, but not general teasing, was indirectly associated with number of high-risk sex acts via depression severity. Additionally, all types of teasing were directly associated with number of high-risk sex partners after accounting for depression and social anxiety severity.

DISCUSSION: Teasing, operationalized here as verbal bullying, was associated with high-risk acts and partners. Interventions to reduce risk behaviour should account for anti-gay teasing experienced in childhood in order to maximize their success in HIV prevention.

P094

STRATEGIES FOR RECRUITING INJECTION DRUG USERS, DELHI, INDIA

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BACKGROUND: We utilized multiple recruitment approaches to recruit IDUs in a CIDA funded longitudinal cohort study to examine HIV incidence and behavior change pre- and post-introduction of comprehensive HIV prevention services.

METHODS: IDUs were recruited through peer referral, targeted outreach by outreach workers (ORWs) and as walk-in clients at drop-in centers. Participants received monetary compensation for participation (USD 0.80). Participants were given recruitment coupons to recruit peers (regardless of recruitment method). For peer referral, participants received a food coupon, as secondary compensation, for each peer he/she successfully recruited.

RESULTS: A total of 3818 IDUs were recruited between May 2011 and October 2011. More than half of the study participants were recruited through targeted outreach (ORW: 53.6%; peer-referral: 26.3%; walk-ins: 20.1%). Of the participants who were given recruitment coupons, 92.7% recruited no peers. Those who successfully recruited at least one peer were significantly more likely to be in a stable living accommodation compared to those who did not recruit any peers (51.1% versus 42.7%; $P<0.05$). Only 45.9% of the food coupons were claimed for successful recruitment of peers. Peer-referred IDUs were more likely to be living with family or relatives (50.7% versus ORW: 40.1% and walk-in: 39.8%; $P<0.001$) rather than on the street or shared housings compared to the other two recruitment modes. Walk-ins were more likely than peer-referred and ORW-referred IDUs to be HIV-positive (walk-ins: 26.1%; peer-referred: 19.1%; ORW: 19.9%; $P<0.01$) and have risky injection practices (walk-ins: 62.2%; ORW: 57.0%; peer-referred: 58.6%; $P<0.05$).

CONCLUSION: When recruiting a large number of IDUs, using multiple recruitment modes is ideal with regard to diversification of IDU characteristics and risk profile.

Immunology

Immunologie

P095

LEUKAPHERESIS PLATFORM OF THE MCGILL UNIVERSITY HEALTH CENTRE: A BRIDGE FROM BEDSIDE TO BENCH RESEARCH AND VICE VERSA

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OBJECTIVES: To assess tolerance and willingness for patients to participate in leukapheresis studies for HIV immunology. Leukapheresis collection allows the harvest of large quantities of PBMCs to provide sufficient cells to perform complex immune assessments.

METHODS: Patient recruitment was done using oral information provided during scientific and community-based conferences and by word of mouth. A signed ethical consent was obtained from each participant. Serological and hematological analyses including HIV, CMV, HBV, HCV as well as CBC, CD4 and CD8 T cell counts were performed. The procedure consists of removing PBMCs from blood by a peripheral vein using Cobe Spectra equipment performed by a research nurse.

RESULTS: Since January 2010 to November 2013 a total of 295 leukapheresis procedures have been performed that include healthy donors (n=110, including 41 CMV+ donors), HCV infected (n=11) or HIV patients (n=174). HIV-infected patients included primo-infection (n=10), non-treated viremic (n=40), ART-treated (n=64), long-term non-progressors (n=23), and 37 patients receiving immunotherapy: autologous dendritic cells (n=24, ARGOS study) or IL-7 (n=13, Inspire II study). The procedure was well tolerated and no serious, immediate or delayed side effects were noticed. Participants were mostly men (n=247 [87%]) with a mean age of 46±12 years from Caucasian (n=222 [90%]) and African descents (n=25 [10%]). Patient's characteristics were anonymously registered in the McGill University Health Centre database. The total volume collected was 200 mL containing around 10×10^9 to 15×10^9 of WBCs and up to 150 mL of plasma during a three hour collection.

CONCLUSIONS: The leukapheresis unit represents a unique way to collect large quantities of WBCs and has significantly contributed to important findings in clinical, immunological and virological aspects of HIV pathogenesis and immunotherapy.

Mental Health Issues for HIV Positive Persons

Problèmes de santé mentale chez les personnes séropositives

P096

INCREASES IN ACUTE HEALTH CARE USE AMONG PEOPLE LIVING WITH HIV AND COMORBID DEPRESSION IN ONTARIO: A LONGITUDINAL STUDY

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OBJECTIVES: Depression is a common comorbidity among people living with HIV. Comorbid depression is associated with poor health, quality of life, and adverse treatment outcomes which may result in greater health

services utilization. We examined the impact of comorbid depression on acute health care utilization over time among this population in Ontario.

METHODS: A cohort of people with HIV in Ontario (n=3545) were followed from 2008-2012 by linking the OHTN Cohort Study and administrative health databases at ICES. Comorbid depression was defined based on either the CES-D (Scores>=20) or Kessler Psychological Distress Scale (Scores>=23) from yearly interviews. Patterns of emergency and inpatient care utilization were assessed during the 12 months following each interview. Urgent and non-urgent emergency room visits were defined using the five-level Canadian Triage and Acuity Scale. Generalized mixed effect regressions were used to examine associations between acute care utilization and the co-morbid depression over time.

RESULTS: At baseline, 950 (27%) participants were identified with comorbid depression. Persons with HIV and depression were more likely to be age <50 years (OR 1.6 [95% CI 1.4 to 1.9]), female (OR 1.6 [95% CI 1.3 to 1.9), have CD4 counts <200 cells/mm^3 (OR 1.3 [95% CI 1.1 to 1.7]) and had used recreational drugs in past six months (OR 1.8 [95% CI 1.5 to 2.1]). Prevalence of use of urgent and non-urgent emergency room and inpatient care for those persons with comorbid depression were 58 versus 42%, 44 versus 31%,13 versus 7% when compared to their non-depressed counterparts. Over the five years, those with comorbid depression were more likely to use urgent (adjusted OR (aOR) 1.7 [95% CI 1.2 to 2.5])and non-urgent [aOR 1.4 [95% CI 1.03 to 2.0]) emergency services and to be hospitalized (aOR 1.6 [95% CI 1.3 to 2.1]) when compared to their non-depressed counterparts after controlling for socio-demographics, clinical markers, and behavioural confounders.

CONCLUSIONS: Comorbid depression experienced in persons with HIV significantly increases the use of acute care services. Strategies to better manage and detect co-morbid depression are important components to support successful HIV care in Ontario.

P097
SUICIDE MORTALITY DECLINES AMONG HAART INITIATORS FROM 1996 – 2012 IN VANCOUVER, BRITISH COLUMBIA

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BACKGROUND: Chronic illness, and HIV in particular, has long been associated with elevated rates of suicide. We sought to assess changes in suicide mortality among people living with HIV/AIDS (PLHIV) across the HAART era, and elucidate the social, clinical and behavioral predictors of suicide experienced by HAART initiators in British Columbia (BC), Canada.

METHODS: This is a retrospective study of all treatment naive individuals who started HAART in BC from August 1996 to June 2012. Clinical and socio-demographic data were obtained through a linkage with the Drug Treatment Program at the BC Centre for Excellence in HIV/AIDS. Mortality data was obtained through a linkage with the BC Vital Statistics Registry. A logistic regression was performed to identify factors associated with suicide.

RESULTS: Over the study period, 993 deaths were recorded among 5229 participants, 82 of which were suicides. Suicide mortality declined from 961 deaths per 100,000 person-years in 1998 to 2.81 deaths per 100,000 person years in 2010 – corresponding to a decrease in the proportion of suicides from a peak of 25% of all deaths in this group in 1998 to 1.3% in 2010 (the last year any suicides were recorded in this cohort). Death earlier in the HAART era (earlier calendar year of death) (OR 0.88 [95% CI 0.81 to 0.96]), younger age (OR 0.88 [95% CI 0.81 to 0.96]), history of injection drug use (OR 1.88 [95% CI 0.84 to 4.19]), higher last CD4 count (OR 1.20 [95% CI 1.05 to 1.36]), and never having an AIDS defining illness (OR 6.58 [95% CI 2.32 to 18.69]) were independently predictive of suicide. Suicide was not associated with any antiretroviral class.

CONCLUSION: HAART has transformed HIV from a terminal illness to a chronic, manageable condition, likely contributing to reduced suicide mortality in this group over time. Despite this trend, suicide remains a concern among PLHIV. Our findings suggest that socio-behavioral factors, such as injection drug use may be important targets for suicide-risk reduction interventions.

P099
PSYCHOMETRIC PROPERTIES AND VALIDITY OF THE CENTER FOR EPIDEMIOLOGICAL STUDIES DEPRESSION SCALE (CES-D) PEOPLE LIVING WITH HIV IN COLOMBIA

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BACKGROUND: Depression in people living with HIV/AIDS (PHAS) is related to low levels of adherence, poor virological response, and increased risk of chronic conditions. Consistent assessment of depressive symptoms has not been routine clinical practice in the care of PHAS in Colombia, which could be due the lack of validated depression screening scales for this population. Our objective was to test the reliability and construct validity of the Center for Epidemiological Studies Depression Scale (CES-D) in PHAS attending the Corporación de Lucha Contra el Sida (CLS) clinic in Cali, Colombia.

METHODS: A convenience sample of 104 adult PHAS was enrolled, who were 18 years of age or older and able to give informed consent. The CES-D scale was administered at three occasions: (baseline, two to four weeks, and 24 to 26 weeks after). The internal consistency reliability was tested using Cronbach's coefficient α. Test-retest reliability was assessed using the Intraclass Correlation Coefficient (ICC). The construct validity was established using exploratory factorial analysis (EFA) with Varimax rotation.

RESULTS: The sample had a majority of men (73%), with an average age of 40 years. Participants had low education levels, with 53% not having completed high school. Internal consistency reliability (Cronbach's α) coefficients were 0.92, 0.94 and 0.95, for baseline, second and third interview, respectively. ICC was 0.81 (95% CI 0.72 to 0.88). In agreement with the original factorial structure, EFA revealed four factors: negative affect; positive affect; somatic; and interpersonal. With the exception of one item ("I did not feel like eating, my appetite was poor"), all items loaded distinctly with factor loadings in the range of 0.51 to 0.82. Of the participants, 50.6% had CES-D scores ≥16, suggesting clinical depression.

CONCLUSIONS: These results provide evidence that support the reliability and validity of the CES-D instrument to screen for depressive symptoms in people living with HIV in Colombia.

EPIDEMIOLOGY AND PUBLIC HEALTH
ÉPIDÉMIOLOGIE ET SANTÉ PUBLIQUE

Demography/Population Health

Démographie / santé de la population

P100
THE CEDAR PROJECT: LET'S TALK ABOUT SEX: WHAT SHAPES ATTITUDES AND PERCEPTIONS AROUND SEX, SEXUAL HEALTH, AND SAFETY AMONG YOUNG ABORIGINAL PEOPLE WHO USE DRUGS?

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People who use drugs frequently report being under the influence during sexual encounters. As protective measures can be neglected when high, the risk of transmitting and/or contracting sexually transmitted infections (STIs) and HIV becomes enhanced. We expect Aboriginal people who use drugs to be even further vulnerable to such risks, for they experience the consequences of historical trauma, systematic racism, and poverty in conjunction with the harms of drug use. The dearth of information pertaining to these vulnerabilities led to the development of the Cedar Project: an Aboriginal led initiative addressing the health risks of Aboriginal

young people who use drugs in British Columbia. In this study, we conducted in-depth interviews with Cedar Project participants to examine how they conceptualize their sexual health; to identify the individual, socio-cultural, and structural barriers to self-protection and access/utilization of services, and how these factors impact risk for STI and HIV infection. Interviews were loosely structured to allow data collection and hypothesis generation to flow inductively. Categories of exploration were kept broad to allow relational understandings to emerge around resilience, vulnerability and protective factors associated with sexual health. A postcolonial framework informed the analysis. Of the 40 participants interviewed, 28 were included in the analysis. All data were transcribed and coded, and six emergent themes were derived: 1) The role of sexual abuse and violence; 2) The role of sexual education (eg, through schools, family, culture, etc); 3.) Personal experiences with sex; 4) The role of drugs; 5) The role of social institutions (eg, foster care) and 6) What's missing (e.g. mental health support). The findings of this study can contribute to the capacity for Aboriginal service providers to raise awareness, identify needs, advocate for adequate STI and HIV prevention resources, and develop a sexual health strategy that respects and integrates Aboriginal values.

P101
PREDICTORS OF ANTIRETROVIRAL THERAPY ADHERENCE AMONG PERINATALLY HIV-INFECTED YOUTHS IN SAO PAULO, BRAZIL: A ONE-YEAR LONGITUDINAL STUDY

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BACKGROUND: Optimal adherence to antiretroviral therapy (ART) is a challenge for many people living with HIV, especially adolescents. Medication adherence is a complex phenomenon influenced by multiple factors.

OBJECTIVE: To examine the predictors of medication adherence among perinatally infected youths (PIY) in Sao Paulo, Brazil.

METHODS: PIY on ART (13 to 19 years of age) were recruited in pediatric and adult services in hospitals and HIV/AIDS reference centres. Data were collected at baseline (T0) and after 12 months (T1). Adherence was defined as taking ≥95% of prescribed antiretroviral medication in the past seven days. Predictors of medication adherence were assessed using the generalized estimating equation (GEE) method. The final model included odds ratios (OR) and 95% CIs statistically significant at P≤0.05.

RESULTS: From May 2011 to March 2012, 268 adolescents enrolled in the study (59% female; mean age of 16 years). At baseline, 63.3% of the sample was considered adherent to their HIV medication. Participants reported a low level of stress and a high perception of both self-efficacy and social support. A few youths (13.4%) suffered from moderate to severe symptoms of depression. They reported a mean of 6.8 symptoms related to their HIV medication. In the final GEE model, two predictors remained. Improved self-efficacy was related to higher adherence (OR 2.81 [95% CI 1.94 to 4.05]). A higher number of medication side-effects was associated with lower adherence (OR 0.97 [95% CI 0.95 to 0.99]).

CONCLUSION: Overall, a little more than half the PIY were adherent to their medication at baseline. These findings suggest the need to develop interventions to enhance self-efficacy and to help youths better manage HIV medication side-effects.

P102
TAKE CARE DOWN THERE (TCDT) SEXUAL HEALTH AWARENESS CAMPAIGN: RESPONDING TO THE NEED FOR INCREASED ACCESS TO SEXUAL HEALTH INFORMATION IN THE 18–30 YEAR OLD POPULATION WITHIN EASTERN HEALTH REGION

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Eastern Health is the largest, integrated health authority in Newfoundland and Labrador serving a population of more than 300,000 people and offering a full continuum of health and community services including public health, long-term care, community services, hospital care and unique provincial programs and services.

Sexually transmitted infections are on the rise in Eastern Health Region. In 2011 Eastern Health launched the Take Care Down There (TCDT) campaign (Phase I) to increase awareness of the importance of condom use and increase condom use among men and women 18 to 30 years of age in Eastern Health region.

Focus groups were held with the 18- to 30-year-old population as part of the evaluation of Phase I to gain insight into the knowledge level, attitudes, behaviors and social norms related to sex and sexuality. The feedback showed a lack of awareness in four key areas and a need for an online source of credible sexual health information. In response, TCDT Phase II was launched in September 2013, with the development of the TCDT website highlighting four key campaign messages: Use a Condom, Get Tested, Talk to Your Partner and Know your Risk. The target population was identified as post-secondary ages 18 to 30 years.

A detailed promotional plan was implemented to promote the campaign throughout eastern region to maximize access to sexual health information for the target population. TCDT Phase II will conclude in February 2014. The poster will:

- Examine findings of target population focus groups
- Outline the four key themes that emerged
- Provide a visual overview of the development and implementation of the TCDT campaign Phase II
- Include details of the campaign;evaluation;and outcomes

P103
CRACK IS HOW THE LIGHT GETS IN: TRAUMA AND RESILIENCY AMONG YOUTH WHO SMOKE CRACK

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Objectives of this study were to identify and characterize the HIV and HCV-related risks and prevention needs of youth in Ottawa who smoke crack in order to inform the development of targeted HIV and HCV prevention interventions.

Using a thematic guide developed collaboratively with youth who smoke crack, nine in-depth interviews were carried out in spring 2012 with youth who smoke crack. Transcripts from these interviews were analyzed by members of the research team for key themes. Two member-checking workshops were carried out in order to further explore emerging themes and assumption.

1) In all cases youth described complex histories of abuse and neglect by those who were meant to protect them.

2) Most youth described their initiation to crack at a time when they became homeless and were taken in by others.

3) Youth described a love-hate relationship with crack based on how effective it is in escaping their depression and post-traumatic stress, especially within the context of their continued homelessness and isolation.

4) Young women described the cycle created by crack use, low self-esteem and homelessness whereby they can end up in 'trap houses' where sex or other illegal activity are traded for drugs with little way out.

5) Youth described how their attempts at drug treatment had been unsuccessful because programs pushed them too quickly to address their experiences causing relapse.

Traumas experienced in the form of sexual, physical and emotional abuse have erected barriers for youth who smoke crack in the form of low self-esteem, mental health and anxiety disorders which when coupled with poverty and homelessness make it very difficult for them to exercise control over their participation in behaviours resulting in increased risk for HIV and HCV infection. Understanding crack use as a tool for self-preservation among youth who have experienced abuse, may help us to better design our treatment and support programs to meet the needs of this population.

P104

SIZE OF THE IDU POPULATION IN MONTRÉAL: THE SIX-SOURCE CAPTURE-RECAPTURE ESTIMATE IS THE BEST OF SIX ESTIMATES

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BACKGROUND: To plan, implement and optimize services to IDUs, knowing the population size is essential. In Montréal, the only estimate dated from 1996. Six estimates were recently obtained using indirect estimation methods. These methods and the resulting estimates are compared.

METHODS: IDUs were defined as individuals aged 14-65 years, having injected recently and living on the island of Montréal. The study period was 07/01/2009 to 06/30/2010. Six estimates were produced using the following methods: 1) six-source capture-recapture log-linear regression (CRC-6); 2) single-source capture-recapture truncated-Poisson regression (CRC-1-Zelterman; CRC-1-Chao); 3) multiplier method, using addiction treatment data (M-treat) or syringe-distribution programs attendance data (M-SDP); 4) modified multiplier method using data on new syringes (mM-syr). Each method was reviewed to determine direction and likelihood of potential biases. Criteria included known population lower bound, possibility of underreporting, data matching quality, capture-recapture validity assumptions, and possibility of recall and social desirability biases.

RESULTS: The six estimates with their 95% CI, source data, and potential bias directions are presented below. For the CRC-6 method, a total of 1132 different IDUs were identified in the reviewed data sources. The best-fitting model included sex, age group and six two-source interactions (some modulated by age).

Method	Data sources	Estimate of the IDU population	95% CI	Direction of potential bias
CRC-6	SurvUDI network; St-Luc cohort; Four treatment centres (CHUM, Centre Dollard-Cormier, CRAN and Foster Addiction Rehabilitation Centre)	3908	3178-4899	Slight underestimate
CRC-1 (Zelterman)	Syringe distribution programs (SDP) regional monitoring system	11 926	10 950-12 902	Overestimate
CRC-1 (Chao)	SDP regional monitoring system	9758	9079-10 437	Overestimate
M-treat	St-Luc cohort; Four treatment centres	1111	1015-1228	Underestimate
M-SDP	St-Luc cohort; SDP regional monitoring system	5857	5508-6253	Overestimate
mM-syr	SurvUDI network; SDP regional monitoring system	715	600-889	Underestimate

CONCLUSIONS: The CRC-6 method was time consuming and costly due to extensive file review in the treatment databases and it required refined regression analyses. However, it produced the estimate least affected by potential biases. We conclude that CRC with over two sources should be considered as the reference method and estimates should be produced regularly.

Epidemiology and Surveillance of HIV Co-infections

Épidémiologie et surveillance des co-infections

P105

PREVALENCE AND CORRELATES OF SEXUALLY TRANSMITTED CO-INFECTIONS IN HIV-POSITIVE AND HIV-NEGATIVE MEN WHO HAVE SEX WITH MEN IN TORONTO

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OBJECTIVE: To determine the prevalence and correlates of bacterial and viral STIs among HIV-positive and HIV-negative men who have sex with men (MSM) in Toronto, Ontario.

METHODS: We recruited HIV-positive and HIV-negative participants through Maple Leaf Medical Clinic, a Toronto HIV specialized clinic. Participants completed a socio-behavioural questionnaire using ACASI and provided blood for syphilis, HIV, hepatitis B and C, herpes simplex virus type 1 (HSV-1), herpes simplex virus type 2 (HSV-2), and human cytomegalovirus (CMV) serology, urine for chlamydia and gonorrhea and self-collected anal swab for human papillomavirus (HPV) molecular diagnostics. Prevalence was expressed as a proportion and compared using chi-square.

RESULTS: We recruited 294 HIV-positive and 148 HIV-negative MSM, with a median age of 45 (IQR 38 to 50) and 44 years (IQR 37 to 50), respectively. 34.5% HIV-negative men had unprotected anal sex with HIV-positive or HIV status unknown partner in the previous six months. Prevalence of STIs is presented in the table.

	HIV-positive			HIV-negative			p value
	Tested	Positive	Prevalence % (95% CI)	Tested	Positive	Prevalence % (95% CI)	
Chlamydia	290	3	1.0% (0.2-3.0%)	148	0	0.0% (0.0-2.5%)	>0.05
Gonorrhea	292	1	0.34% (0.0-1.9%)	147	0	0.0% (0.0-2.5%)	>0.05
Syphilis active	290	32	11.0% (7.7-15.2%)	147	5	3.4% (1.1-7.8%)	0.012
Syphilis ever	290	107	36.9% (31.3-42.7%)	147	30	20.4% (14.2-27.8%)	0.0007
HSV-1	288	226	78.5% (73.3-83.1%)	144	100	69.4% (61.2-76.8%)	0.040
HSV-2	288	161	55.9% (50.0-61.7%)	144	55	38.2% (30.2-46.7%)	0.0005
Cytomegalovirus	292	287	98.3% (96.1-99.4%)	147	118	80.3% (72.9-86.4%)	<0.0001
High risk HPV, anal	284	192	67.6% (61.8-73.0%)	145	75	51.7% (43.3-60.1%)	0.0013

HCV	289	30	10.4% (7.1-14.5%)	148	5	3.4% (1.1-7.7%)	0.018
HBC infected	291	8	2.7% (1.2-5.3%)	141	1	0.71% (0.0-3.9%)	>0.05
HBV ever	291	144	49.4% (43.6-55.4%)	141	27	19.1% (13.0-26.6%)	<0.0001
HBV cac-cination	269	224	83.3% (78.3-87.5%)	135	118	87.4% (80.6-92.5%)	<;0.05

In bivariate analysis, among HIV-negative men, those with unprotected anal sex had syphilis and HSV-2 infection about twice as frequently as those without. However, after adjusting for other covariates, unprotected anal sex remained significantly associated with only HSV-2 infection (AOR 2.92 [95% CI 1.31 to 6.48]).

CONCLUSIONS: Syphilis and viral pathogen infections including HSV-2, CMV, HPV, hepatitis B and C were common in this clinic-based population of MSM in Toronto, and were more frequent among HIV-positive men. Gonorrhea and chlamydia were infrequent, which seems related to the relative older study population. Unprotected anal sex with HIV-positive or HIV status unknown partner was related to syphilis and HSV-2 infection among HIV-negative MSM.

P106
INCIDENT AND PERSISTENT HPV INFECTION IN HIV POSITIVE WOMEN FOLLOWING VACCINATION WITH THE QHPV VACCINE

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OBJECTIVE: To determine incident rates of HPV infection, with vaccine containing genotypes, in women who received the quadrivalent HPV (qHPV) vaccine.

METHODS: Data were collected as part of an open-label multi-centered study of the immunogenicity and safety of a qHPV vaccine in HIV positive women. For this sub-analysis, the presence of HPV DNA in cervical specimens was assessed at baseline and six, 12, 18 and 24 months. Genotype specific HPV infection was determined by Linear Array. HPV antibody levels for 6, 11, 16, 18 were determined by Merck cLIA assay. Incident infection was defined as undetectable HPV antibody levels and the absence of HPV DNA at baseline followed by the presence of ≥1 HPV type covered in the qHPV vaccine (6,11,16,18) at any of the follow-up visits. Persistent infection was presence of the same HPV DNA type at ≥2 consecutive follow-up visits .

RESULTS: 158 of 351 sexually active women enrolled to date were included in this analysis: median age 40 years (range 16 to 66 years); 50% black, 35% white, 8% Aboriginal; median eight years since HIV diagnosis; 12% Hepatitis C co-infected; 95% on cART medication at baseline, 72% had undetectable viral load, median CD4 was 498 (IQ 383 to 690). Nine incident infections in eight subjects and two persistent infections were observed. Subjects with incident HPV infection had lower CD4 nadir (69 (IQR 31 to 184) vs 230 (IQR 110 to 320) and were more likely to have ≥1 new sexual partner since baseline (25% vs 6%). Both persistent infections were HPV18.

CONCLUSIONS: Compared to previously published studies in HIV negative women, higher rates of incident infections were observed in this population of HIV positive women. Future analysis of the full cohort will allow us to determine whether these high persistent rates of HPV18 infection reflect a suboptimal vaccine protection in this immune compromised population.

				Incident				Persistent	
HPV Type	N	# of Cases	Total Person Years	Rate (/100 PY)	95% CI	# Cases	Total Person Years	Rate (/100PY)	95% CI
6	96	2	157.9	1.27	(0.15-4.58)	0	157.9	0	(0-2.3)
11	132	1	219.8	0.45	(0.01-2.54)	0	219.8	0	(0-1.67)
16	95	1	156.6	0.64	(0.02-3.56)	0	156.6	0	(0-2.34)
18	130	5	219.2	2.28	(0.74-5.32)	2	219.2	0.91	(0.11-3.27)
Any 4 Valent	158	8	256.0	3.13	(1.35-6.16)	2	256.0	0.77	(0.09-2.76)

P108
HIV INFECTION AMONG PERSONS WITH TUBERCULOSIS IN THREE CANADIAN REGIONS

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BACKGROUND: Universal HIV testing of persons with Tuberculosis (TB) is recommended in WHO and Canadian TB/HIV-related guidelines. HIV status was added to the national TB surveillance system in 1997 and reporting increased from 5.6% that year to 42.2% in 2012. We assessed factors associated with HIV-positivity among active TB cases in selected Canadian regions based on data collected through national TB case surveillance.

METHODS: Provinces/territories where HIV status was reported for at least 40% of TB cases reported to the Canadian Tuberculosis Reporting System for 2007 to 2012 were selected and grouped by region [West (British Columbia, Alberta); North (Northwest Territories, Yukon, Nunavut); Atlantic (Nova Scotia, New Brunswick, Newfoundland)]. We examined HIV positivity by selected demographic and risk factors using descriptive analyses and chi-square tests; variables associated with HIV positivity at P<0.1 (sex, age, origin, homelessness, TB diagnosis within correctional settings, substance abuse, travel to country with high TB incidence in past two years) were assessed in multivariate logistic regression.

RESULTS: A total of 3249 TB cases were included in the analysis. HIV status was reported for 2695 cases (82.9%); this varied significantly by region [West (2241 of 2608; 85.9%), North (390 of 496; 78.6%), Atlantic (64 of 145; 44.1%); P<0.0001]. Of TB patients with known HIV status, 119 (4.4%) were HIV-positive. The proportion HIV-positive was higher for males (5.8% vs 2.5% for females; P<0.0001) and varied significantly by region [West (5.0%), North (0.8%), Atlantic (6.3%); P=0.01]. In multivariate analysis, substance abuse was the only significant predictor of HIV-positive status (AOR 4.4 [95% CI 2.0 to 10.0; P<0.001).

CONCLUSION: Reporting of HIV status varied by region, which may reflect HIV testing practices. We also found substance abuse independently associated with HIV-positivity. These results suggest that HIV testing in some jurisdictions is risk-based, and that additional efforts are still needed towards universal HIV testing of people newly diagnosed with TB.

Epidemiology and Surveillance of HIV/AIDS

Épidémiologie et surveillance du VIH/sida

P109
SEX WORK AS AN EMERGING RISK FACTOR FOR HIV SEROCONVERSION AMONG INJECTION DRUG USERS IN THE SURVUDI NETWORK

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BACKGROUND: Previous analyses of SurvUDI data have shown an emerging positive association between sex work and HIV incidence among injection drug users (IDUs).

OBJECTIVE: To characterize the association between sex work and HIV seroconversion among IDUs in the SurvUDI network between 2004 and 2012.

METHODS: Participants who had injected in the past six months were recruited across the Province of Quebec and Ottawa, mainly in harm reduction programs. They completed a questionnaire (past six months) and provided saliva for HIV antibody testing. Multiple visits were linked through an encrypted code. The association between sex work (defined as sex exchanged for money, drugs or something else) and HIV seroconversion was tested with a Cox proportional hazard model. Time-dependent covariables were age (<25; ≥25 years), urban region, cocaine as the most often injected drug, injection with strangers, injection with needles used by someone else, daily injection, sexual activity (sexually inactive; sex work; no sex work) and consistent condom use for vaginal and anal sex. The final model included significant (P<0.05) variables and those confounding significant associations.

RESULTS: Sixty-three HIV seroconversions were observed during 3862.2 person-years of follow-up (incidence rates: total 1.6 per 100 person-years (py) [95% CI 1.2 to 2.0]; sex work: 3.0 per 100 py [1.7 to 4.4]; no sex work: 1.4 per 100 py [1.0 to 1.8]). In the final multivariate model adjusted for sex, HIV incidence was significantly associated with sexual activity (sex work: AHR 2.28 [1.12 to 4.64]; P=0.0236; sexually inactive: AHR=1.84 [1.01 to 3.36]; P=0.0467), and injection with a needle used by someone else (AHR=3.28, [1.95 to 5.51]; P<0.0001).

CONCLUSION: Sexually inactive IDUs have a higher HIV incidence, likely due to more profound dependence leading to increased vulnerability. At the other end of the spectrum of sexual activity, sex work is independently associated with HIV incidence among IDUs. Further studies are needed to understand whether this association is related to sexual transmission or other vulnerability factors.

P110
REVIEW OF PUBLIC HEALTH CASE MANAGEMENT CHARTS TO DISCERN RECENT VERSUS OLDER HIV INFECTION

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BACKGROUND: Discrimination in HIV surveillance between recent and older infections would provide useful information for education and testing programs; however, the integrated Public Health Information System (iPHIS), the reporting system used by public health units in Ontario to track diagnosed HIV infections, does not allow for discrimination between recent and older infections. Our aim was to analyze information contained in Ottawa Public Health case management charts for its use in categorizing infection among individuals recently diagnosed with HIV as recently-acquired or not recently-acquired.

METHODS: We reviewed 134 charts of individuals in Ottawa diagnosed with HIV during 2011 – 2013 that were identified from iPHIS. Potential markers of recent infection (within the past 12 months) that are not contained in iPHIS were assessed, including previous laboratory testing, p24 laboratory testing results, symptoms at or prior to laboratory testing, and recent contact with a person known to be infected with HIV.

RESULTS: The charts of approximately two-thirds of individuals in Ottawa recently diagnosed with HIV contained data elements that could be used to categorize infections as recent or older. Among the infections with charts that had this information, approximately one-third were deemed to be recent infection. Previous negative laboratory testing and symptoms were the most common data elements used to make this determination.

CONCLUSIONS: It may be possible to quantify and describe prospectively recent and older infections using data elements in case management charts. Identification of individuals with older infection will allow us to describe subpopulations of individuals within a public health jurisdiction whose HIV infection goes undiagnosed for a long period of time. Identification of individuals with recent infection will allow us to describe subpopulations that are most at risk for acquisition of HIV.

P111
COMPREHENSIVE TESTING FOR SEXUALLY TRANSMITTED AND BLOOD-BORNE INFECTIONS AMONG MEN WHO HAVE SEX WITH MEN IN CANADA: FINDINGS FROM AN ENHANCED SURVEILLANCE SYSTEM (M-TRACK 2005 – 2007)

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BACKGROUND: Gay, bisexual, and other men who have sex with men (MSM) are disproportionately affected by sexually transmitted and blood-borne infections (STBBIs), including HIV. An integrated approach to testing is an important component for early detection and management of STBBIs. M-Track data were analysed to describe STBBI testing among MSM in Canada.

METHODS: M-Track is an enhanced surveillance system that monitors STBBI and risk behaviours among MSM in Canada. Participants from five sentinel sites completed a self-administered questionnaire. Bivariate analysis compared those who received comprehensive testing in the previous year (testing for hepatitis C, syphilis and gonorrhea among HIV-positive men; and HIV, syphilis and gonorrhea for HIV-negative/unknown status men) versus those who had not received comprehensive testing.

PRELIMINARY RESULTS: 4783 of 4838 participants were included in the analysis. Among HIV-positive men, 25% received comprehensive testing. Testing was significantly associated with the following risk behaviours (in the previous six months): having six or more sexual partners (OR 5.31; P<0.001); sex with a casual partner (OR 3.94; P<0.001); and unprotected anal intercourse (UAI) with a casual partner (OR 2.01; P<0.05). By comparison, 29% of the HIV-negative/unknown status men received comprehensive testing. Risk behaviours (in the previous six months) significantly associated with testing include: having two to five (OR 2.24; P<0.001), or six or more (OR 3.50; P<0.001) sexual partners; sex with a casual partner (OR 2.42; P<0.001); UAI with a casual partner (OR 2.11; P<0.001); and ever injecting drugs (OR 1.52; P<0.05). Younger age was also significantly associated with testing in both HIV-positive (OR 2.04; P<0.001) and HIV-negative/unknown (OR 2.58, P<0.001).

CONCLUSIONS: Under one-third of M-Track participants reported receiving comprehensive testing, the proportion being higher in those engaging in high risk activities. Promoting an integrated approach to STBBI prevention and screening can help ensure that at-risk MSM benefit from comprehensive testing.

P112
RATE OF NEW POSITIVE TESTS AMONG GAY AND BISEXUAL AND OTHER MEN WHO HAVE SEX WITH MEN (MSM) USING VARYING ESTIMATES OF POPULATION SIZE IN BRITISH COLUMBIA, 1985 TO 2012

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BACKGROUND: One of the difficulties of estimating the rate of new positive tests among gay and bisexual and other MSM is that it is problematic to get a true count of the underlying population. We therefore explored how varying estimates of a population can be used when true population estimates are unknown.

METHODS: This is a population-based demographic study, which examines the impact of varying estimates of population size on the rate of new positive tests among gay and bisexual and other MSM in BC from 1985 to 2012. For this exercise our estimates of the population come from US-based nationally representative surveys conducted by the US Centers for Disease Control (CDC). Based on these surveys, CDC estimated that gay and bisexual and other MSM comprise 4% of the U.S. male population (range: 2.8-5.3 percent). Previous Canadian estimates are at the lower range of the CDC ones. To obtain HIV prevalence estimates in BC we used censal and intercensal estimates of the BC male population age 15 years and over from 1985 to 2012 and applied the US CDC's range of estimates. The numbers of new HIV cases by year were obtained from annual reports published by the BC CDC. Rates were expressed as rates per 1000 gay and bisexual and other MSM.

RESULTS: Based on US CDC low and high estimates, we showed the number of gay and bisexual and other MSM ranged from 57,637 and 115,274 in BC in 2012. The rate of new positive tests in that year was estimated to range from 1.2 to 2.6 per 1,000 gay and bisexual and other MSM. Rates peaked in 1986 (11.4 to 22.9) and reached a nadir in 1999 (1.2 to 2.4). In 2004 (2.0 to 3.9) the rate peaked again and have since stabilized or decreased slightly.

SUMMARY: Our work demonstrates the value of using population ranges to estimate prevalence in the gay and bisexual and other MSM population.

P113
WILLINGNESS OF HIV-UNINFECTED MSM IN TORONTO, CANADA TO USE PRE-EXPOSURE PROPHYLAXIS

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BACKGROUND: In pre-exposure prophylaxis (PrEP), HIV-uninfected persons take daily ART to reduce HIV acquisition. PrEP is especially relevant for persons at repeatedly high sexual risk of HIV. Few Canadian studies have examined the willingness of men who have sex with men (MSM) to take PrEP.

METHODS: Sexually active MSM were recruited at a Toronto medical clinic in 2010-12. Participants completed a socio-behavioural questionnaire using ACASI. Participants were asked about their willingness to take PrEP. Participants who reported being unwilling were asked further questions.

RESULTS: We recruited 150 HIV-negative MSM (median age 44.5 years [IQR 37 to 50 years]). 67 (54.9%) were 'highly' 'very' or 'somewhat' likely to take PrEP. The reasons for not being likely to take PrEP were: risk too low 64%, side effects 45%, would be a burden 16%, probably doesn't work 4%. The relative risk of willingness to take PrEP was 1.50 for those who had used cocaine in the previous six months, 1.57 for having 10 or more casual partners in the previous six months, 1.58 for those having anal sex with a regular HIV-positive partner, 1.53 for having anal sex with a regular HIV-unknown partner, and 1.62 for perceiving the chance of ever HIV infection as likely. All were statistically significant, $P<0.05$. In multivariable analysis, men who perceived themselves at risk for HIV infection were 3.96 times more likely to be willing to take PrEP ($P=0.038$). Those with higher education indicated a lower willingness to take PrEP (OR=0.43) but this was borderline significant ($P=0.088$). All other variables were not significant.

CONCLUSIONS: Although not yet licensed in Canada, a large number of HIV-negative MSM in Toronto are willing to take PrEP. Of those not willing, an education campaign regarding true side-effects may increase their willingness. Increased perception of HIV risk was strongly associated with willingness to take PrEP.

P114
SEXUAL BEHAVIOURS OF IDUS: A MATTER OF CONCERN?

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BACKGROUND: Injection drug users (IDUs) are mainly exposed to HIV through injection. However, our previous work suggests that sexual risk could also be significant. This analysis aimed to describe some sexual risk behaviours of IDUs in the SurvUDI network, including unprotected anal sex (UAS) with casual (CaMSP) and client (ClMSP) male sex partners.

METHODS: IDUs who injected recently (past six months) are recruited in harm reduction and health programs across the province of Québec and Ottawa. Each visit includes completion of a structured questionnaire covering recent sexual behaviours. Clients are partners offering money, drugs or something else in exchange for sex. Data at the last visit are described.

RESULTS: From 03/01/2004 to 03/31/2012, 5477 IDUs completed 9820 interviews. Among the 4174 men (mean age: 38.2 years), 67.9% were sexually active, with 59.2% reporting female partners only, 4.6% male partners only and 4.0% both. Among men with male partners, 14.1% reported ≥21. Among the 174 men with CaMSP, 50.6% reported anal sex, with 38.6% reporting UAS. Of the 147 men with ClMSP, 44.9% reported anal sex, with 34.8% reporting UAS. Among the 1303 women (mean age: 33.6 years), 87.1% were sexually active, with 70.4% reporting male partners only, 2.8% female partners only, and 13.9% both. Among women with male partners, 17.8% reported ≥21. Among the 350 women with CaMSP, 22.6% reported anal sex, with 54.4% reporting UAS. Of the 397 women reporting ClMSP, 23.4% reported anal sex, with 26.9% reporting UAS.

CONCLUSIONS: Most IDUs are sexually active and UAS is relatively frequent for both men and women. UAS is only a crude measure of risk due to missing data on partners' serostatus and, for men, if it is insertive or receptive. However, many IDUs seem to have a non-negligible level of HIV sexual risk and this should be addressed during interventions.

P115
CHARACTERISTICS OF LATE PRESENTATION TO HIV CARE AMONG A POPULATION-BASED CLINICAL COHORT IN MANITOBA

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BACKGROUND: Despite substantial progress in our ability to diagnose, treat and care for people living with HIV over the past 30 years, many Canadians are still being diagnosed at a relatively late stage of HIV infection. Late diagnosis of HIV and presentation to care have been associated with increased mortality, comorbid opportunistic infections and risk of transmission. Using a population-based clinical cohort from the Manitoba HIV Program (MHP), this study compared and contrasted socio-demographics, clinical characteristics and risk factors associated with individuals presenting late to care in Manitoba.

METHODS: Data were from retrospective chart reviews from MHP, the single provider of HIV care in Manitoba, and included patients enrolled from 2007 through 2011. Data collected included HIV-related clinical characteristics, HIV risk factors and comorbidities, including STIs. Patients presenting with CD4 counts ≤350 cells/μL were defined as late presenters. Bivariate comparisons between available factors and late presentation were made using Chi-square tests of association and the Kruskal-Wallis test, where appropriate. Factors associated with late presentation at the $P<0.20$ level in bivariate analyses were retained for multivariable logistic regression models. All analyses were performed using Stata 12.

RESULTS: Total sample size was 200, with 61% of the cohort presenting with CD4 counts ≤350 cells/μL. Late presenters were no more likely than early presenters to be male, self-identify as Aboriginal or be tested in Winnipeg. In multivariable models adjusted for age, Aboriginal status, and residence at diagnosis, late presenters were more likely to be HCV-positive (AOR 4.3 [95% CI 1.5 to 12.1]; $P=0.007$) and to present with thrush (AOR 13.5 [95% CI 3.0 to 60.6]; $P=0.001$).

IMPLICATIONS: Findings from this study highlight the complex nature of patients presenting late to care in Manitoba and the need for linkages to therapeutic and supportive health services appropriate for their specific needs, including high rates of HCV infection and opportunistic infections.

P116

THE CEDAR PROJECT: HIGH PREVALENCE AND INCIDENCE OF HIV AMONG ADOLESCENT AND YOUNG (<24 YEARS) ABORIGINAL WOMEN IN BC

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BACKGROUND: HIV incidence is declining overall in Canada, however it is rising among young and Aboriginal women. We undertook this study to contribute new information to support HIV prevention among adolescent and young Aboriginal women.

METHODS: The Cedar Project is a prospective cohort study involving 605 young Aboriginal people aged 14 to 30 who use drugs in Vancouver and Prince George, British Columbia, Canada. Univariable comparisons and multivariable logistic regression modeling identified predictors of HIV susceptibility among female participants within the 14 to 24 age range. Estimates of adjusted odds ratios and 95% CIs were calculated.

RESULTS: In total, 177 women met the age criteria (15 to 24 years) at baseline, among whom 12 were HIV-positive (10 in Vancouver, 12% prevalence, and two in Prince George, 2% prevalence, P=0.0158). Among the 165 HIV-negative young women followed since 2005 to 2013, 14 seroconverted (eight in Vancouver and six in Prince George) for an incidence rate of 2.38 per 100 person-years. In multivariable analyses, HIV-prevalence was associated with living in Vancouver (OR 9.09 [95% CI 1.29 to 64.08], P=0.027) and injecting cocaine in the past six months (OR 6.71 [95% CI 1.05 to 42.87], P=0.044). HIV-incidence was associated with not knowing if either parent had attended residential school (HR 10.88 [95% CI 1.34 to 88.23], P=0.025), incarceration in the past six months (HR 4.66 [95% CI 1.44 to 15.06], P=0.010), and injection drug use in the past six months (HR 4.79 [95% CI 1.05 to 21.71], P=0.042).

INTERPRETATION: The HIV incidence rate is alarmingly high among the adolescent and young female participants in this study. The fact that the major urban centre of Vancouver was not the main site for seroconversions is a red flag for Northern communities. HIV prevention programming must consider the impact of family disconnection, particularly due to the child welfare system. For young Aboriginal women coping with familial and cultural dislocation and resultant addiction, jails are not safe places for healing.

P117

THE CEDAR PROJECT: ADOLESCENT AND YOUNG (<24 YEARS) ABORIGINAL WOMEN IN BC COPING WITH ADDICTION REQUIRE A GENDERED RESPONSE TO INCREASE SAFETY

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BACKGROUND: Adolescent and young Aboriginal people in Canada are coming of age in the context of the intergenerational atrocities of the residential school and colonial systems that resulted in familial fragmentation, erosion of culture, and socioeconomic and health disparities, including HIV infection. Despite this, there has been little exploration of the gendered differences between young Aboriginal men and women to assist with health services and HIV prevention planning. We undertook this study to highlight the unique characteristics of adolescent and young Aboriginal women in BC to support safety planning within this population.

METHODS: The Cedar Project is a prospective cohort study involving 605 young Aboriginal people aged 15 to 30 who use drugs in Vancouver and Prince George, British Columbia, Canada. For this study, we used univariable comparisons of select historical socio-demographic and risk variables between young (<24 years) women and men (n=344) at baseline.

RESULTS: There were a total of 177 women and 167 men who met the age criteria (15-24 years) for inclusion. At baseline, young women were more likely to be HIV-positive (7% versus 1%; P=0.012) and HCV-positive (27% versus 14%; P=0.003); to have engaged in sex work (69% versus 8%; P<0.001); to have had a bad date (35% versus 0%; P<0.001); to have injected drugs (46% versus 20%; P<0.001); to have required help injecting (39% versus 16%; P<0.001); and to have experienced childhood sexual abuse (55% versus 17%; P<0.001).

INTERPRETATION: The adolescent and young Aboriginal women in this study were more then two times as likely to be HIV and HCV-positive compared to the young men. This increased susceptibility is likely explained by complex intersections of risky drug use and sexual related vulnerabilities. Moreover, young women's increased prevalence to these risks may be explained by the fact that they had three times the risk for experiencing childhood sexual abuse. Tailored responses that address gendered conditions are urgently required to support safety among these young women.

P118

THE HIV CASCADE OF CARE IN A COMMUNITY SAMPLE OF MEN WHO HAVE SEX WITH MEN VANCOUVER, BRITISH COLUMBIA

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BACKGROUND: We developed estimates of HIV prevalence, undiagnosed infection and community viral load (VL) from a cohort of MSM in Vancouver, using respondent-driven sampling as a recruitment strategy.

METHODS: Participants were aged ≥16 years, gender identified as a man and reported having had sex with a man in the past six months. Most participants were recruited by referrals from peers who previously participated with multiple waves of recruitment to reach different social networks with a minority recruited as "seeds" to initiate the chains of peer referrals from February 2012 to August 2013. Participants completed a self-administered computer-based survey and a nurse-administered point-of-care HIV test. For HIV positive participants, we conducted VL and CD4 cell count tests and linked their data with the BC HIV/AIDS Drug Treatment Program.

RESULTS: We recruited 546 participants, of whom 119 (21%) were seeds. The median age was 33 years (IQR 26 to 46) and 418 (76.6%) identified as Caucasian, 70 (7.3%) as aboriginal, 25 (4.6%) as Asian 22 (4.0%) as Latin American and 41 (7.5%) as other ethnicities. In total, 49.5% of participants resided in downtown Vancouver, 30.9% resided in other parts of Vancouver and 19.7% resided in suburbs. A total of 61.3% (250 of 408) of those who self-reported as HIV negative or unknown had tested for HIV in the past two years. HIV prevalence was 25.9% (141 of 545) and of these, all but three (97.9%) were aware of their diagnosis. Among the HIV positive participants, the median CD4 count was 550 (IQR 395 cells/μL to 745 cells/μL) and 79.4% (112 of 141) had a VL <200 copies/mL. Also, 86.5% (122 of 141) of the HIV-infected men in this sample were receiving ART for at least one day in the previous three months.

CONCLUSION: We found a high prevalence of HIV, but also encouragingly low levels of undiagnosed infections and unsuppressed VL, in a community sample of MSM in Vancouver. These data suggest a degree of success in encouraging MSM in Vancouver to test and get treated early.

P119

RISK PROFILES FOR HIV TRANSMISSION AND HIV STATUS AMONG MEN WHO HAVE SEX WITH MEN, TRANSGENDER, SEXUAL WORKERS AND HETEROSEXUALS, CALI-COLOMBIA

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BACKGROUND: In Colombia, men who have sex with men (MSM), transgender (TRANS) and sexual workers (SW) are more severely affected by HIV than any other population. Few studies have simultaneously assessed their risk profiles for HIV transmission and HIV status.

METHODS: Participants were recruited through voluntary HIV counselling campaigns (TRANS [n=59], MSM [n=262], SW [n=101] and HS [n=518]) between 2012 and 2013. Each participant received HIV pre and post-test counselling, answered a structured questionnaire, and received

HIV screening with a rapid test and confirmatory HIV test when indicated. The questionnaire followed the behavioral surveillance indicators recommended by the United Nations Populations Fund and included questions on social factors, HIV knowledge and risk behaviors specific for each group. Descriptive and comparative analyses were performed.

RESULTS: The mean age of participants was 29.6±9.3 years in TRANS, 27±9.3 years in MSM, 31.1±8.9 in SW and 27.9±11.2 years in HS. TRANS populations reported an earlier age of sexual initiation, higher number of sexual partners, higher frequency of alcohol and drug use, and lower HIV knowledge than the other groups. SW shared similar risks with TRANS, especially in the frequency of drug and alcohol use, and commercial sex. In contrast, MSM had a higher proportion of HIV knowledge (40%), were more likely to use condoms (regular partner 32%, occasional partner 62%). Previous HIV test prevalence was lower in HS (42%) than among other groups. Self-reported history of sexually transmitted diseases was lower (12%) in HS and higher in MSM and TRANS (21%-24%). HIV prevalence was TRANS 14%, MSM 11%, SW 5% and HS 0.39%.

CONCLUSIONS: Overall, all groups reported risk behaviours although they vary depending on each group characteristics. Thus, interventions are needed to target each group. Differences noted across groups will guide the formulation of specific targets for intervention.

P121
PREDICTORS OF PREVIOUS HIV TESTING AMONG COUPLES' VOLUNTARY HIV COUNSELING AND TESTING CLIENTS IN COPPERBELT PROVINCE, ZAMBIA

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OBJECTIVE: Knowledge of HIV status and partner's HIV status increases protective behaviors and reduces transmission of HIV. Follow-up testing is critical for high-risk individuals and couples. Among couples seeking couples' voluntary HIV counseling and testing (CVCT) services, we quantified predictors of previous HIV testing reported by either study partner. We also evaluated predictors of previous joint CVCT with the study partner.

METHODS: Couples seeking CVCT services funded by the Canadian International Development Agency from August 2010 to March 2013 in four cities in Copperbelt province were included in this analysis.
Factors associated with previous testing were assessed using bivariate and multivariate statistics.

RESULTS: Among 68,341 CVCT client-couples, previous HIV testing was reported by 51% of men and 69% of women. Reported previous individual HIV testing and prior CVCT with the study partner significantly increased over time from 2010 to 2013. Previous testing was associated with being a woman; pregnancy; cohabiting ≥3 months; age range 25 to 44 years compared to age ≤24 years; and testing in the city of Chingola compared to the city of Ndola, controlling for year of CVCT services. The prevalence of previous joint testing with the current study partner was 13%. Previous CVCT was associated with testing concordant negative with study partner; pregnancy; cohabiting ≥3 months; age >24 years; and testing in the cities of Chingola or Kitwe, controlling for year of CVCT services.

CONCLUSION: Though many CVCT clients had previously tested as individuals, even by 2013 few had previously tested together as a couple. Couples at risk of HIV, in particular discordant couples and concordant HIV-negative couples with concurrent partners, should be encouraged to seek follow-up testing and counseling to reinforce risk reduction. Although CVCT in this study represented de facto follow-up testing for previously tested couples, formal follow-up testing and counseling services should be part of any CVCT program.

P122
BURDEN OF HIV INFECTION AMONG ABORIGINAL PEOPLE WHO INJECT DRUGS IN OTTAWA'S CENTRAL CORE: RESULTS FROM THE PROUD STUDY

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OBJECTIVE: Disproportionately high levels of HIV infection and injection drug use among Aboriginal people in Canada are distressing for many Aboriginal communities and AIDS service providers, yet factors that explain these elevated rates are poorly understood. Therefore, we sought to examine the rate of HIV infection and related vulnerabilities among Aboriginal and non-Aboriginal people who inject drugs (PWID) in downtown Ottawa.

METHODS: Grounded in a community-based participatory research framework, the PROUD study is an on-going cohort that aims to better understand the HIV risk environment among people who use drugs in Ottawa. Between March-October 2013, 597 people who reported using injection drugs or smoking crack cocaine in the past 12 months were recruited from the ByWard Market area of Ottawa through a targeted, street-based recruitment strategy. Trained peer or medical student researchers administered a demographic and behavioural survey and offered Point-of-Care HIV testing to those who had not previously tested HIV positive. Logistic regression identified factors independently associated with HIV infection.

RESULTS: Of the 272 participants who reported injecting drugs in the past year, 47 (17.3%) self-identified as Aboriginal people. Baseline HIV prevalence was 12.1%, with a significantly higher rate observed among Aboriginal participants than among non-Aboriginal participants (21.3% versus10.2%; P=0.034). In unadjusted logistic regression analyses, the odds ratio (OR) of HIV infection for Aboriginal versus non-Aboriginal persons was 2.37 (95% CI 1.04 to 5.39). After adjusting for variables thought to be associated with HIV (ethnicity, gender, sexual identity, having sought addiction treatment, high frequency opiate injection, reporting an overdose), the adjusted OR of HIV infection was 1.94 (95% CI 1.79 to 5.48) for Aboriginal versus non-Aboriginal persons.

CONCLUSIONS: HIV prevalence is elevated among Aboriginal PWIDs residing in Ottawa. A culturally appropriate and evidence-based response developed with the meaningful involvement of Aboriginal people is urgently required.

P123
HIV CARE CONTINUUM: WHERE DO WE FALL?

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OBJECTIVE: To determine the proportion of local people living with HIV who are engaged at each stage of the HIV care continuum.

DESIGN: Retrospective analysis of the HIV care continuum for all persons with a new diagnosis of HIV referred to the Special Immunology Services (SIS) clinic (Hamilton, Ontario) from 2010 to 2012.

METHODS: Indicators related to each stage of the continuum were examined, including: retention in care (>2 physician visits per year), prevention and counseling (seen by nurse, social worker, pharmacist, dietician), prescription and compliance with ART, and achievement of viral suppression (most recent viral load <40 copies/mL).

RESULTS: Of the 124 persons with a new diagnosis of HIV, 76% were retained in care. Of these, 98% achieved viral suppression. 12% fell out of care within the first year. Those 25 to 34 years of age were just as likely to be retained in care as those >35 years of age. Of those retained in care a majority were counselled by a nurse, dietician and social worker, however only 50% interacted with a pharmacist.

CONCLUSIONS: Sustained linkage to HIV care was associated with subsequent viral suppression and does not seem to be associated with age. The major gap within the continuum is retention of care, especially during the first year.
Local examination of the HIV care continuum exposes breakdowns to the connection of individuals as they move from one stage to the next.

Identifying drop off points is critical for recognizing and implementing effective interventions, to ultimately break the cycle of HIV transmission.

P124

FACTORS ASSOCIATED WITH LENGTH OF TIME TO CARE PROGRAM ENTRY FROM INITIAL HIV DIAGNOSIS IN MANITOBA

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BACKGROUND: Late presenters to HIV care experience higher rates of mortality, and are burdened by a higher prevalence of comorbidities, complicating care delivery. Thus, examining factors influencing time from initial diagnosis to entry into HIV care programs can have significant public health implications. The purpose of this study was to examine factors associated with the number of days between initial HIV diagnosis and entry into the Manitoba HIV Program (MHP).

METHODS: Socio-demographic and clinical data were collected from retrospective chart reviews from newly HIV-diagnosed individuals presenting to MHP between January 1, 2007 and December 31, 2011. Quantile regression was used to examine factors associated with the median number of days from HIV diagnosis to presentation to care. Stata 12 was used for all analyses.

RESULTS: Total sample size was 190 individuals. The median time from HIV diagnosis to entry into MHP was 40 days (interquartile range: 18-95 days). Median time to program entry for cases from an HIV-endemic country was 102 days, compared to 35 days for cases not from an endemic country. Similarly, median time was 230 days for those reporting a history of opioid use, compared to 37 days for those denying opioid use. In a multivariable model adjusted for age, sex, and geography, being from an HIV-endemic country (36 days, P=0.04), use of opioids (182 days, P<0.001) and having a history of tuberculosis infection (102 days, P=0.007) remained significantly associated with increased time between initial HIV diagnosis and entry into a care program.

IMPLICATIONS: Results highlight the importance of designing appropriate strategies to actively link newly diagnosed HIV-positive individuals to clinical care and to ensure that access to HIV-related health services are widely accessible in Manitoba. Strategies that combine public health, primary-, community- and ambulatory care perspectives may help ensure optimal and timely linkages to HIV care.

P125

NATIONAL HIV BEHAVIOURAL AND BIOLOGICAL SURVEILLANCE FINDINGS AMONG PEOPLE INVOLVED IN TRANSACTIONAL SEX: I-TRACK 2010-2012, M-TRACK 2005-2007 AND E-SYS 2009-2012

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BACKGROUND: HIV infection among people who engage in transactional sex is not well described in Canada. This hard-to-reach population can be stigmatised in ways which hinder HIV prevention and treatment. Information gathered from behavioural and biological surveillance is presented to contextualize the epidemiology of HIV, other STBBI and associated risk behaviours among people who engage in transactional sex.

METHODS: Findings from national surveillance systems (I-Track, M-Track, E-SYS), which collect information on HIV and STBBI prevalence and associated risk behaviours, were examined to determine factors associated with transactional sex among three unique populations: people who inject drugs (PWID), men who have sex with men (MSM) and street-involved youth (SY). Descriptive statistics were calculated and Chi-square tests (significance level P<0.05) assessed differences between people who engaged and did not engage in transactional sex.

RESULTS: Participants who reported engaging in transactional sex included 343 PWID, 401 MSM and 219 SY. HIV prevalence among participants who engaged versus did not engage in transactional sex was 12% versus 11% among PWID, 18% versus 14% among MSM and 3% versus <1% among SY, whereas lifetime exposure to hepatitis C was 71% versus 68%, 20% versus 3%, and 14% versus 4%, for PWID, MSM and SY respectively. Compared to participants who did not engage in transactional sex, a significantly higher proportion of people who engaged in transactional sex were: female (PWID, SY); under 30 years of age (PWID, MSM); Aboriginal (PWID, MSM, SY); and ever-injectors of drugs (MSM, SY).

CONCLUSION: HIV prevalence and lifetime exposure to hepatitis C is high among people who engage in transactional sex, and women, youth, Aboriginal people, and PWID represent significant proportions of this at-risk population. The intersection of networks of people who engage in transactional sex and those who inject drugs represents an important target population for prevention and control programs.

P126

HIV TESTING AND RISK BEHAVIOR TRENDS AMONG INJECTION DRUG USERS IN TORONTO, ONTARIO 2002 - 2011: RESULTS FROM PHAC'S I-TRACK SURVEILLANCE SYSTEM

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BACKGROUND: As part of HIV prevention efforts over the past decade, testing and risk behaviors among Toronto users of injection drugs have been investigated with repeated cross-sectional surveys. The present analysis examines trends in these behaviors over time. Evaluation of these trends can then be used to improve prevention efforts among this population.

METHODS: Data were collected as part of the I-Track surveillance system (PHAC), pilot phase (2002; n=221), phase 1 (2004; n=260), phase 2 (2008; n=255) and phase 3 (2011; n=262). Interviewer-administered surveys and blood spot collection for testing were conducted at service sites in Toronto.

RESULTS: In terms of socio-demographics, housing improvements were noted. The percentage of individuals in stable housing increased from 37.7% in 2002 to 63.5% in 2011 (τ=0.175, P<0.001) and percentage living on the street or in a shelter decreased from 62.3% in 2002 to 13.7% in 2011 (τ=−0.323, P<0.001). Lifetime HIV testing was steady at between 93%-96% from 2002 to 2011, while testing in <12 months increased from 55.2% (2004) to 72.6% (2011; τ=0.142, P<0.001). Though injection with used needles (over the previous month) decreased from 24.1% (2002) to 10.7% (2011; τ=−0.097, P=0.023), the proportion of participants injecting daily increased from 20.9% (2002) to 27.2% (2011; τ=0.043, P=0.019). The percentage of positive HIV lab results was generally stable, trending from 5.1% (2002) to 5.9% (2011; NS).

CONCLUSIONS: Limitations included the convenience sampling process, recruitment largely from service sites and the reliance of most items on self-report (except HIV and HCV status). While recent HIV testing increased over time, daily injecting also increased, potentially providing an explanation for increased risk perception and testing. Despite increased testing, three in ten users of injection drugs had not been tested for HIV in over a year, indicating a need for improvement as testing continues to be inadequate in this population.

Evaluation of Interventions, Public Health Programs, and Policy

Évaluation des interventions et des programmes et politiques de santé publique

P127

COST-PER-HIV INFECTION AVERTED BY COUPLES' HIV COUNSELING AND TESTING (CVCT) IN GOVERNMENT CLINICS IN COPPERBELT, ZAMBIA

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BACKGROUND: One in four HIV infected Africans have been identified and less than half of HIV+ Africans with CD4<200 have been reached by antiretroviral therapy (ARV) programs. WHO estimates that

each new ARV patient corresponds to two new HIV infections. Unfortunately, more than half of donor budgets are spent on ARV treatment while 20% is allocated to prevention and less than 5% is committed to HIV testing and counseling. We present a cost-per-infection-averted model for CVCT in a Canadian International Development Agency (CIDA) funded program in Copperbelt, Zambia.

METHODS and RESULTS: Total costs of CVCT were $56/couple for 68,000 couples over 30 months. This included overhead (13%), training in counseling, rapid HIV testing, data recording and reporting and promotions (8%), salaries for counselors, promotional agents, and trainers (38%), salaries for monitoring and evaluation staff (12%), training, promotional and data recording materials and equipment (11%), vehicle fuel and maintenance (3%), and administrative supplies (12%). HIV tests were provided through government channels but stock-outs were common and required purchase of backup kits (3%). Conservative effect sizes were estimated at 50% reduction in new infections with five-year duration of impact. Assumptions included 100% efficacy of ARV-as-prevention among HIV+ meeting clinical criteria for treatment. Sensitivity analyses varied incidence rates among discordant and concordant HIV- couples.

CONCLUSIONS: The cost per HIV infection averted by CVCT in this high prevalence southern African country ranges from $200 to $500. In comparison, the cost of treatment-as-prevention (TasP) in discordant couples is >$5,000 per year per infection averted even if 100% efficacy is assumed. Although CVCT is cost-effective and WHO recommended, very little funding has been directed towards this intervention and as a result more than 95% of discordant couples in Africa do not know their HIV status. This unique program funded by CIDA confirms the feasibility of rapid expansion of CVCT services in government health facilities in a high-prevalence low resource setting. CVCT should be widely disseminated in Africa.

P128
SEXUAL HEALTH EDUCATION: ENGAGING WITH IMMIGRANT YOUTH AND STREET-INVOLVED YOUTH ON THE DESIGN AND CONTENT OF A SEXUAL EDUCATION WORKSHOP

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Despite the existence of many interventions targeted at reducing rates of sexually transmitted infections (STIs) amongst youth, direct youth engagement in the development and evaluation of these interventions is rare. The goal of our current project was to invite high-risk youth to provide information about what they want from public health interventions designed to promote healthy sexuality. We focused on Immigrant/Newcomer youth and street-involved youth (the majority of whom were Aboriginal) as two youth subgroups who could be considered at high risk of STIs and who are rarely included in studies of this kind. All youth were between 15 and 19 years of age. Participants were invited to provide their perspective on the design and content of a healthy sexuality workshop focusing on STI prevention. Following a one-hour workshop, gender-stratified focus groups were held with eighty participating youth at four inner city youth-serving agencies in Winnipeg, Canada. General inductive analysis was used to evaluate the qualitative data, which pertained to youth perceptions of 1) specific educational activities, 2) workshop facilitators, and 3) the overall workshop design. Youth strongly supported the use of educational activities that did not involve reading or writing. The community building aspect of the workshop was highlighted, as were youth perspectives on specific approaches to cultural adaptation for interventions of this kind. Many youth also expressed that the workshop made them more confident in their ability to discuss sexual health issues in a group setting, with sexual partners and specifically with physicians. These findings are consistent with the empowerment-based approach applied to the initial workshop design. The focus group methodology itself also appeared to have had a significant educational value. Healthy sexuality workshops would therefore benefit from including activities of this type where youth are invited to express their ideas, ask questions and more fully process what they learn.

P129
TRANSITIONING AN INTERVENTION FOR SPANISH SPEAKING NEWCOMERS IN CANADA TO COLOMBIANS IN THEIR HOME COUNTRY

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PLAIN LANGUAGE SUMMARY: Chicos Net (CN), an HIV intervention for Spanish speaking newcomers in Canada was chosen by community based LGBT organizations in Cali, Colombia, as an intervention they wished to adapt. A focus group of CN participants was convened to assess CN in Canada before transitioning.

ISSUES: CN is a behavioural HIV prevention intervention targeting Spanish-speaking gay men that has been delivered in Toronto since 2011. After four iterations, an evaluation was conducted in order to revisit its core elements, strategies and methods. Interventions required evaluations with the participation of the target community.

DESCRIPTION: We developed an evaluation of the four units that form CN. A focus group of former CN participants (n=5) was invited to provide feedback on the: pre and post questionnaires, objectives, language, content, education materials, delivery format and indicators of success.

RESULTS: CN was in general recognized as a valuable project for promoting HIV prevention with the intended demographic group. The focus group agreed that the core elements are in tune with the current community sexual health needs. The main suggestions for change were: to incorporate community members who have completed CN interventions in the past as facilitators and increase the number of sessions.

LESSONS LEARNED AND RECOMMENDATIONS: Involving target communities in evaluating interventions, should be a customary exercise inherent to program science (Aral & Blanchard, 2012) best practices. CN has incorporated the practice of inviting former participants to collaborate as facilitators. CN now has a manual of implementation to facilitate delivery of CN in other Canadian organizations that will provide a foundation for programming in Colombia.

References:

Aral SO, Blanchard JF (2012). The program science initiative: Improving the planning, implementation and evaluation of HIV/STI prevention programs. Sex Transm Infect 88:157-9.

P130
THE BEST PRACTICES PROJECT: A REVIEW OF PRIMARY STBBI PREVENTION INTERVENTIONS AND EVIDENCE OF THEIR EFFECTIVENESS

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BACKGROUND: "Turning the tide on HIV" and other sexually transmitted and bloodborne infections (STBBIs) will require deployments of interventions tailored to specific populations and contexts, supported by the best available evidence. The Public Health Agency of Canada is exploring ways to facilitate a more systematic assessment, development and dissemination of evidence-informed best practices in STBBI prevention.

METHODS: A scoping review of peer-reviewed and grey literature on STBBI primary prevention interventions is currently underway focusing on key affected populations: gay and other men who have sex with men (MSM), ethnocultural minorities; Aboriginal Peoples; and people living with HIV and/or hepatitis C. Searches were conducted in MEDLINE, EMBASE, PsychInfo, and the Cochrane Library, in addition to the CDC Compendium of Effective Interventions. This review includes studies published in high-income countries with low national prevalence of HIV and hepatitis C between 1998 and 2013.

RESULTS: After screening 8741 unique titles and abstracts, n=456 articles were included for full paper review. Of these, 48% (n=218) focus on ethnocultural minorities, 24% (n=108) on MSM, 14% (n=60) on people living with HIV and/or hepatitis C, and 2% (n=7) on Aboriginal Peoples. Study population in 120 abstracts was unclear. Breakdown by study design resulted in 31% (n=140) randomized-controlled trials, 22% (n=99) longitudinal studies, 17% (n=79) systematic reviews/meta-analyses, and 5% (n=21) non-randomized trials. Study design in 117 abstracts was unclear.

The majority of articles, 90% (n=409) addressed HIV primary prevention interventions with 17% (n=78) addressing other STBBIs. Eleven percent (n=49) did not specify the STBBI. Full papers will be categorized according to the type of intervention. Evidence of effectiveness will be determined using Grading of Recommendations Assessment, Development and Evaluation (GRADE).

CONCLUSIONS: Findings will inform the work of governments, public health practitioners and community-based organizations that develop, implement or fund primary STBBI prevention interventions.

P131
ASSESSING HIV KNOWLEDGE AFTER PRE-TEST COUNSELING IN CLIENTS ATTENDING A PUBLIC HEALTH STI CLINIC

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INTRODUCTION: On-line testing approaches enable testing for HIV without interaction with clinicians. However, traditional HIV pre-test counseling, involving education and informed consent may not occur without clinician interaction. We aimed to develop a scale that could be used to detect differences in HIV knowledge following pre-test counseling delivered under two conditions - by clinicians or through a website.

METHODS: Pre-test concepts were identified through review of the BC HIV Testing Guideline. Possible questions were reviewed for construct and content validity by an expert panel. Questions that had a (n-2)/n item-objective congruency were included in a validation study (20 questions). Face validity was assessed through a pilot test with five volunteers. Participants, recruited from an STI clinic, completed an online questionnaire following HIV testing. Internal-consistency was assessed by using the Kuder-Richardson Formula 20. Inter-item correlations were examined and a difficulty index was calculated for each question.

RESULTS: Of 242 participants, 61 were excluded as they did not get an HIV test or did not complete the survey fully; of the remaining participants, 110 of 181 (60.8%) were male and 132 of 181 (72.9%) were Caucasian. Inter-item correlations were predominantly low (>0.3) as was internal consistency (alpha= 0.428). The difficulty index ranged from 0.35 to 1.0, with three questions (measuring knowledge about disease reporting, meaning of a negative test result, and alternatives to testing) having difficult indexes between 0.6 and 0.8. The theoretical domains that emerged as important to future validation scales were voluntary nature of testing, implications of a negative or positive test, harms, limitations and alternatives, partner notification, and confidentiality of HIV results.

DISCUSSION: Although the knowledge scale had low internal-consistency in this population, we identified specific questions that may be helpful for assessing pre-test knowledge following testing, and theoretical domains related to HIV knowledge that may be important for future scale validation studies.

P132
ELEVATED HEALTHCARE UTILIZATION RATES AMONGST HIV-POSITIVE INDIVIDUALS PRECEDING DIAGNOSIS COMPARED TO THE GENERAL POPULATION IN BRITISH COLUMBIA

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BACKGROUND: HIV testing during routine healthcare encounters has been proposed for enhanced case finding. We evaluated healthcare utilization rates in the three-year period preceding HIV diagnosis (first HIV-related record in the British Columbia Centre for Excellence in HIV/AIDS [CfE] or PopulationDataBC) compared to the general population in British Columbia (BC).

METHODS: A population-based dataset was created via linkage between the CfE and PopulationDataBC . Our analysis involved a random 1% adult population sample and HIV+ adults diagnosed after 1999 identified from the CfE/PopulationDataBC using validated case-finding algorithms. Healthcare utilization rates for primary/inpatient care were compared based on age strata. Poisson models compared prior utilization rates between HIV+ individuals with history of IDU versus non-IDU (adjusted for age, gender, HCV, CD4 and pVL) and for those residing in rural versus urban areas (adjusted for age, gender, IDU, HCV, CD4, pVL).

RESULTS: A total of 6484 (78% male) HIV+ individuals and 47,411 (50% male) individuals in the general population contributed19,452 person-years and 572,340 (PY) respectively. For HIV+ individuals versus the general population, rate of primary care visits for three preceding years was 428 versus 173/100 PY for those diagnosed at 19 to 30 years of age, while inpatient rates were 21.0 versus 5.3/100 PY (both P<0.001). Similar trends for all age groups were identified; age 31 to 40: rates 503 versus 318/100 PY, and 20.7 versus 8.5/100 PY for primary and inpatient care respectively, age 41 to 50: rates 629 versus 400/100 PY, and 22.4 versus 11.6/100 PY (all P<0.001). HIV+ IDU had higher rates of primary care and inpatient care compared to non-IDU (718 versus 397/100 PY; 30.9 versus 10.5/100 PY respectively, both P<0.001). Rural residents had similar primary care (659 versus 613/100 PY, P=0.853) but higher inpatient rates compared to urban dwellers (38.7 versus 25.9/100 PY, P=0.009).

CONCLUSIONS: Compared to the general BC population, HIV-positive individuals had significantly higher overall rates of primary and inpatient care in the three years preceding diagnosis. Routine healthcare contact, particularly hospital admission represents a significant opportunity for earlier HIV diagnosis.

P133
TWO STANDARDS OF CARE: TOWARD TREATMENT EQUITY FOR PEOPLE LIVING WITH HIV/HCV CO-INFECTION

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BACKGROUND: In this paper, CTAC analyzes clinical trial design and Common Drug Review decision-making for the two most recent hepatitis C medications, boceprevir and telaprevir, identifying why recommendations were delayed for co-infected people.

ISSUES: While we are in the middle of unprecedented drug development to treat hepatitis C, in the cases of the two most recent hepatitis C medications, boceprevir and telaprevir, delayed clinical trial inclusion of people living with HIV/HCV co-infection, as well as Common Drug Review decision-making, left co-infected people behind.

ANALYSIS: In the cases of both boceprevir and telaprevir, co-infected people were excluded from Phase 2 and 3 trial participation. While Phase 3 trials for people living with hepatitis C mono-infection began in mid-2008 for both treatments, Phase 2 trials for people living with co-infection did not begin until late 2009. Because of this, the projected time difference between completion of clinical trials for mono-infected versus co-infected people is four years, four months for boceprevir and three years, eight months for telaprevir.

The Common Drug Review's initial 2011 and 2012 recommendations on boceprevir and telaprevir recommended against using these medications with co-infected people because they were excluded from clinical trials. The CDR changed their opinion in mid-2013, even though co-infection trials have yet to conclude.

RECOMMENDATIONS: CTAC recommends the following policy options to correct this inequity: coordinate industry, regulatory agencies and civil society groups to plan around innovation in the hepatitis C pipeline to minimize therapeutic duplication; address inclusion of "harder to treat" populations through the Government of Canada's Panel for Research Ethics; undertake CADTH therapeutic reviews to standardize and optimize treatment guidelines for people living with HIV/HCV co-infection; recognizing the changing hepatitis C treatment landscape, ensure the CDR promotes physician autonomy when making new decisions; further implement equity-based health technology assessment protocols in the Common Drug Review.

CTAC is currently engaging CADTH, the Panel for Research Ethics and industry partners to move these policy options forward.

P134
INTEGRATING COUPLE'S VOLUNTARY HIV COUNSELING AND TESTING INTO GOVERNMENT CLINICS: CURRENT STATUS AND FUTURE OPPORTUNITIES FOR MALE INVOLVEMENT IN NDOLA, ZAMBIA

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BACKGROUND: The Ministry of Health in Zambia has endorsed couples' voluntary HIV counseling and testing (CVCT) and has instructed government clinics to provide HIV testing to partners of antenatal care (ANC) clients and clients of other clinic services. We describe the transition of CVCT from NGO-sponsored stand-alone and weekend services to integrated weekday services in government clinics in Ndola, Zambia from 2011 to 2013 for a Canadian International Development Agency (CIDA) funded CVCT project.

METHODS: Data were extracted from government-issued logbooks in ANC and voluntary counseling and testing (VCT) services in government clinics. CVCT procedures were documented through observation and counselor interviews.

RESULTS: The transition of CVCT from weekend to integrated weekday services in government clinics in Ndola shows steady increase in attendance from 2011 to 2013 with large variations between clinics and from quarter to quarter. Over the three-year period, the monthly average number of couples tested at the VCT clinics on weekdays rose from 3.7 to 7.0 per month; the average for ANC clinics rose from 13.1 to 16.5 per month. Obstacles to CVCT included low participation of men in ANC, difficulty procuring test kits for male partners of ANC clients, lack of staff trained to test and counsel couples jointly, limited space to accommodate couples, and non-uniform recording of CVCT in ANC and VCT logbooks. Promotional efforts were sporadic and poorly documented.

CONCLUSIONS: This study identified several challenges for integrating CVCT into routine weekday ANC and VCT services in Ndola government clinics. Recommendations to address these challenges are: implement standardized data recording instruments, increase training of counselors and nurses in CVCT, prioritize clients attending with partners, and expand community sensitization using proven models. A focused and sustained effort will be required to reach a meaningful number of couples with CVCT in routine clinic services and establish CVCT as a social norm.

P135
"ONLINE AND ON THE GROUND": A PILOT INITIATIVE TO SHARE ELECTRONIC SEXUAL HEALTH INFORMATION WITH YOUTH IN CANADA, COLOMBIA & KENYA

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Electronic health (eHealth) describes the use of information and communication technologies for health services and information. This new approach has the potential to bridge the gap between vulnerable, marginalized populations and public health services. This presentation will describe a three year multi-phase study, implemented in three sites, designed to test the feasibility of using social media to deliver STI educational materials to youth. Phase I consists of baseline data collection via 250 quantitative questionnaires conducted in each of the three cities: Winnipeg (Canada), Medellin (Colombia), and Nairobi (Kenya). Phase II consists of the electronic delivery of HIV/STI educational resources aimed at improving sexual health knowledge in youth and a subsequent exit interview.

There are several characteristics that make this study unique. The first is that the study focuses on marginalized (i.e. street-involved) youth as one of our target populations. This presents specific challenges: No published data exists on this group of youth with respect to their interest and opinions of eHealth nor have they been extensively polled with respect to their access to appropriate electronic technologies. Further, many of the participant youth would be expected to have lower literacy and comprehension levels than other youth. Therefore, the sexual health messages were developed with community participation, in each of the three respective sites, to ensure the resources are acceptable and understandable by the majority of youth. This collaborative message-writing process became one of the most important elements of this study. A second unique element is that participants were able to choose the mode of electronic message delivery, via text message, Twitter, email or Facebook. This presentation will outline the benefits and challenges of each of these approaches, in addition to sharing preliminary results from the three sites (in various stages of the project).

P136
AN ASSESSMENT OF THE IMPACT OF AN HIV/AIDS INTERPROFESSIONAL EDUCATION MODULE ON STUDENTS' KNOWLEDGE OF THE ROLE OF INTERPROFESSIONAL COLLABORATION AND TEAMWORK

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This presentation will describe and report on the impact of the HIV/AIDS Interprofessional Education Module designed for students across multiple health/social care professions. The module uses a blended learning model combining online and face-to-face learning resources, featuring a standardized patient (SP) interview and panel discussion.

Students are assigned to interprofessional teams in which they spend one to two weeks discussing an online case to identify profession-specific issues and resources needed to care for a person living with HIV/AIDS (PHA). The student teams then meet face-to-face in facilitated small group sessions to interview a SP, who plays the role of the PHA from the online case. Each team collaboratively develops a care plan to address issues in the case. The module concludes with students participating in a large group discussion with a panel of experts, including a PHA, representative from the AIDS Committee of Newfoundland & Labrador, and the provincial HIV team.

Students complete post-module surveys to assess satisfaction with the module, and the extent to which the experience enhanced their knowledge and understanding of the subject matter, interprofessional teamwork, and interprofessional roles. This presentation will discuss the evaluation results from longitudinal quantitative and qualitative data that show the impact of the module on the short-term achievement of the learning objectives, specifically students' knowledge of the role of interprofessional collaboration and teamwork, and care of patients living with HIV/AIDS. Findings will also highlight the benefit that increased interprofessional student interaction had on module education outcomes.

This model represents an example of how a blended learning approach can enhance interprofessional collaboration which could ultimately enhance the quality of care provided to PHAs. Recommendations for curriculum development and delivery methods in undergraduate health sciences programs will also be discussed.

P137
COST-EFFECTIVENESS OF INTERVENTIONS TO PREVENT HIV INFECTIONS AMONG AT RISK POPULATIONS

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There is an urgent need to assess the cost-effectiveness for HIV prevention programs, as program evaluations that include a costing component are still relatively uncommon. The Arise Program – an HIV prevention program led by PATH and funded by CIDA – had the opportunity to both assess cost-effectiveness and feasibility of six HIV in five countries with various populations (female sex workers in Senegal, IDUs and MSMs in India, discordant couples in Zambia, HIV positive pregnant women in Zimbabwe, and women living with HIV in Uganda).

METHODS: The outcome measure for the six interventions is HIV infections averted. These are estimated by one of two methods: 1) using modeling (Bernoulli, Reynolds) to estimate infections averted, or 2) using incidence data measured before and after the intervention to determine the number of infections averted. The costs of the interventions are estimated using two perspectives: health project and donor. The costs are categorized as followed: start-up (micro-planning, training and social mobilization), recurrent (e.g. personnel time, commodities and supplies, and transport) and

capital (e.g. equipment and vehicles). To make the comparison, costs are adjusted for inflation and for differences in purchasing power parity.

RESULTS AND CONCLUSIONS: Preliminary costing data indicates the cost per couples tested was (US $50) and per IDUs recruited (US $7.50 for walk in – US $8.4 by peer referral and US $16.3 by outreach workers). Additional analyses for the remaining projects are ongoing, and will be shared in the presentation. The cost effectiveness analysis will enable PATH and sub-grantees to determine which interventions avert a new case of HIV infection for less than US $500 as well as less than the per capita GDP (or three times the per capita GDP.

P138

A FRAMEWORK FOR COMMUNITY OWNERSHIP OF A TEXT MESSAGING PROGRAMME AMONG CLIENTS WITH HIV

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INTRODUCTION: Mobile phone text messaging has been shown to improve adherence to antiretroviral therapy and to improve communication between patients and health care workers.

OBJECTIVES: We sought to investigate community acceptability and readiness for ownership of a text message programme among clients living with human immunodeficiency virus (HIV) at the Yaoundé Central Hospital Accredited Treatment Centre (YCHATC), Yaoundé, Cameroon and to develop a framework for implementation.

METHODS: We used the mixed-methods sequential exploratory design. In the qualitative phase we used 10 focus group discussions (57 participants) to elicit themes related to acceptability and readiness. In the quantitative phase we explored the generalizability of these themes in a survey of 420 clients. Qualitative and quantitative data were merged to generate meta-inferences.

RESULTS: Both qualitative and quantitative data showed high levels of acceptability and readiness despite low rates of participation in community projects. In the qualitative strand more people were willing to pay for a text messaging service, preferred participation of health personnel and preferred that the project be based in the hospital. Some of the limitations identified were lack of management skills in the community, financial, technical and literacy challenges. Participants who were willing to pay were more likely to find the project acceptable and expressed positive feelings about community readiness.

CONCLUSION: Community ownership of a text messaging programme is acceptable to people living with HIV at the YCHATC. Our framework for implementation includes training community members in project management, securing sustainable funding, demonstrating clear benefits to users, allowing a trial period and high levels of confidentiality. The project can be evaluated using participation rate, clinical outcomes, satisfaction with the service, cost and feedback from users.

P139

FRONTLINE HEALTH SERVICE PROVIDERS' LEVEL OF COMFORT IN RECOMMENDING A FUTURE, PREVENTIVE HIV VACCINE TO MEMBERS OF VULNERABLE COMMUNITIES IN KARNATAKA, SOUTH INDIA

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BACKGROUND: The best long-term strategy to manage the global HIV epidemic likely involves an effective, preventive vaccine. Evidence suggests that an individual's decision to accept a vaccine is influenced by health service providers' (HSPs') recommendations. Karnataka is a high HIV prevalence state in south India, with an epidemic concentrated among men who have sex with men (MSM) and female sex workers (FSW). This study examined Karnataka's frontline HSPs' level of comfort recommending a future HIV vaccine to MSM/FSW community members.

METHODS: A total of 379 HSPs who provide HIV-related services to MSM/FSW in Karnataka took part in structured interviews with open-ended questions and pre-coded responses. Participants were members of a wider HIV prevention infrastructure that is part of a dynamic, ongoing Indo-Canadian collaboration. Univariate and bivariate analyses (SPSS 17.0) were used to describe HSPs' level of comfort recommending an HIV vaccine and explore how socio-demographics influenced reported comfort levels in recommending the vaccine.

RESULTS: Over 90% of HSPs reported being 'very comfortable' recommending an HIV vaccine to individuals >18 years of age, while approximately 20% of participants were 'very comfortable' recommending to children, nine to 13 years of age. HSPs in less frequent direct contact with MSM/FSW were significantly more likely to be 'very comfortable' recommending an HIV vaccine to recipients <18 years of age ($P<0.05$). Likelihood of being 'very comfortable' recommending the vaccine to recipients 14 to 25 years of age increased with HSPs' years of job experience ($P<0.05$).

IMPLICATIONS: Ideal target recipients for an HIV vaccine will be children not yet sexually active and still at relatively low risk for HIV. Overwhelmingly, HSPs in Karnataka reported they would not be comfortable recommending the vaccine to this demographic. This study contributes to the limited vaccine acceptability literature focusing on marginalised groups in low- and middle-income countries and the knowledge gap around HSPs' roles in HIV vaccine acceptability among marginalised populations.

P140

ENABLING ACCESS TO HIGH QUALITY PMTCT SERVICES THROUGH COMMUNITY AND FACILITY BASED INTERVENTIONS IN MASHONALAND CENTRAL, ZIMBABWE: EVALUATION OF COMMUNITY BASED STRATEGIES

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BACKGROUND: It is estimated that 15,000 new HIV infections occur annually among infants in Zimbabwe as a result of mother-to-child transmission. The ARISE program funded by the Canadian International Development Agency (CIDA) through PATH aims to scale up the implementation of new WHO 2010 PMTCT Guidelines in selected health facilities in Mashonaland Central. This paper reports on the experience and effectiveness of implementing various community based interventions to strengthen PMTCT.

METHODOLOGY: Community based interventions were implemented by Community Mobilizers (CMs) assigned to 21 health care facilities in eight districts. CMs performed dramas, gave health talks at health facilities, conducted home visits for mothers who missed appointments, worked with community leaders and targeted men with pregnant and breastfeeding partners. Monitoring data were collected through CM records and the provision of client slips returned to health facilities to quantify the reach and effect of these strategies.

RESULTS: Over the eight month intervention period 29959 men and 50745 women were reached, 861 home visits were made to women who had missed appointments, of these 69% returned to the health facility, the majority of them within one week. In the 1.5% of home visits, infants had died. As a result of community mobilization 6017 men had a partner who was either breastfeeding or pregnant. Of the 6017 men reached, 1587 men received tear offs for HIV testing, 406 men brought back slips when accompanying their partner for PMTCT. Thirty four percent of the men reached had pregnant or breastfeeding partners.

CONCLUSION: There is a need for a combined community and health facility approaches to improve coverage and quality of PMTCT services. This paper provides empirical data for the effect of a range of effective community based strategies to improve PMTCT uptake and male involvement in PMTCT which may be feasible to implement at scale.

P141

COST-EFFECTIVENESS OF AN "ON DEMAND" HIV PRE-EXPOSURE PROPHYLAXIS STRATEGY IN CANADA

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BACKGROUND: Recent trials report the efficacy of continuous tenofovir-based pre-exposure prophylaxis (PrEP) for prevention of human immunodeficiency virus (HIV) infection. Cost-effectiveness of "on

demand" PrEP has not been evaluated. We conducted an economic evaluation of the societal costs of HIV in Canada and evaluated the potential benefits of this PrEP strategy.

METHODS: Direct HIV patient care costs comprised outpatient, inpatient, emergency room, psychosocial and antiretroviral costs. Resource consumption estimates were derived from the Centre Hospitalier de l'Université de Montréal HIV cohort. Estimates of indirect costs included employment rate and work absenteeism. Costs for "on demand" PrEP were modelled after an ongoing clinical trial (Ipergay). Cost-effectiveness analysis compared costs of "on demand" PrEP to prevent one infection to lifetime costs of one HIV infection. We also present benefits in terms of life-years and quality-adjusted life years (QALY).

RESULTS: Average annual direct cost of an HIV infection was 16 108,75$ in the best (least expensive anteretrovirals) and 24 055,99$ in the worst (most expensive) case scenario. Total indirect cost was 11 549,83$. Total costs for the first year of HIV infection was 27 658,58$ in the best and 35 605,82$ in the worst case scenario. Undiscounted lifetime costs was 1 434 921,56 $ (853 693,91$ discounted at 3% and 581 188,83$ at 5%) in the best and 1 466 710,52$ (884 120,81$ at 3% and 610 778,37$ at 5%) in the worst case scenario. Annual cost of "on-demand" PrEP was 12 001,41$ per participant and 621 390,26$ per infection prevented. The Ipergay strategy was cost-saving in all scenarios, except when discounted at 5%, where the incremental cost effectiveness ratio was of 14 035,92$ and 3 705,03$ per QALY in the best and worst case, respectively.

CONCLUSION: "On-demand" PrEP as described in the Ipergay trial may be "cost-saving".

P142
REAL WORLD EXAMPLE OF HOW 'COST-EFFECTIVENESS' RESULTS DIFFER DEPENDING UPON PERSPECTIVE: COSTING UNDER THE ARISE PROGRAM

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BACKGROUND: The Arise Program at PATH, funded through a grant from the Canadian International Development Agency, determines the cost-effectiveness of HIV prevention programs for most-at-risk-populations. Six HIV prevention projects in five countries are being implemented (e.g., IDUs in India; sex workers in Senegal). CIDA is both interested in the costs they have incurred, and the effects of this investment, as well as the cost-effectiveness of the interventions (utilizing CEA methodologies).

METHODS: The costs are analyzed with two perspectives: donor and health intervention.

RESULTS: If a car is bought with program funds (to transport health workers), for example, the cost from the 'donor' perspective is the entire cost of the car, while from the 'intervention/beneficiary' perspective, the estimated cost during the life of the program would usually be taken into account. That is, if a car's life expectancy is ten years and the donor purchases the car, it would be responsible for all the cost of the whole ten years; from the health intervention perspective, if the length of the project is five years, then they would calculate five out of ten years of the cost. In this example, the cost from the donor perspective is higher. On the other hand, if the donor does not finance some intervention resources such as donated commodities (e.g., condoms), then the cost from the donor perspective is lower. The Arise Program, which will end in September 2014, is costing out the programs to capture all of these costs, and assessing the cost-effectiveness of the projects from both of these perspectives.

CONCLUSIONS: The cost of an intervention, and thus the cost-effectiveness of an intervention, will differ depending upon the analytical perspective. Both perspectives are useful, but this is an important distinction for both determining how best to provide and to utilize program funds.

P143
STRENGTHENING MALE INVOLVEMENT IN THE PMTCT IN ZIMBABWE – LESSONS LEARNED FROM THE ARISE PROGRAM

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INTRODUCTION: Zimbabwe bears a high burden of HIV. The prevalence rate among antenatal care attendees is 16%. Male involvement in PMTCT is recognized as critical for program uptake. This project – funded by the Arise Program/PATH via a grant from CIDA - aims to scale up PMTCT activities in Mashonaland, Zimbabwe, including increasing male involvement.

METHODS: Arise partners Population Council and Zimbabwe AIDS Prevention Project delivered community interventions about PMTCT via community mobilizers - between November 2012 and May 2013 - to men whose partners were pregnant or breast-feeding, and key stakeholders. Sensitization sessions were conducted in the community, individual counselling and home visits. Reactions to male involvement were collected during informal, 'information sharing meetings.'

RESULTS: Results revealed that 40% of men were reached at community gatherings. Various themes emerged, including that male attendees considered it inappropriate for men to visit PMTCT clinics, and given that they often worked far from home, it was logistically difficult to do so. Further, attendees shared that PMTCT information was only relevant for women and that they preferred to be tested at their work place. The most common theme was that men 'knew' that their partner or wife had been tested and therefore 'her status was his as well.' Most men indicated that they would prefer a community mobilizer to conduct a home visit, and 34% of men who arrived at the facility for testing indicated that it was a result of being reached by the mobilizers.

CONCLUSION: Despite scepticism expressed by men, deploying community mobilizers appears to have led to an increase in male involvement in PMTCT services. Using key stakeholders to inform men about PMTCT, work-place HIV testing, and home visits appeared to be important program components. Traditional gender norms- about PMTCT being a woman's issue remain a key issue to address.

P144
DEVELOPING AND EVALUATING AN HIV AND HCV PREVENTION KNOWLEDGE EXCHANGE TOOL

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BACKGROUND: Based on a needs assessment conducted by CATIE in 2008, service providers expressed a need for plain language prevention knowledge (notably in the area of biomedical sciences) and an understanding of how this new knowledge could be integrated into the planning and provision of programs.

METHODS: In response, CATIE diversified its publications to include a semi-annual online publication translating research on HIV and hepatitis C prevention for programming – Prevention in Focus: Spotlight on programming and research (PiF). The primary audiences for the publication are program developers; community-based workers, public health; researchers; and policy makers. Various topics have been explored including highlighting evidence-informed prevention programs and translating research in areas such as biomedical approaches to prevention; testing; and population specific topics.

In 2013, CATIE evaluated PiF's impact through an online evaluation tool. Requests for completion were sent to subscribers of PiF between March and April 2013. A link to the survey was also placed on all PiF pages on our website. 162 people completed the survey. CATIE also analyzed usage trends.

RESULTS: PiF is reaching its target audience with 33% working at ASOs; 26% in community-based organizations; 26% in public health or government; 8% in a clinic; and 7% in academia. Almost 90% had used the information to educate a variety of audiences, including clients and health professionals. Almost 80% had used the information to change programming. In terms of knowledge, 98% reported an increase in knowledge of HIV and/or hepatitis C prevention.

In terms of usage, the number of visits to PiF increased by 700% over the past three years reaching almost 135,000 visits in 2012/13. Email subscribership has also increased by almost 940% since the first issue, with almost 1800 people subscribed to receive PiF.

CONCLUSION: PiF will continue as CATIE's premier distribution method for HIV and hepatitis C prevention research and programming.

P145
EVALUATING CATIE'S PREMIER KNOWLEDGE EXCHANGE TOOL: WWW.CATIE.CA

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BACKGROUND: CATIE's main knowledge exchange tool is our website (www.catie.ca). In 2007, CATIE's mandate expanded from HIV treatment to include HIV prevention, hepatitis C and program development,. This necessitated the addition of new content areas and website redesign. In February 2013, a new redesigned website was launched.

METHODS: An online survey collected data between August and September 2013. Requests for completion were sent to CATIE subscribers. A link to the survey was also placed on the website. Two hundred people completed the survey. Frequency descriptives were compiled using Excel. Usage patterns were also analyzed.

RESULTS: The majority of survey respondents came from CATIE's target audiences – including 50% who work in ASOs or other community-based organizations and 17% who work in public health. In addition, responses came from people living with HIV (28%) or hepatitis C (13%). Visitors reported that the website is easy to use (92%), that the search tool helps them find the information they are looking for quickly (87%), and that the information on the site is organized in a way that helps them find the information they need quickly (83%). Visitors also felt the website has good credibility (97%) and that it provides relevant, up-to-date information (97%).

Survey respondents reported an increased knowledge of HIV and hepatitis C due to information accessed on the website (94%). Survey respondents also reported using the information to impact programming: 82% reported that the information is useful in providing information that helps their organization plan and deliver programming and 67% had used the information to impact programming. In the first six months of 2013/14, there were 1,118,140 visits to www.catie.ca.

CONCLUSION: www.catie.ca will continue as CATIE's premier knowledge dissemination tool. We will continue to improve the site, adding new resources and integrating HIV and hepatitis C content and information on other related conditions, especially other STBBIs.

P146
MONITORING PERFORMANCE OF A UNIQUE MSM HELPLINE IN INDIA

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BACKGROUND: Considering the hidden nature of MSM populations in India and their HIV prevalence of 7%, a confidential toll-free 24 h mobile helpline dedicated to MSM was launched as part of a CIDA-funded operational research project in three states, Chhattisgarh, Delhi and Maharashtra. The anonymous helpline does not record conversations; callers access information and counseling by speaking with a counselor, listening to Interactive Voice Response and SMS. If the helpline is found useful, the project will advocate with government for continuation and scale-up.

METHOD: Besides ensuring uninterrupted 24 by 7 functioning of hardware, software, internet and telephony connection and back-end support, performance of the helpline was monitored through three indicators: 1) % of answered calls, 2) average pickup time, and 3) average wrap-up time (time taken to complete call documentation). Indicators were calculated separately for each of 12 helpline counselors. "Mystery" or covert calls were also employed for qualitative assessment of counselor performance.

RESULTS: From September to December 2013 the helpline reported 99.8% uninterrupted system availability and received 38,495 calls; of which 43% and 18% were unique and duplicate callers respectively. Peak call time was between 2PM and 10PM. The following is the overall trend of the indicators:

Indicator	Sep	Oct	Nov	Dec
Answered Calls (%)	87	86	88	87
Pickup time (seconds)	10	8	7	6
Wrap-up time (seconds)	123	155	134	110

Though percent answered calls remained the same, there was improvement in call pick-up and wrap-up time. Maximum (47%) unanswered calls occurred during peak time. 32 mystery calls were conducted.

DISCUSSION: Monitoring of indicators helped in providing need-based feedback to counselors resulting in overall improvement of helpline performance. Answered calls during peak time can be improved by increasing the number of active lines. Mystery calls served to identify areas for improvement in terms of accuracy and uniformity of responses.

P147
BEST PRACTICE RECOMMENDATIONS FOR CANADIAN HARM REDUCTION PROGRAMS THAT PROVIDE SERVICE TO PEOPLE WHO USE DRUGS AND ARE AT RISK FOR HIV, HCV, AND OTHER HARMS

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AIM: To create an evidence-based set of user-friendly recommendations for Canadian harm reduction programs that provide service to people who use drugs and are at risk for HIV, and other harms.

METHODS: For all except one chapter, our multi-stakeholder team used a narrative synthesis method to search, retrieve, assess, and synthesise the most up-to-date scientific evidence from Canada, United States, Great Britain, Europe, Australia, New Zealand, and other countries with a public health system similar to Canada. Systematic review methods were used for the overdose prevention chapter.

RESULTS: Scientific evidence was reviewed to create syntheses and evidence-based recommendations concerning the following areas of practice: distribution of needles/syringes and other injecting equipment; safer crack cocaine smoking equipment distribution; disposal and handling of used drug use equipment; safer drug use education; and opioid overdose prevention (education and naloxone distribution). Due to study designs (ie, evidence from cross-sectional studies) and/or limited available evidence, it was difficult to ascertain 'key' intervention components for some topic areas. The full set of recommendations is available at www.catie.ca/en/programming/best-practices-harm-reduction.

CONCLUSIONS: Using varied knowledge exchange methods (including conference presentations, webinars, fact sheets, and panel discussions) by multiple team members, our goal is to ensure awareness of and access to the best practice recommendations among harm reduction practitioners across Canada. Changing existing harm reduction policies and practices to be in line with these newer best practices will improve the health of marginalized populations by reducing inequities, including improved access to safer inhalation and injection supplies.

P148
A PSYCHOMETRIC INSTRUMENT TO ASSESS CAPACITY TO CONSENT FOR HEALTHCARE AMONG INDIVIDUALS WITH PROBLEMATIC SUBSTANCE USE AND WHO ARE HOMELESS OR UNSTABLY HOUSED: AN INTERIM ANALYSIS

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INTRODUCTION: Individuals who are homeless or unstably housed are at risk of acquiring HIV, sexually transmitted and Hepatitis C. These individuals have greater medical needs than the general population; however, providing medical care with informed consent is challenging as many have impaired cognition due to substance use. An assessment

tool is needed to assist outreach clinicians to determine if their clients are cognitively capable of consenting to medical care.

METHODS: By examining existing instruments and interviewing experienced clinicians who deliver services to this population, we identified eleven items for a capacity assessment instrument. A panel of experts assessed the construct and content validity of the instrument. Cognitive testing was conducted with three nurses and three individuals who were homeless and who misuse substances. A validation study was conducted by assessing capacity to consent in three different ways: 1) a clinical assessment by a psychiatrist, 2) assessment with the MacArthur Assessment Tool for Treatment and 3) assessment with our new instrument. Assessment of internal consistency was conducting by calculating a Chronbach's alpha. A one-factor confirmatory factor analysis was conducted to determine if the instrument is unidimensional.

RESULTS: This analysis was conducted on a convenience sample of 233 participants (59% male; 38% Caucasian; mean age 44.1). The psychiatrist identified 31 of 233 participants as lacking capacity. The mean (SD) number of minutes to administer the new instrument was 7.1 (3.2). Chronbach's alpha was 0.88 suggesting good reliability. The factor analysis revealed two factors with Eigenvalues >1 suggesting two dimensions were; factor one explains 47% of the variance and factor two explains 11% of the variance.

CONCLUSION: The results of this interim analysis suggest that our new two dimensional instrument has promising psychometric properties that may be useful to assess capacity to consent among individuals who misuse substances and who are homeless or unstably housed.

P149
ENHANCING HIV PREVENTION PROGRAMS FOR AT-RISK POPULATIONS: THE ARISE PROGRAM

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BACKGROUND: There is a need to understand how evidence-based HIV prevention strategies can best be tailored and scaled up in different environments and cultural contexts, and avert HIV infections cost-effectively among at-risk populations.

METHODS: Through a grant from the Canadian International Development Agency, PATH—in consultation with an independent Selection Committee—established an HIV prevention program for most-at-risk populations. Promising projects were identified based on how well they:
1. Proposed to reach at-risk and underserved populations.
2. Proposed a rigorous monitoring and evaluation design.
3. Took into account gender dynamics.
4. Were predicted to be cost-effective using a benchmark of project costs less than US $500 per infection averted.

RESULTS AND CONCLUSIONS:
Six HIV prevention projects targeting at-risk populations from five countries were selected out of 130 applications.

Study population	Country	Interventions
Injection drug users	India	Harm reduction services; BCC; referral for TB/ART/opioid substitution therapy
Men who have sex with men	India	BCC using helpline and mobile technology; referral for HCT, STI screening and treatment
Female sex workers	Senegal	BCC; condom distribution; BCC activities in bars; referral for HCT, STI screening and treatment
Women living with HIV	Uganda	Integration of family planning in PMTCT and ART services; condom and contraceptive distribution; community mobilization
Discordant couples	Zambia	Couples HIV counseling and testing; referral to ART services; follow-up of negative partners
HIV positive pregnant women	Zimbabwe	PMTCT training/mentoring; community mobilization; point of care CD4; early infant diagnosis

All projects but one (case control) will use a pre- and posttest evaluation design. The program target is to reach 158,200 people. The program started in March 2009 and final results are expected by September 2014.

P150
REACHING MOST-AT-RISK POPULATIONS WITH COST-EFFECTIVE HIV PREVENTION: ACHIEVEMENTS AND LESSONS LEARNED FROM THE ARISE PROGRAM

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BACKGROUND: Through a grant from the Canadian International Development Agency, PATH—in consultation with an independent Selection Committee—established the Arise Program, a five-year HIV prevention program. The program's main objective is to avert HIV infections among at-risk populations (eg, sex workers, IDUs) through innovative and cost-effective interventions. We report on achievements and lessons learned from September 2009 to December 2013.

METHODOLOGY:
Output indicators (eg, number of health care workers trained, number reached by prevention activities) were extracted from technical reports from the six HIV prevention projects of the Arise Program. Lessons were drawn from ethical clearance processes, start-up and implementation activities, review of technical reports, and periodic site visits.

RESULTS: Since its inception in 2009, projects under the Arise Program have trained 6794 health workers. Tailored HIV prevention activities were provided to 3774 injection drug users and 8,388 men who have sex with men in India; 4,151 female sex workers in Senegal; close to 100,000 women living with HIV in Uganda; 68,321 discordant couples in Zambia; and 3544 HIV positive pregnant women in Zimbabwe. Ethical clearance (eight months on average) from multiple institutions was a major cause of delayed timelines. The use of community health workers was key for greater recruitment and retention of at-risk populations. Couples' voluntary counseling and testing appeared to be a more successful way to reach male partners with HIV testing compared to a strategy aimed at reaching men through their regular female partner. The use of mobile technology was an important communication strategy among FSW and MSM, but its effect in improving follow-up among discordant couples was limited.

CONCLUSIONS: The Arise Program has been successful in reaching almost 190,000 at-risk individuals in five countries with HIV prevention activities. A series of lessons has been learned regarding how to reach (and retain) at-risk populations.

P151
FROM 0 TO 68K: RAPID EXPANSION OF COUPLES VOLUNTARY COUNSELING AND TESTING IN THE COPPERBELT PROVINCE OF ZAMBIA

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INTRODUCTION: The majority of new HIV infections in Africa are acquired from a spouse. Couples' Voluntary Counseling and Testing (CVCT) is a cost-effective and evidence-based intervention that reduces HIV and sexually transmitted infections and is an entry-point for other

services, including family planning; antiretroviral therapy; male circumcision; and PMTCT.

The Canadian International Development Agency funded the PATH Arise Program to implement cost-effective HIV prevention approaches in high-risk populations. We describe the rapid expansion of CVCT throughout the densely populated Copperbelt Province of Zambia.

METHODS: The expansion was phased: Ndola (August 2010), Kitwe (March 2011), Chingola (October 2011), Luanshya (May 2012). Advocacy and needs assessments were followed by training in promotions, counseling, rapid HIV testing, and data reporting. CVCT was provided on weekends, when clinics were less crowded and staff could dedicate their time. Couples participated in group pre-test educational session, followed by private pre- and post-test counseling with mutual disclosure of HIV test results.

RESULTS: In 32 months, we conducted 314 trainings, opened 53 new CVCT clinics, and provided CVCT to 68,321 couples. 6552 discordant couples received counseling to prevent transmission to their spouse. CVCT expansion was characterized by a rapid uptake of services as new clinics were opened. Cumulative number of couples tested and clinics opened are presented in table format below.

	M+F+ (Cumulative)	M-F- (Cumulative))	M+F- (Cumulative)	M-F+ (Cumulative)	Doubtful (Cumulative)	Total Tested (Cumulative)	Clinics Opened (Cumulative)
Year 1, Q1 (Aug-10)	65	187	40	37	0	334	5
Year 1, Q2 (Nov-10)	273	807	98	117	4	1299	11
Year 1, Q3 (Feb-11)	637	2389	233	266	19	3562	18
Year 1, Q4 (May-11)	1309	5573	462	506	23	7873	33
Year 2, Q1 (Aug-11)	1972	9281	717	793	38	12801	39
Year 2, Q2 (Nov-11)	2673	13616	1009	1173	48	18519	44
Year 2, Q3 (Feb-12)	3878	22521	1478	1814	83	29774	50
Year 2, Q4 (May-12)	5251	32259	1943	2456	108	42017	55
Year 3, Q1 (Aug-12)	6556	41698	2365	3048	128	53795	56
Year 3, Q2 (Nov-12)	7445	47749	2627	3388	145	61354	56
Year 3, Q3 (Feb-13)	8244	53373	2863	3693	168	68341	56
Total Prevalence	12.1%	78.1%	4.2%	5.4%	0.2%		

CONCLUSION: Our goal to test 68,000 couples where services did not previously exist was ambitious, but attainable. Rapid expansion is possible with support at the provincial and national levels; promotions at the district and community level; a dedicated multidisciplinary training team; and monitoring and evaluation to ensure high quality services.

P152
LES SERVICES SOCIAUX ET DE SANTÉ EN LIEN AVEC LE VIH ET LE VIEILLISSEMENT : REGARDS ET DÉFIS DES PROFESSIONNELS

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CONTEXTE : Les recherches sur les services destinés aux personnes âgées vivant avec le VIH (PAVIH) mettent en lumière l'insuffisance et l'inadéquation de ces services, notamment en raison du problème du fonctionnement en silo des secteurs du VIH et du vieillissement. Peu de recherches se sont cependant intéressées au point de vue des praticiens travaillant avec les PAVIH concernant les défis de l'accompagnement de cette clientèle.

OBJECTIF : Documenter les difficultés et les défis des professionnels relatifs au suivi des PAVIH et aux services disponibles pour cette clientèle.

MÉTHODOLOGIE : Privilégiant une méthodologie qualitative, notre recherche se base sur des entrevues semi-dirigées individuelles réalisées avec 12 professionnels de la santé (médecins et infirmiers) travaillant à la clinique médicale l'Actuel. L'analyse qualitative des données, inspirée de la théorisation ancrée, a été conduite à l'aide du logiciel QDAMiner.

RÉSULTATS : Les professionnels évoquent tout d'abord les défis reliés à la problématique du VIH et du vieillissement, notamment le passage d'une médecine spécialisée à une médecine généraliste en raison des multiples comorbidités associées au vieillissement et la nouveauté du domaine qui se traduit par un manque de lignes directrices pour orienter la pratique. De nombreux défis concernant l'accompagnement des PAVIH sont aussi évoqués, tels que la complexification du suivi médical, les difficultés d'observance et de maintien d'une bonne hygiène de vie des PAVIH, l'importance de la dimension psychosociale du suivi, le manque de temps et l'adaptation émotive au vieillissement de la clientèle. Des défis d'ordre organisationnel sont également rapportés : ressources psychosociales insuffisantes, manque de spécialistes, diminution des ressources communautaires qui contribuent à la surcharge de travail.

CONCLUSION : Le vieillissement des PVVIH et l'absence de services disponibles dans le réseau de la santé pour répondre aux besoins des PAVIH confrontent les professionnels à de nombreux défis qui nuisent à l'accompagnement de cette clientèle.

Global Health Epidemiology

Épidémiologie de la santé mondiale

P153
STRUCTURED ADVOCACY EVENTS AND PROMOTIONS UNDERTAKEN TO SUPPORT EXPANSION OF COUPLES VOLUNTARY HIV COUNSELING AND TESTING IN THE COPPERBELT PROVINCE OF ZAMBIA

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OBJECTIVE: To achieve a long-term sustainable HIV prevention program, the Zambia Emory HIV Research Project (ZEHRP) in collaboration with the Arise Program/PATH funded by Canadian International Development Agency (CIDA) has been expanding Couples Voluntary HIV Counseling and Testing services in government and private mine clinics since October 2010 with the goals of establishing CVCT as a routine service and testing 68,000 couples over 32 months in the Copperbelt province of Zambia.

METHODS: Structured advocacy and promotions activities were conducted at multiple levels. At a broader level, CVCT messages are broadcasted through mass media such as TV, radio and newspaper to raise awareness in the communities. Subsequently, strategic meetings, conferences and workshops are held with government at national, provincial and district levels and with private mining company health care providers to mobilize necessary human and other relevant resources. At the neighborhood level, district clinic promoters (DCPs) affiliated with government clinics are trained and incentivized to promote CVCT at the clinic and in the community.

RESULTS: Between August 2010 and March 2013, ZEHRP held 467 advocacy events in four cities. Prior to these meetings, most stakeholders had not been aware that couples could have different HIV test

results and did not know the benefits of CVCT. A total of 178 promoter trainings prepared 1945 DCPs to promote CVCT to couples in the communities. The majority of promotional events conducted by DCPs took place in clinics (30%), churches (23%) and the workplace (12%). In the same time period, a total of 68,343 couples received CVCT services in 52 government and mining clinics.

CONCLUSIONS: Successful CVCT expansion in the Copperbelt province indicates that when all levels of government work with public and private health care providers and community leaders, Couples' testing can be successful. A multi-sectoral approach is critical to a successful promotion campaign for CVCT.

P154

IMPACT EVALUATION OF A PROJECT ADDRESSING UNMET NEED FOR FAMILY PLANNING AMONG WOMEN LIVING WITH HIV: RESULTS FROM PATHFINDER INTERNATIONAL ARISE/UGANDA PROJECT

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BACKGROUND: Efforts to integrate family planning (FP) services into HIV services aim to increase access to contraception among clients of HIV services who wish to space or limit pregnancies. The goal of Arise/Uganda – led by Pathfinder Uganda and the National Community of Women Living with HIV/AIDS, with funding and technical support from the Arise Program/PATH via a grant from the Canadian International Development Agency – was to reduce unintended pregnancy and increase dual method use (using condoms and another method of FP for good protection from HIV and unintended pregnancy) among HIV positive women. It took place in post-conflict northern and eastern Uganda and included analysis of HIV infections averted.

METHODS: Arise/Uganda covered 63 health facilities in 10 districts. Community-support agents provided door-to-door counseling and referrals for facility FP services, while community groups organized integrated community dialogues and FP outreach. Facility services included technical training in contraceptive service delivery and integrated counseling. To assess project effects, facility-based surveys (baseline and endline) were conducted in August 2011 and March 2013. Both surveys included a representative sample of over 1,200 women 15 to 49 years of age using ART or pre-ART services at participating facilities.

RESULTS: Modern contraceptive use increased from 38.4% at baseline to 54.2% at endline. Dual method use increased from 17.0% to 28.3%. Contraceptive use was significantly associated with talking to a provider about FP (Adjusted OR 1.4 [95% CI 1.0 to 1.9]) and hearing about services from a community group (Adjusted OR 1.9 [95% CI 1.4 to 2.5]).

CONCLUSIONS: Integrating FP into HIV services can have a rapid effect on levels of contraceptive use. Program experience shows:

- Screening HIV service clients for unmet need for contraception is feasible and enables tailored, efficient FP counseling.
- Existing cadres of HIV community workers can successfully distribute FP methods among HIV+ women.
- Sustainability planning is important when engaging community cadres that receive incentives.

P155

REGISTRATION STATUS AND CONDOM USE AMONG FEMALE SEX WORKERS IN DAKAR, SENEGAL

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BACKGROUND: Sex work is regulated in Senegal since 1969, but less than half of the country's female sex workers (FSWs) are currently registered with the Ministry of Health clinics, which require regular screening for sexually transmitted infections and human immunodeficiency virus. Our PATH funded project through a Canadian International Development Agency (CIDA) grant examined factors associated with registration status such as maintenance (consistent condom use for ≥6 months) stage of change (SOC) for condom use.

METHODS: We used data from a pre-test survey of 241 FSWs conducted in the Dakar region between February 25 and April 15, 2012. Bivariate and multivariate logistic regression models were used to compare registered female sex workers (RFSWs) versus unregistered sex workers (UFSWs).

RESULTS: Of 241 FSWs, 51.5% were registered. UFSWs (mean age = 36.33; STD = 9.62) were significantly younger than their registered (mean age = 39.12; STD = 9.30) counterparts (p <0.001) and less likely to have ever attended school (P=0.013).

The multivariate logistic regression models showed that RFSWs were older in age (adjusted odds ratio [AOR] 1.44 [95% CI 1.63 to 6.89]), more likely to be in maintenance stage of change (SOC) for condom use with clients (AOR 3.64 [95% CI 1.56 to 8.49]); and more likely to usually carry condoms with them (AOR 9.05 [95% CI 4.59 to 17.86]) than UFSWs. The most common reasons for not registering included: stigma from family members (22.5%), not knowing the procedures (9.2%), and a combination of those reasons (34.6%).

CONCLUSION: RFSWs were more likely to be older in age, to be in maintenance SOC for condom use with clients, and to carry a condom with them than UFSWs. Current regulation of FSWs in Dakar should be further examined to enhance the potential public health benefits of registration for all sex workers

P156

INTENTION TO HAVE CHILDREN AND UNPROTECTED ANAL INTERCOURSE: RESULTS FROM A SEXUAL EVENTS DIARY STUDY AMONG MEN WHO HAVE SEX WITH MEN (MSM) IN SHANGHAI, CHINA

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OBJECTIVE: To explore associations of intention to have children and other individual, partnership, social environment and sexual act variables with unprotected anal intercourse during sexual events (UAI).

METHODS: Data were collected using a cross-sectional questionnaire and a 28 day longitudinal event-based diary. Bivariable and multivariable logistic regression models with GEE were used to explore associations. Approval was obtained from UofT and Shanghai Centres for Disease Control and Prevention Ethics Review Boards.

RESULTS: Median age was 27 years (IR 17, 54). Over 70% had some university and 82% self-identified as homosexual. The majority, 86%, were single and had never been married (to a woman). Although 42% of the single men thought that it was unlikely/very unlikely that they would get married, 47% of childless men thought they would have children. During 4172 days of diary follow-up, 149 diary participants contributed 854 sexual events. 20% of sexual events were unprotected (n=167 of 854). The odds of UAI were higher in events involving participants who were unsure if they would have children compared to those who did not plan to have children (OR 6.7 [95% CI 1.7 to 21.2]). Marital status, intention to marry and living arrangements were not associated with UAI. Neither the socio-demographic characteristics nor sexual orientation of the participant were associated with UAI. Some but not all variables related to sexual history, homophobia, masculinity, and ego-centric social networks were associated with UAI. Participant intoxication, attachment to the gay community, discussion during the event and the length of time the partner was known were associated with UAI.

CONCLUSIONS: This analysis highlights the relevance of childrearing to the lives of Shanghainese MSM and the potential impact that uncertainty about childrearing can have on sexual behaviour. Future research should investigate the apparent dissonance between intentions to marry and intentions to have children. Results from this analysis may be relevant to MSM of Chinese heritage living in Canada.

P157

HOW USEFUL IS PARTNER-TYPE?: AN ASSESSMENT OF DIFFERENT MEASURES OF PARTNER-TYPE AND THEIR ASSOCIATIONS WITH UNPROTECTED ANAL SEX DURING SEXUAL EVENTS AMONG MEN WHO HAVE SEX WITH MEN (MSM) IN SHANGHAI, CHINA

Steele (nee Taleski), Sarah J[1]; Myers, Ted[1]; Ning, Zhen[2]; Allman, Dan[1]; Cole, Donald[1]; Escobar, Michael[1]; Moravon, Veronika[1]; Kang, Laiyi[2]; Calzavara, Liviana[1]
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OBJECTIVES: To describe measures of sexual partner-type and their associations with unprotected anal intercourse during sexual events (UAI events).

METHODS: Data were collected using a cross-sectional questionnaire and a 28 day event-based diary. Primary partners were *"the partner with whom you have an ongoing sexual and emotional relationship,"* regular partners were *"partners with whom you have had sex with on more than one occasion"* and casual partners were *"one night stands."* Descriptive statistics compared events across partner-types. Bivariable and multivariable logistic regression models with GEE were used to explore associations. Approval was obtained from UofT and Shanghai Centres for Disease Control and Prevention Ethics Review Boards.

RESULTS: Median age was 27 years (IR 17, 54). Over 70% had some university and 82% self-identified as homosexual.

During 4172 days of follow-up 149 diary participants reported 854 sexual events with 389 unique partners. There was no difference in the proportion of UAI with primary (23%) and regular (21%) partners (P=0.7) but these proportions were higher than with casual (11%) or paid (0.08%) partners (P=0.0007).

There was no difference between primary and regular partners on: time known, physical attraction, control, ease of acquisition. Partner-type was not significant in adjusted multivariable models. The odds of UAI were non-significantly higher with partners just met (OR 2.20 [95% CI 0.79 to 6.15]) and significantly lower with partners known for several hours (OR 0.41 [95% CI 0.17 to 0.98]) compared to partners known >1 year. The adjusted odds of UAI were 0.45 (95% CI 0.28 to 0.73) in events with discussion compared to events without discussion.

CONCLUSIONS: The unique diary methodology allowed events to be linked to specific partners. "Primary" and "Regular" may not be distinct partner categories. Discussion during the event was protective against UAI. Partners just met and those known for several hours normally would both be classified as "Casual" but have opposite effects on the odds of UAI. Partners just met may represent a more anonymous or spontaneous casual encounter with less social interaction.

P158

PREDICTORS OF CONDOM USE WITH CLIENTS AMONG FEMALE SEX WORKERS (FSW) IN DAKAR, SENEGAL

Suarez, Carlos[1]; Sarr, Moussa[1]; Soumare, Mariema[2]; Thior, Ibou[3]; Hughes, Lindsay[3]; Gueye, Daouda[2]; Traore, Ibrahima[2]; Ndiaye, Birahim P[2]; Pulerwitz, Julie[3]; Mboup, Souleymane[2]
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BACKGROUND: In Senegal, the HIV prevalence is ≤ 1% in the general population, but high among female sex workers (FSWs) with rates up to 30%. Understanding factors predicting regular condom use is crucial for development of effective HIV/AIDS prevention programs. The objective of this PATH funded study through a Canadian International Development agency (CIDA) grant is to identify predictors of maintenance (consistent condom use for ≥6 months) stage of change for condom use with clients among FSWs in Dakar.

METHODS: We used data from a pre-test survey of 241 FSWs conducted between February 25 and April 15, 2012. Univariate and multivariate logistic regressions were used to examine association between dependent and independent variables.

RESULTS: The average (± SD) age of the FSW population was 36.33±9.62 years. Most FSWs were Senegalese (96.7%), and from the Pulaar (31.5%), Sereer (27.4%) and Wolof (21.6%) ethnic groups. Approximately half of our study population (46.9%) never attended school. Adjusted odds ratios (AOR) of maintenance stage of change (SOC) for condoms use with clients were higher for FSWs with higher self-efficacy (AOR 12.74 [95% CI 3.93 to 41.23) for condom use, those who usually carry condoms (AOR 3.48 [95% CI 1.16 to 10.45]) and those who are originally from the Dakar region (AOR 5.60 [95% CI 1.46]). FSWs of Senegalese nationality were also more likely to be in maintenance SOC for condom use (P=0.034).

CONCLUSION: FSWs with higher self-efficacy of condom use, usually carrying condoms, and originally from the Dakar region were more likely to be in maintenance SOC for condom use. Targeted HIV prevention programs are needed to improve consistent condom use in this key bridge population to curtail spread of HIV in the general population.

Methodological Advances and Mathematical Models

Avancées méthodologiques et modèles mathématiques

P159

VALIDATION OF DIAGNOSTIC ALGORITHMS TO IDENTIFY AIDS STATUS, HEPATITIS C INFECTION, ALCOHOL ABUSE AND ILLICIT DRUG USE IN HIV POSITIVE INDIVIDUALS IN THE DATABASE OF THE RÉGIE DE L'ASSURANCE-MALADIE DU QUÉBEC

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BACKGROUND: With increasing incidence of chronic diseases in patients living with HIV, administrative health care databases, which contain vast amount of data on large cohorts, are a precious tool for research. As these databases were not designed to study HIV, several key variables to the study of HIV must be validated to optimize their use for research.

METHODS: We developed and validated algorithms to diagnose AIDS, Hepatitis C infection, alcohol abuse and illicit drug abuse for HIV positive individuals in the Régie de l'Assurance Maladie du Québec (RAMQ) database. We used the HIV database of the Centre Hospitalier Universitaire de Montréal as gold standard for presence or absence of the conditions of interest. We developed diagnostic algorithms using medical billing claims, discharge summaries, pharmacological dispensations and length of follow-up to identify the conditions in RAMQ. We identified individuals present in both databases via unique identifiers. We calculated sensitivity, specificity, positive predictive value(PPV) and negative predictive value(NPV) of diagnostic algorithms, along with exact 95% CIs.

RESULTS: 420 HIV positive individuals had available data in both databases. Results [95% CI] for the best diagnostic algorithms are as follows. For AIDS status, sensitivity was 52% (95% CI 45% to 49%), specificity 85% (95% CI 78% to 90%), PPV 82% (95% CI 74% to 88%), and NPV 58% (95% CI 51% to 64%). For Hepatitis C, sensitivity was 30% (95% CI 21% to 41%), specificity 96% (95% CI 93% to 98%), PPV 71 (95% CI 54% to 85%), and NPV 81% (95% CI 77% to 86%). For alcohol abuse, sensitivity was 52% (95% CI 41% to 63%), specificity 92% (95% CI 88% to 95%), PPV 70% (95% CI 58% to 81%), and NPV 85% (95% CI 80% to 89%). For illicit drug use, sensitivity was 68% (95% CI 59% to 76%), specificity 94% (95% CI 90% to 97%), PPV 85% (95% CI 76% to 92%) and NPV 85% (95% CI 80% to 89%). Test characteristics were optimized when individuals had available data for at least two years of follow-up in RAMQ.

CONCLUSION: RAMQ database had low sensitivity but high specificity to detect AIDS status, Hepatitis C infection, alcohol abuse and illicit drug use. Additional methods must be used to handle residual confounding when using RAMQ data to study HIV.

P160
EXPLORING COMMUNITY-ACADEMIC PARTNERSHIPS IN HIV-RELATED RESEARCH: A SYSTEMATIC REVIEW OF THE LITERATURE

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INTRODUCTION: Community-academic partnerships are becoming more commonplace in the HIV sector. These partnerships, developed across a wide variety of settings, are often referred to as examples of "community-based participatory research," "community-based research," "participatory action research," or "community collaborative research."

OBJECTIVES: The aim of this study was to review the benefits and challenges of community-academic partnerships in HIV-related research as identified in the literature.

METHODS: A systematic search of English language articles in PubMed to December 2012 was conducted. Websites of international and community organizations, and research institutes as well as key researchers and reference lists of included articles were also consulted. Included publications focused on HIV/AIDS, reproductive health, or sexually transmitted infections, with explicit definitions of community-based research or provided descriptions of methodologies with a community component. Two reviewers independently assessed articles for eligibility and completed data extraction. Qualitative data were analysed using MaxQDA. Quantitative data were analysed using descriptive statistics. Feedback from community representatives was incorporated.

RESULTS: Searches yielded 246 references of which 154 met inclusion criteria. Included studies used qualitative (51%), quantitative (8%), or mixed method (37%) approaches. The most commonly identified benefit of community-academic partnerships was improved quality and relevance of research; interestingly, a significant number of studies considered such partnerships as the reasons for decreased quality of research. Other identified benefits of community-academic partnerships were: building trust between researchers and community and community empowerment. Resource-intensity, community diversity making research more complex or hindering research processes, and conflicting priorities of researchers and community were all cited as common challenges.

CONCLUSION: While community participation can increase quality and relevance of research, it may require more time and resources. Careful consideration of these challenges is required when designing, implementing and interpreting results of HIV-related community-academic research projects. A clear framework could address the potential concerns about research quality.

P161
METRICS BEYOND ACCURACY FOR HIV POINT-OF-CARE TESTS: A SYSTEMATIC REVIEW OF EVIDENCE

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BACKGROUND: Implementation research on HIV point-of-care tests (POCTs) lacks a framework that defines and measures implementation research outcomes (IROs) beyond accuracy (eg, feasibility, preference, acceptability and impact). Paradoxically, POCT research, policy and funding decisions require clear metrics. We systematically reviewed available data, with a view to developing a framework to fill this gap.

METHODS: Two reviewers searched MEDLINE, EMBASE, CINAHL, Scopus databases for the period January 2000 to July 2013. Of 1099 citations retrieved, data from 63 eligible studies was abstracted.

RESULTS: 139 of 156 (89%) of IROs reports were proportions; of these, only 16 (10%) had confidence intervals or interquartile ranges. Impact (documented in 50 of 63; 79% of studies) was defined variously as the number of: 1) new HIV cases detected, 2) first-time testers, 3) test results received or returns for confirmatory testing. We defined acceptability of a test or strategy as the proportion of study participants who accepted the POCT over the conventional strategy. About 70% (44 of 63) of studies reported POCT acceptability, but definitions were not always clear. We defined preference as the proportion of participants who preferred POCT over conventional HIV tests; only five of 13 (39%) studies reported as such. We defined feasibility as feasibility of test execution or execution of a strategy with proportions documenting completion rates; only eight of 24 (33%) of studies documented feasibility as such. 21 of 24 (88%) documented feasibility of test execution or strategy operationalization. Four of 24 (17%) studies concluded positively on feasibility without supporting data. We defined prevalence as study prevalence, period prevalence and seroprevalence. Reported in 25 of 63 (40%) of studies, prevalence was usually a misnomer, and seroprevalence was mixed with study prevalence.

CONCLUSION: Using our framework, feasibility, prevalence, and preference measures were often poorly defined (often reported without confidence intervals) while impact and acceptability were clear. Incorporation of standardized IRO metrics in research will best inform POCT implementation, research and policy.

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ARE POINT-OF-CARE CD4 ASSAYS, COMPARABLE IN PERFORMANCE TO CONVENTIONAL FLOW CYTOMETRY? A SYSTEMATIC REVIEW AND BAYESIAN META-ANALYSIS (2000-2013)

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BACKGROUND: Universal Access to antiretroviral treatment (ART) is a reality in resource-limited settings, but care suffers from a lack of quality monitoring devices. Point-of-care (POC) CD4 assays could speed up the staging and monitoring of ART, to improve quality of care. As several POC devices are being developed there is a need to establish: a) whether POC devices are comparable to flow cytometry, and b) whether capillary specimens are better than venous specimens. Given their impending global scale up, a systematic review stands to inform global policy.

METHODS: We conducted a systematic review to establish the performance of POC devices in adult HIV+ populations. Two reviewers searched 19 databases from 2000- 2013, retrieving 4154 citations and including 16. Our primary outcome was the Bland Altman (BA) mean bias which measures agreement between the POC test and flow cytometry. A Bayesian hierarchical model was used to meta-analyze the BA data.

RESULTS: Available data allowed for a meta-analysis of the PIMA POC device only; we found a smaller BA mean bias in capillary versus venous specimens (−3.0 cells/μL; 95% CrI: −28•2 to 22•8 versus −26•5 cells/μL; 95% CrI: −46•7 to −6•8). Initial evidence for the MiniPOC and the MBio suggests that they perform within limits of clinical equivalency (±30 cells/μL).

CONCLUSIONS: PIMA POC performed comparably well with flow cytometry. Evidence for MBio and miniPOC was promising. All devices performed well in capillary specimens. This evidence is key to informing global scale up of CD4 based initiatives.

Regional, National and International Cohort Studies

Études de cohorte régionales, nationales et internationales

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PRIORITIZING ADOLESCENTS AND YOUNG ADULTS: INVESTIGATING INTERSECTIONS OF BEHAVIOURAL AND BIOMEDICAL RISK FOR HIV ACQUISITION IN A PRIORITY SETTING

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BACKGROUND: Globally, adolescents and young adults (AYA) (10 to 24 years) remain at higher risk for HIV acquisition and complications associated with HIV compared to all other age groups. Young

women living in endemic areas are particularly vulnerable and account for close to 60% of all incident HIV infections related to heterosexual transmission. In part, HIV trends in AYA are a result of poor prioritization of youth-friendly services and youth-specific research, leading to an inadequate understanding of factors that increase AYA's, and particularly young women's, susceptibility to HIV.

OBJECTIVE: To address these gaps we have initiated an interdisciplinary study called AYAZAZI ('Knowing Themselves' in Zulu), that aims to investigate and link socio-behavioural, structural, clinical, and biomedical data to explore HIV risk in AYA between the ages of 15 and 24 years. Study design: We are enrolling a prospective longitudinal cohort of 400 AYA with HIV status negative or unknown from an endemic setting in Soweto, South Africa, and will follow participants for three years to monitor HIV seroconversion and STI infection. At baseline and biannual follow-up visits, participants complete a detailed socio-behavioural questionnaire, partake in voluntary HIV counseling and testing, undergo screening for sexually transmitted infections (STI) and incident pregnancy, and provide blood samples for study of host genetics and immune function. Linked analyses will explore the intersection between behavioural-clinical-biological factors such as intra-vaginal practices, STI co-infection, and the STI-associated role of immune cell recruitment to the genital mucosa that may increase HIV acquisition risk, as well as changes in HIV risk behavior, immune activation, and the genital mucosa as AYA age.

IMPLICATIONS: AYAZAZI addresses the need for interdisciplinary approaches in HIV prevention research and highlights the importance of prioritizing HIV support and services for adolescents, a key goal of the new WHO/UNICEF guidelines released for World AIDS Day 2013.

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FOOD INSECURITY IS COMMON AMONG PEOPLE LIVING WITH HIV-HCV (CTN264) – A SUB-STUDY OF THE CANADIAN CO-INFECTION COHORT (CCC; CTN222)

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BACKGROUND: Food insecurity (FI) is common among certain HIV-infected populations in Canada. This analysis profiles FI among HIV-HCV co-infected persons participating in the CCC.

METHODS: We analyzed self- and interviewer-administered food security (FS) questionnaires from first participants enrolled (n=247) in this prospective CCC sub-study. FS was measured and classified based on the Canadian Household Food Security Survey Module and Health Canada categories (food secure; moderately or severely food insecure). Characteristics of food secure and insecure participants were compared using Pearson's Chi-square or Fisher's Exact Tests for count data and Student's t-test for continuous data.

RESULTS: Almost 59% of participants were food insecure (22.2% moderately, 36.4% severely). Mean age was 49 years and 19% were female. Mean monthly income was C$1382. A majority (53%) reported living alone and 14% reported transitional or no housing. FI was associated with use of emergency rooms (P=0.043), depressive symptoms (P<0.001), perceived unmet healthcare needs (P<0.001) and missed doses of antiretroviral medications in the past four days (P=0.003). Food insecure participants also reported several potentially demoralizing behaviours to obtain food (borrowing money (66%), delaying payments of rent/bills (34%), selling/trading items (33%), begging (23%), stealing (20%), trading substances (17%), garbage (8%), and having sex (6%)). FI was not associated with gender, housing situation, and several health care use variables (specialist consultations, hospitalization).

CONCLUSIONS: FI is common among first participants in this prospective FS study. The proportion of severely food insecure, indicating significant reduced food intake and hunger, is similar to other studies among HIV-infected populations in Canada. It represents a much greater level than reported for Canadian household (2.5%). Procurement of food in socially unacceptable ways is an important part of FI and will be further examined longitudinally and qualitatively. A better characterization of this population relative to FI and health and treatment outcomes is also expected.

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SUBSTANCE USE AND ITS IMPACT ON CARE OUTCOMES AMONG HIV-INFECTED INDIVIDUALS IN MANITOBA

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BACKGROUND: The high prevalence of substance use among HIV-infected individuals creates numerous challenges to patient care. This study was undertaken in order to understand the impact of substance use on care outcomes for HIV-infected individuals in Manitoba.

METHODS: Clinical records of 564 HIV-infected individuals in care at the Health Sciences Centre hospital in Winnipeg, Manitoba were reviewed. Clinical data was extracted from patient charts for substance users (illicit substance users, alcohol abusers, and chronic users of opioids or benzodiazepines) and non-users.

RESULTS: Among HIV-infected individuals in Manitoba, 38% were classified as substance users with overrepresentation by Aboriginals, females, young adults, and residents of Winnipeg's core areas. Opioids and benzodiazepines were the most commonly used substances with the majority of substance users having used multiple classes of substances in their lifetime. Substance users were more likely than non-users to have missed clinic appointments. Among substance users, missed appointments were more common among those who self-identified as Aboriginal, female, young adults, residents of Winnipeg's core areas, heterosexuals, and those who had abused alcohol or cocaine/crack. Aboriginal substance users were also less likely to achieve viral load suppression compared to non-Aboriginal substance users.

DISCUSSION: Substance use is common among HIV-infected individuals in Manitoba, with differences in the most common types of substances used between HIV-infected and non-infected populations. The negative impact of substance use on engagement in care has important implications on care outcomes which can be addressed by the use of harm reduction and patient-centred care.

P166

ESTABLISHING A COMMUNITY-BASED PARTICIPATORY RESEARCH PARTNERSHIP TO EXAMINE HIV PREVALENCE AND RELATED RISK FACTORS AMONG PEOPLE WHO USE DRUGS IN OTTAWA: THE PROUD COHORT STUDY

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BACKGROUND: Grounded in a community-based participatory research (CBPR) framework, the PROUD (Participant Research in Ottawa: Understanding Drugs) Study aims to better understand HIV risk and prevalence among people who use drugs in Ottawa, Ontario.

METHODS: PROUD relies on peers' expertise stemming from their lived experience with drug use to guide all aspects of this CBPR project. A Community Advisory Committee (CAC), comprised of eight people with lived experience, three allies and three ex-officio, have been meeting bi-monthly since May 2012 to develop the study tools and protocols. Eleven medical students from the University of Ottawa were recruited to work alongside peers as interviewers. Training was provided on CBPR; HIV and harm reduction; interviewing skills; research ethics; and administering point of care (POC) HIV tests. Trainings aimed to prepare the research team to take on more active roles in data collection and to provide opportunities for peers and students to build relationships.

RESULTS: From March - December 2013, the study enrolled nearly 900 drug users (defined as anyone who has injected or smoked drugs other than marijuana in the last 12 months) into a prospective cohort study. Participants completed a one-time questionnaire administered by a trained peer or medical student, who then administered a POC HIV test. Recruitment, interviews and testing occurred in both the fixed research site and various community settings across Ottawa. Prospective follow up will occur through linkages to health care records available through the Institute for Clinical and Evaluation Sciences.

CONCLUSION: PROUD will contribute significantly to understanding HIV risk and prevalence in Ottawa. The CBPR methods developed

throughout the study demonstrate that people with lived experience with drug use can meaningfully contribute to all aspects of the research process. Further training will be provided on data analysis and KTE to ensure continued CAC engagement throughout the study.

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DIFFERENCES IN ENGAGEMENT IN THE HIV CARE CONTINUUM IN ONTARIO, 2001 – 2011: RESULTS FROM THE ONTARIO HIV TREATMENT NETWORK COHORT STUDY (OCS)

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BACKGROUND: We compared the proportion of people who were engaged in care according to sociodemographic characteristics, HIV risk factors, and time since diagnosis over the 2001-2011 decade.

METHODS: The OCS is an ongoing cohort of persons living with HIV receiving care in 10 specialty clinics across Ontario. We obtained data from medical chart reviews, interviews, and record linkage with the provincial public health laboratory (the sole provider of VL testing). Among persons with at least one clinical encounter in a calendar year, we calculated the proportion in that year that were in "continuous care" (≥2 visit encounters at least three months apart), "on ART", and had "suppressed VL" (<200 copies/mL). We identified factors associated with each indicator using GEE logistic regression to account for within-subject correlation and report results with 95% CIs.

RESULTS: From 2686 to 3272 participants were under observation per year. In 2011 the average (± SD) age was 47±10.4 years, 18.5% were female, and 66.4% were men who have sex with men. The proportion in continuous care ranged from 85.3% (95% CI 84.0 to 86.5) to 89.1% (95% CI 88.1 to 90.1) with no evidence of time trend. From 2001 to 2011, the proportions on ART and with suppressed viral load increased from 79.2% (95% CI 77.6 to 80.6) to 91.5% (95% CI 90.5 to 92.5) and from 57.9% (95% CI 56.0 to 59.8) to 87.7% (95% CI 86.5 to 88.8), respectively (P<0.0001). In multivariate analysis, younger adults and people who inject drugs had less care engagement for all three indicators; there was lesser continuous care among women, heterosexual men and Aboriginal people; and fewer on ART with suppressed VL among persons of African/Caribbean/Black ethnicity.

CONCLUSION: We observed that most patients in HIV care were in continuous care, on ART, and were successfully suppressed. Nevertheless, our results indicate potential disparities in care engagement that urge further exploration.

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MORTALITY AMONG TREATMENT-EXPERIENCED PEOPLE LIVING WITH HIV IN THE UNITED KINGDOM AND CANADA

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BACKGROUND: Healthcare provision and treatment guidelines for HIV-positive individuals vary between the UK and Canada. We sought to evaluate the differences in mortality for individuals living with HIV and accessing care in these settings.

METHODS: Data from two national cohort collaborations, the Canadian Observational Cohort (CANOC) Collaboration and UK Collaborative HIV Cohort (UK CHIC) Study, were linked. Individuals included in this analysis were aged ≥18 years, had initiated antiretroviral therapy (ART) naively between 2000 and 2010 with ≥1 year of follow-up, and were presumed infected via sexual transmission, to improve cohort comparability. The outcome of interest was all-cause mortality, accounting for loss to follow-up (LTFU; defined as no contact for >18 months) as a competing risk. Competing risks Cox regression evaluated the difference in mortality risk between cohorts. Covariates considered in the model included era of ART initiation (2000-2003; 2004-2007; 2008-2010), age at ART initiation, sexual transmission risk category (heterosexual males; heterosexual females; men who have sex with men (MSM)), diagnosis of AIDS-defining illness prior to ART initiation, baseline CD4 count and viral load, and initial ART regimen.

RESULTS: The analytic sample included 18,156 individuals; 3218 CANOC and 14,938 UK CHIC Study participants. CANOC participants were more likely to be older (median 40 years [interquartile range (IQR) 34 to 46 years] versus 36 years [IQR 31 to 43 years]), male (95% versus 70%), to have baseline viral load ≥100,000 copies/mL (46% versus 40%), and belong to the MSM sexual transmission risk category (85% versus 54%) (all P<0.001). The overall mortality rate was 7.3/1000 person-years (PY) (95% CI 6.7 to 7.8); with a mortality rate of 9.6/1000 PY (95% CI 8.1 to 11.2) among CANOC participants, and 6.8/1000 PY (95% CI 6.2 to 7.4) among UK-CHIC Study participants. No difference in mortality was observed between the cohorts in the adjusted competing risk survival analysis (adjusted hazard ratio 1.03 [95% CI 0.84 to 1.27]).

CONCLUSIONS: Despite the variation in national HIV care provision and treatment guidelines, and different socio-demographic and clinical profiles, mortality does not differ significantly between the UK CHIC Study and CANOC.

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COMPARATIVE ANALYSIS OF LATE INITIATION OF HIV TREATMENT BETWEEN CANADA AND THE UK, 2000-2011

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BACKGROUND: Combination antiretroviral therapy (ART) significantly improves health and survival but outcomes are dependent on a number of patient, provider, and structural-level factors, which vary between the UK and Canada. As such, we sought to describe calendar trends in CD4 cell count at ART initiation in both countries, and identify factors associated with late initiation.

METHODS: Data from two national cohorts, the Canadian Observational Cohort (CANOC) and the UK Collaborative HIV Cohort (UK CHIC) were linked. "Late initiation" was defined as a baseline CD4 count <200 cells/mm^3 (<350 cells/mm^3 for those starting ART in 2008 onwards, reflecting changes to treatment guidelines) or a baseline AIDS-defining illness. Temporal trends in CD4 count at initiation were assessed using negative binomial regression and factors associated with late initiation were determined in two logistic regression models, by period (2000-2007 and 2008-2011).

RESULTS: 20,192 individuals (3638 CANOC and 16,554 UK CHIC) were included. The median baseline CD4 count from 2000 to 2011 increased from 181 (Q1-Q3: 80 to 330) to 347 (Q1-Q3: 230 to 443) cells/mm^3 in CANOC, and from 170 (Q1-Q3 74 to 277) to 296 (Q1-Q3: 201 to 383) cells/mm3 for UK CHIC (both P<0.001). In bivariate analysis, CANOC had more late initiators than UK CHIC between 2000 and 2007 (63% versus 55%; P<0.001), with the opposite trend observed between 2008 and 2011 (72% versus 75%; P=0.03). Among those starting treatment in 2011, 57% of CANOC and 67% of UK CHIC were identified as "late initiators." In multivariable analysis for the period from 2000 to 2007, late initiators were more likely to be CANOC participants (Adjusted Odds Ratio (AOR) 1.43 [95% CI 1.29 to 1.58]) and older individuals (AOR 1.19 per decade [95% CI 1.14 to 1.24]). Heterosexual men (AOR 2.33 [95% CI 2.09 to 2.61]) and women (AOR 1.19 [95% CI 1.09 to 1.30]) were also more likely to be late initiators, compared to men who have sex with men. The second model (2008-2011) found no difference between cohorts (AOR 0.97 [95% CI 0.85 to 1.10]), but found similar associations for all other covariates.

CONCLUSIONS: Median CD4 at initiation increased but remained below treatment guidelines for Canada and the UK in 2011.

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THE PROUD COHORT STUDY: EVALUATING A COMMUNITY-BASED PARTICIPATORY RESEARCH PROJECT AMONG PEOPLE WHO USE DRUGS IN OTTAWA, ONTARIO

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OBJECTIVE: The PROUD (Participatory Research in Ottawa: Understanding Drugs) Study incorporates community-based participatory research (CBPR) principles to actively engage a Community Advisory Committee (CAC), composed of people with lived experience with drug use and their allies, in all phases of a prospective cohort study. The purpose of this project was to evaluate the strengths and limitations of the PROUD CBPR process.

METHODS: Twelve semi-structured interviews were conducted between January-March 2013 with each member of the PROUD CAC. The interviews lasted approximately one hour and were conducted at the PROUD Research Site, located in Ottawa's ByWard Market. CAC members were given a $20 honorarium for their time. The interviews were tape-recorded, transcribed, coded and analyzed using thematic and content analysis.

RESULTS: The PROUD CBPR research process successfully facilitated collaboration among academic researchers, community-based organizations, and peer researchers. Most CAC members reported feeling ownership and responsibility over the PROUD project, which grew over time. Members indicated meaningful engagement in the PROUD process, particularly in the development of the survey tool and the pilot study. Most members reported gaining new knowledge and skills through their engagement in the research project. Overall, CAC members were satisfied with their involvement in the project. Some members did note frustration with the research process in general, voiced a desire for greater involvement, reported challenging interpersonal interactions with peers, and power imbalances between the peer researchers, academic researchers, and collaborating organizations.

CONCLUSION: Results from this evaluation demonstrate the success of the PROUD CBPR process. This CBPR project provides a new opportunity to empower and engage current and former drug users and key stakeholders in community-based HIV research. The PROUD process facilitates important collaborations, builds community ownership and capacity, and meaningfully engages people who use drugs and are most impacted by HIV infection.

Social Epidemiology

Épidémiologie sociale

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HETEROGENEITY IN FAMILIARITY WITH, WILLINGNESS TO ATTEND, AND ACCESS TO THE LOCAL AIDS SERVICE ORGANIZATION AMONG AFRICAN, CARIBBEAN AND BLACK RESIDENTS OF MIDDLESEX-LONDON

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African Caribbean and Black (ACB) communities are at an increased risk of contracting HIV/AIDS in Canada compared to the general population. However, these groups may be facing barriers to proper prevention and intervention services. The Black, African and Caribbean Canadian Health (BLACCH) Study is a community-based research project that investigated the social determinants of health of ACB people residing in Middlesex-London, Ontario. The quantitative phase of the project consisted of a survey completed by 188 participants. The current study will use this survey data to determine the factors associated with ACB community members' access to the Regional HIV/AIDS Connection (RHAC), the sole AIDS service organization in Middlesex-London. Modified Poisson Regression will be used to determine associations between socio-demographic factors and their intersections, enabling factors, demonstrated needs and access to services at RHAC. An integrated theoretical model composed of the Andersen Gelberg behavioural model for vulnerable populations with an overarching intersectionality framework will be used to direct analysis. Preliminary results indicate that most participants (60.6%) had heard about RHAC. In addition, 73.7% of participants indicated that they would go to RHAC if they needed their services. However, only 17.0% of participants had already been to the organization with 12.4% actually using services. The final results of this study will enable RHAC to identify the social groups within ACB communities, with demonstrated needs, who face barriers to access. These findings will be used by the organization to better support ACB communities. Lastly, results from this study might have implications for other health regions with demographic characteristics similar to Middlesex-London.

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FACTORS ASSOCIATED WITH HAART OPTIMISM AMONG MEN WHO HAVE SEX WITH MEN IN THE ERA OF EXPANDED ACCESS TO ANTIRETROVIRAL THERAPY IN VANCOUVER, CANADA

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BACKGROUND: HAART Optimism and its associated factors among men who have sex with men (MSM) remain poorly understood. This study aims to validate a HAART optimism scale proposed by Van de Ven et al. (2000) and explore factors associated with reporting high HAART optimism among a cohort of HIV-positive and -negative MSM in greater Vancouver, BC.

METHODS: Participants were ≥16 years, gender-identified as a man and reported sex with a man in the past six months. Participants completed a self-administered computer-based survey. Internal reliability coefficients were calculated for the Van de Ven scale and for a group of ten items we thought measured attitudes towards HIV seroadaptive behaviours. Confirmatory factor analyses were performed to test the goodness-of-fit. Multivariable logistic regression identified independent predictors of high HAART Optimism, defined as having reported a greater than median score.

RESULTS: In total, 621 men were included in this analysis. Factor analysis revealed a modified HAART Optimism scale (ie, the removal of two of 12 items) had good reliability (Chronbach's $\alpha = 0.83$). Five items providing the highest reliability in a two-factor model were selected to measure attitudes towards seroadaptive behaviours (Chronbach's $\alpha = 0.72$). In adjusted models, the optimized HAART Optimism scale was significantly associated with being HIV-positive (Adjusted Odds Ratio [AOR] 2.25 [95% CI 1.35 to 3.75]), reporting unprotected anal intercourse with an opposite or unknown serostatus partner (AOR 1.92 [95% CI 1.31 to 2.81]) and higher than median responses to attitudes towards seroadaptive behaviours (AOR 3.43 [95% CI 2.39 to 4.92]). High HAART Optimism was significantly less likely reported among participants who had disclosed their sexuality to their family doctor (AOR 0.48 [95% CI 0.26 to 0.87]). Contrary to our hypothesis, HAART Optimism was not associated with age, ethnicity or income.

CONCLUSION: MSM who report high HAART optimism are more likely to report risky sexual behaviour; however, these men also reported more favourable attitudes towards seroadaptive behaviours, suggesting they may be mitigating their risk through alternative behavioural prevention strategies.

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USE OF PARTY AND PLAY DRUGS MEDIATES THE ASSOCIATION BETWEEN CHILDHOOD SEXUAL ABUSE AND UNPROTECTED ANAL INTERCOURSE WITH CASUAL PARTNERS: AN ANALYSIS OF AN HIV-NEGATIVE GAY AND BISEXUAL MEN'S COHORT

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BACKGROUND: Childhood sexual abuse (CSA) is a reliable predictor of risky sexual behaviour across populations, but the mechanisms by which it is associated with adult sexual risk behaviour are not yet understood. Use of party-and-play (PnP) drugs, which are generally considered to be mood-altering substances such as crystal methamphetamine, in combination with erection enhancing drugs such as Viagra, has been associated with adult risky sexual behaviour. Depression also has been associated with both CSA experiences and risky sex. The present study examines both mediators concurrently as mechanisms in the relation between CSA experiences and adult risky sexual behaviour.

METHODS: Questionnaires were administered at three time-points (baseline, three months and six months). In a sample of 359 participants, we conducted a mediation analysis using the Hayes' PROCESS macro (v2.10) in SAS 9.3. The outcome was unprotected anal intercourse with casual partners (UAIC) in the past three months (yes/no). The predictor was CSA. The mediators included use of PnP drugs (0, 1, 2, 3+ times) in the past three months, and depression measured using the CES-D(20). All path analyses controlled for age.

RESULTS: CSA indirectly influenced UAIC through its effect on multiple use of PnP drugs. Depression was not a significant mediator; however, CSA was related to UAIC independent of its effect on depression. When both mediators were considered in the same path analysis, multiple use of PnP drugs remained a significant mediator of the association between CSA and UAIC.

CONCLUSIONS: The use of PnP drugs is a mediator of UAIC even controlling for age and depression. The present study suggests that the use of PnP drugs may be especially important to examine as correlates of UAIC among gay and bisexual men, particularly for participants who used multiple drugs in the past three months.

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PARENTAL WARMTH AND ITS RELATIONSHIP TO HIV SEXUAL RISK BEHAVIOR AMONG SCHOOL-AGED YOUTH IN THE BAHAMAS: PRELIMINARY FINDINGS

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BACKGROUND: Young people are increasingly represented in the number of new HIV cases within the Bahamas. Research studies have indicated that parental warmth, that is emotional support and availability, has shown protective effects in mitigating adolescent risky sexual behaviours. This study explores the associations between parental warmth and school aged youth sexual risk behaviour.

METHODS: Data for the study originates from the Bahamas Knowledge Attitude Behaviour study, a representative survey of 959 youth between 15 and 17 years of age, conducted in 2008. The sampling unit was the classroom selected from a roster of all Bahamian high schools. The self-administered survey was conducted under "exam" like conditions. Research ethics approval was obtained from the Institutional Research Ethics board in the Bahamas and that of the University of Ontario Institute of Technology.

For this study, we define high risk behaviour as firstly, having multiple sexual partners and second, having unprotected sexual intercourse at last sexual encounter. Parental-warmth was measured as a *z*-score of the sum of eight Likert scaled questions. Associations between parental-warmth and HIV risk outcomes are examined using logistic regression analysis, separately, for the subset that are sexually active.

RESULTS: Of the 896 participants with complete data available, the mean age was 16.05 years (SD=0.89) with 468 (48.8%) males and 491 (51.2%) females. No significant differences were present between males and females on key variables. Among the sexually active (n=423), higher parental warmth was associated with having fewer sexual partners (OR 0.832 [95% CI 0.662 to 1.045]) and significantly with an increased use of condoms (OR 1.267 [95% CI 0.1.016 to 1.579) after adjusting for age, gender, alcohol consumption, marijuana use and gang activity.

CONCLUSION: Having increased levels of parental warmth identified protective effects against having multiple sexual partners and affinity to use condoms. The implementation of parental involvement intervention strategies in Caribbean nations is critical in preventing HIV.

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THE CEDAR PROJECT: CHILDHOOD SEXUAL ABUSE PREDICTS HOUSING INSTABILITY OVER TIME AMONG YOUNG ABORIGINAL PEOPLE WHO USE ILLICIT DRUGS IN BRITISH COLUMBIA

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BACKGROUND: Childhood sexual abuse is one of the most disastrous corollaries of the residential school and child welfare systems among Aboriginal people in Canada. Intergenerational trauma of sexual abuse has resulted in high rates of sexual abuse among young Aboriginal people who use drugs in British Columbia (BC). Sexual abuse may set into motion a process that increases the probability of HIV infection through a number of pathways, including housing instability.

METHODS: The Cedar Project is a cohort of 605 young Aboriginal people who use drugs in Vancouver and Prince George, BC. Participants were considered unstably housed if they lived in a single room occupancy hotel, shelter, boarding house, or institution, as well as if they couch surfed, had no fixed address, or slept on the streets. Sexual abuse prior to age 13 was self-reported. Generalized linear mixed models using data collected semi-annually between 2005 and 2010 examined the relationship between sexual abuse and unstable housing over time.

RESULTS: One-half (50%) of participants reported being sexually abused prior to age 13. The proportion of participants who were unstably housed at each follow-up varied from 41% to 56%. Adjusting for city, sex and age, experiencing sexual abuse was associated with 2.76 greater odds of unstable housing over the study period (95% CI 1.09 to 6.98). Examining the relationship between housing instability and HIV vulnerability, in adjusted models being unstably housed was associated with sex work (AOR 1.78 [95% CI 1.08 to 2.93]), consistent condom use (AOR 1.55 [95% CI 1.07 to 2.22]), injecting drugs (AOR 2.94 [95% CI 1.93 to 4.47]), daily cocaine injection (AOR 2.78 [95% CI 1.56 to 4.94]), and public injection (AOR 3.36 [95% CI 1.96 to 5.75]).

CONCLUSIONS: Addressing the legacy of intergenerational trauma is a crucial part of tackling underlying causes of housing instability and HIV vulnerability among young Aboriginal people who use drugs. To help young Aboriginal people find and maintain stable homes, they must have access to culturally appropriate services to heal from sexual trauma.

P178
HOUSING STATUS AND HIV RISK IN A COMMUNITY-BASED RESEARCH COHORT OF INJECTION DRUG USERS IN OTTAWA, ONTARIO: RESULTS FROM THE PROUD STUDY

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BACKGROUND: People who use illicit drugs are over-represented among the homeless and unstably housed in Canada. In the Nation's capital city, Ottawa, there is a shortage of housing for people with substance use issues. This shortage exists within a setting where HIV incidence among injection drugs users (IDUs) is twice the provincial average. While there is substantial literature on HIV risk environments within urban centres, there has been little research on housing status and HIV risk among IDUs in Ottawa.

METHODS: A cross-sectional analysis of data was conducted from a community-based research cohort of IDUs in downtown Ottawa. Respondents included in this analysis were recruited in the city's ByWard Market neighourhood and reported injecting drugs in the past year (n=272).

Odds ratios were calculated to examine bivariate associations between housing status ("unstably housed" versus "stably housed") and demographic, clinical and HIV risk behaviour variables.

RESULTS: Median age of participants was 42 years and the majority (76%) identified as male. Ninety-three percent (n=254) reported they had ever been homeless and 58% (n=157) were currently unstably housed. Significant associations were demonstrated between being unstably housed and: injecting drugs with a used needle (OR 2.50 [95% CI 1.09 to 5.75); injecting in public (OR 7.45 [95% CI 3.88 to 14.30]); having overdosed (OR 2.10 [95% CI 1.16 to 3.78]); receiving drugs, money, gifts for sex (OR 2.36 [95% CI 1.06 to 5.23]); and drug use in living space (OR 6.24 [95% CI 3.43 to 11.35]).

CONCLUSION: Findings suggest that unstable housing environments in downtown Ottawa may be associated with needle sharing, public drug use and exposure to drug use, overdose, and transactional sex. Policy and programs that increase the supply of safe, affordable and permanent housing for those with substance use issues could protect IDUs and the larger community from enhanced risk of HIV infection and adverse health outcomes.

P179

SOCIAL DRIVERS OF STI AND HIV INFECTION AMONG PARTICIPANTS AT SPOT, A COMMUNITY-BASED TESTING INTERVENTION FOR MSM IN MONTREAL

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BACKGROUND: HIV and STI prevalence remains high among MSM. SPOT is an intervention-research project offering free, anonymous, rapid HIV testing for MSM in Montreal. Services have recently been expanded to include testing for other STIs.

OBJECTIVE: Characterize SPOT participants who were tested for both HIV and other STIs and received a reactive result.

METHOD: Between July 2013 and January 2014, 375 participants had a rapid HIV test at SPOT. Of these, 71.2% (n=267) also got tested for other STIs. Participants who received reactive results for HIV and/or another STI were compared with those whose results were non-reactive for socio-demographic, psychosexual and behavioural variables using multivariate logistic regression.

RESULTS: Among participants who were tested for both HIV and other STIs, overall prevalence of a reactive result was 8.2%: 1.5% for HIV, 3.4% for chlamydia, 3.0% for syphilis, 2.6% for gonorrhea, 0.4% for hepatitis B, and 0.4% for hepatitis C. Multivariate analysis indicated that participants who received a reactive result for HIV and/or an STI were more likely to have been born outside Canada (AOR 3.10 [95% CI 1.11 to 8.66]) and less likely to report having gay friends in their social network (AOR 0.44 [95% CI 0.24 to 0.82). In the past three months, they were less likely to have found ways to ensure they have condoms on hand when needed (AOR 0.69 [95% CI 0.49 to 0.97]).

CONCLUSION: SPOT has contributed to achieving public health objectives with regards to community-based HIV and STI testing for MSM. Among participants who received a reactive test result at SPOT, those born outside Canada, those with fewer social connections to the gay community, and those who may have trouble obtaining condoms are overrepresented. Above and beyond unprotected anal sex, socio-cultural and structural factors that underpin HIV and STI epidemics among MSM in Montreal must be addressed and further initiatives to promote access to condoms are required.

P180

THE IMPACT OF MOBILITY AND MIGRATION ON HEALTH-RELATED VULNERABILITY AND RESILIENCE AMONG PEOPLE WHO USE DRUGS IN OTTAWA-GATINEAU

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BACKGROUND: Migration and mobility have been linked to both positive and negative health effects among people who use drugs. This cross-sectional study aimed to assess the prevalence and circumstances of mobility and migration, and explore their impact on health related outcomes among people who use drugs in Ottawa, Canada.

METHODS: Using respondent-driven sampling, participants with illicit drug use within the last six months, age ≥18 years, and currently living in Ottawa-Gatineau were recruited. We collected data on demographics, drug use, migration, and self-reported health needs. Migration was defined as moving after residing in a city for ≥3 months, and mobility as travel outside the city for overnight or longer. Univariate analyses and qualitative methods were used.

RESULTS: Of 401 participants, 79% were male and 23% self-identified as Aboriginal. Fifty percent had ever injected drugs and 23% used currently, 64% used crack cocaine. Most (91%) participants had a lifetime history of migration, and 18% migrated recently. There were no differences in HIV and HCV prevalence and other health related outcomes between migrants and non-migrants. People who currently used crack cocaine or injection drugs and who migrated recently were significantly less likely to use harm reduction services (OR 0.38 [95% CI 0.19 to 0.77]). Among this group, travel was also significantly associated with lower access to social support services (OR 0.55 [95% CI 0.32 to 0.95]). Presence of family at destination factored as a major attractant for last and future migration, and was identified as a positive factor during travel.

CONCLUSIONS: People who use drugs are a mobile group. Both the act of moving and the conditions under which the migration or mobility process takes place are associated with risk and vulnerability, especially in the immediate period following migration. Presence of family may modulate risk and vulnerability during this process.

P181

EXPLORING THE IMPACT OF "RED ZONES" ON PEOPLE WHO USE DRUGS IN OTTAWA'S BYWARD MARKET: A QUALITATIVE STUDY

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OBJECTIVE: A "red zone" is administered by the police to bar an individual from being within a specific geographical area for a specific period of time. This study was designed to determine the impact of red zones on access to health, social and harm reduction services, drug use, safe injection practices and HIV risk among people who use drugs in Ottawa's ByWard Market.

METHODS: This project used a community-based participatory research (CBPR) framework to guide the research design, data collection and analysis, and included community members, community-based organizations and academic researchers in all stages of the research process. The study consisted of 10 semi-structured interviews with people who use illicit drugs and have been red zoned. Trained peer researchers conducted the interviews, which gathered in-depth data on participants' experiences with red zones. A thematic analysis was conducted to identify key themes from the data.

RESULTS: Three thematic areas emerged from the qualitative analysis: 1) marginalization; 2) criminalization, and; 3) vulnerability. Red zones increase the marginalization of people who use drugs by reinforcing unequal power dynamics and systematic inequality. Participants indicated that the imposition of red zones is subjective and punitive and increased mistrust in the police. Red zones result in the criminalization of people who use drugs as participants often breached their red zones to access important services. Red zones increase vulnerability to adverse health and social consequences of drug abuse by encouraging risky behaviours, disrupting social relationships and directly limiting access to important health, social, and harm reduction services.

CONCLUSION: This project provides new insights into how red zone restrictions may increase the marginalization, criminalization, and vulnerability of people who use drugs. Red zones limit drug users' access to health, social and harm reduction services and social relationships, thereby adversely affecting health outcomes and enhancing risk of HIV infection.

Special Issues in Public Health

Questions spéciales liées à la santé publique

P182
DOES MARRIAGE PROTECT OR ENDANGER MSM IN INDIA?

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BACKGROUND: MSM have the second highest HIV prevalence in India after IDUs. We collected at baseline information on indicators of HIV risk among MSM enrolled in a CIDA funded operation research project whose objective is to determine the effectiveness of a mHealth intervention in reducing risky sexual behaviors.

METHODOLOGY:
A total of 1649 MSM were enrolled in the study through respondent driven sampling (RDS) in Chhattisgarh, Delhi and Maharashtra states through RDS centers established in six selected districts. The sample was equally distributed in the three states.

RESULTS: Out of 1649 studied MSM, 18% were currently married and 82% single; and among those married, 93% were married to females. The univariate analysis depicts:

Correlates	Currently Married (%) n=297	Single (%) n=1352
Had penetrative anal sex in the last month	17*	83**
Had receptive anal sex in the last month	21*	79*
Had penetrative oral anal sex in the last month	17*	83**
Had receptive oral sex in the last month	17*	83
Was paid by a male for sex in the last month	16	84*
Paid a male for sex in the last month	19**	81*
Sex after substance use	24*	76**
Reporting STI symptoms in last six months	44	26
Inconsistent condom use any sex	78**	20*
Correct knowledge of HIV/AIDS	24*	6
Ever tested for HIV	8	27*
Tested for HIV within one year	6	23*
* P<0.05; ** P<0.01		

The average number of vaginal sex acts practiced in the last month were 2.8 and 4.5 by currently married MSM and single MSM respectively.

CONCLUSION: Married MSM practice less HIV risk behaviors (sex and substance use), report less STI symptoms, and have more knowledge about HIV/AIDS but take less HIV preventive measures (condom use and HIV testing).

P183
NO EVIDENCE OF SEXUAL RISK COMPENSATION IN A STUDY OF 'TREATMENT AS PREVENTION' KNOWLEDGE AMONG HIV-POSITIVE AND HIV-NEGATIVE MSM IN VANCOUVER

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BACKGROUND: 'Treatment as Prevention' (TasP) has been actively promoted as a strategy to reduce HIV transmission in British Columbia. Better understanding of TasP may improve clinical outcomes but result in sexual risk compensation. We measured TasP comprehension and investigated demographic, clinical, and behavioural covariates within a cohort of HIV-positive and HIV-negative men who have sex with men (MSM).

METHODS: The Momentum Health Study is a longitudinal cohort study of MSM in Vancouver recruited via respondent driven sampling. Data were analyzed for participants enrolled between 25-Feb-2012 and 31-Oct-2013. A computer-assisted, self-administrated questionnaire collected demographic variables and sexual risk behaviours (unprotected anal intercourse). Clinical variables were obtained through clinical/sexual health screening. Participants were asked if they had heard of TasP and, if so, to provide a definition. Complete TasP knowledge demonstrated three factors: ART use; viral load reduction; HIV transmission prevention. Responses were coded by two independent reviewers. Those with missing TasP definitions (n=72) or only describing PEP/PrEP (n=45) were excluded. Multivariable proportional odds logistic regression identified independent covariates of TasP knowledge.

RESULTS: Of 502 participants, 27% were HIV-positive, 75% were Caucasian, and median age was 33 (IQR 25 to 47). Overall, 66% of HIV-positive participants heard of TasP compared with only 29% of HIV-negative participants (P<0.001). Only 33 of 196 participants who heard of TasP provided a complete definition, with 21% identifying two factors and 45% identifying one or none. Participants learned about TasP from community agencies (39%), gay media (36%), friends (29%), doctors (25%), and sex partners (14%). In adjusted analyses, participants who were HIV-positive (AOR 3.92 [95% CI 2.60 to 5.90]), Caucasian (AOR 2.31 [95% CI 1.44 to 3.73]), and had a regular sexual partner (AOR 1.60 [95% CI 1.08 to 2.36]) were more likely to report higher TasP knowledge. TasP comprehension was not associated with clinical outcomes or sexual risk behaviours.

CONCLUSIONS: Despite widespread TasP promotion, knowledge of TasP was relatively low in this study, particularly among HIV-negative MSM. However, such knowledge was not associated with sexual risk compensation. It remains critical to support TasP literacy toward reducing HIV transmission among MSM.

P184
PATTERNS OF CONDOM USE AMONG MSM IN INDIA: DIFFERENCES BY RELATION TO AND GENDER OF PARTNERS

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BACKGROUND: MSM in India are highly stigmatized and remain hidden in society, making them a hard to reach (HTR) population for HIV prevention targeted interventions. Due to traditions and social pressures, MSM often marry and have to navigate dual sexual identities. A baseline study conducted as part of a CIDA funded operations research on the effectiveness of a HIV prevention mobile helpline for MSM included indicators on condom use with male partners, female spouses and non-spouse females.

METHODOLOGY: A total of 1649 HTR MSM were enrolled in the study through respondent driven sampling in six districts in Chhattisgarh, Delhi and Maharashtra. The sample was equally distributed in the three states.

RESULTS: Patterns of condom use by MSM differed according to gender of and association with their sexual partners. During vaginal sex with spouse in the last month, 61% of MSM reported never using condoms, while only 17% reported using them every time. In contrast, 68%

of MSM having penetrative and 67% having receptive anal sex in the last month reported using condoms every time. Condom use during last paid sex with males was 82%. Reasons for inconsistent condom use also varied by type of partner – with spouse, the top reasons were 'either of the partners is faithful' (35%), 'they are not easy to use' (35%) and 'I do not carry them' (17%); with males, top reasons were 'condoms are not available (55%), 'I do not carry them' (34%) and 'they are not satisfying' (28%).

CONCLUSIONS: MSM in India make conscious choices when it comes to the use of condoms in different situations and with different partners. Although HTR MSM are underserved in terms of prevention programs, their choices indicate an understanding of own level of risk. Findings from this study have implications for prevention programs and potential messaging for MSM.

P185

THE VOICES OF OTTAWA YOUTH WHO SMOKE CRACK: URGENT NEED FOR AGE-SPECIFIC HIV- AND HCV-RELATED PREVENTION INTERVENTIONS

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Increasing numbers of youth who smoke crack participating in ongoing Ottawa surveillance research studies drove request from community members for targeted study to inform the development of age- and gender-fluid specific HIV and HCV prevention interventions.

METHODS: Youth with experience of crack formed Advisory Committee which met over nine months and developed thematic guide for qualitative interviews designed to inform the development of quantitative component. Spring 2012, nine qualitative interviews completed with youth with diverse lived experience who smoked crack. Interviews audio-recorded, transcripts analyzed for key themes which, with their underlying assumptions, discussed, clarified and confirmed at two member-checking workshops.

RESULTS:

1) High rates of unprotected sex with regular partners and among young women and MSM engaging in transactional or non-consensual sex.
2) Sharing injection and smoking equipment with friends and sexual partners perceived as demonstration of trust - most trusted their friends to disclose if they were HIV+ or HCV+ - however, testing rates very low among those interviewed.
3) Low level knowledge of city's harm reduction programs.
4) Use of crack and other drugs opportunistic, difficult to plan equipment needs in advance.
5) Early experience of sexual, physical and emotional abuse result in self-described low self-esteem, mental health and anxiety disorders, and challenges in taking steps to keep safe from HIV and HCV infection.

CONCLUSION: Ottawa is unique in having high coverage of NSPs and a provincially-funded safer inhalation program. However, youth continue to share drug equipment and engage in unprotected sex. The research process and these data invaluable in designing the instrument for the next phase of this study – investigating, from the perspectives of Ottawa youth who smoke crack, how prevention programs can relate and respond to early history and current lived experience in order to enhance prevention practices and reduce risk-taking behavior.

P186

DENTAL CARE IN CANADA FOR PEOPLE LIVING WITH HIV

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BACKGROUND: 90% of people living with HIV experience at minimum one oral condition in their lifetime. Such conditions include dental caries, oral candidiasis and periodontal disease; these conditions are intensified by several factors including bacteria and treatment-related adverse events. Oral health is important as it serves as a predictor of HIV-related health events. Despite this, access to dental care is limited for many people living with HIV in Canada due to financial barriers, discrimination and stigma.

METHODS: Building on previous working group activities, CTAC has engaged partners, including the Canadian Dental Association, to synthesize key dental care recommendations for people living with HIV. Identifying access barriers, CTAC is developing a resource for people living with HIV and service providers, encouraging links between HIV care to dental care and providing both policy and practice recommendations for accessing dental health services.

RESULTS: Currently in development, consultations with relevant stakeholders have shown that people living with HIV experience increased barriers in accessing appropriate dental care services. Greater collaboration is needed dental health providers and physicians. CTAC's resource (under development) provides a practical tool to coordinate communication between dentists and physicians, enabling knowledge sharing of comprehensive patient information.
While the resource also provides practical tips to service providers to help increase access to current public dental services, it is imperative that Canada increase public health care, including universal phamacare and dental care, thus all people living with HIV face no economic barriers to access. To this end, the resource also includes practical policy recommendations and a call for action.

LESSONS LEARNED: The tool sheet will disseminated throughout the HIV sector, to service providers and people living with HIV. In addition, videos sharing lived experience will also be developed and posted to the CTAC website.

P187

"I DIDN'T GET THE FEELING THAT THEY KNEW WHAT THEY WERE DOING": HIV/STI TESTING EXPERIENCES OF TRANS MEN WHO HAVE SEX WITH MEN IN ONTARIO

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BACKGROUND: Previous studies have identified barriers to accessing respectful and competent health care for trans people. Gay, bisexual, queer, and other trans men who have sex with men (TMSM) have been recognized as a population underserved by HIV prevention and testing programs. As previous research estimated that 43% of TMSM in Ontario have never been tested for HIV, we sought to better understand their access to, and experiences with, HIV/STI testing.

METHODS: The Trans MSM Sexual Health Study is a community-based participatory research project in Ontario, aiming to understand the social contexts of trans men's HIV vulnerability and resilience. In 2013, forty TMSM completed demographic questionnaires and participated in individual, semi-structured, qualitative interviews. Interviews were audio-recorded and transcribed verbatim, and coded using a qualitative grounded theory approach.

RESULTS: Participants were 18 to 50 years of age, lived in many regions of the province, and were ethnoracially diverse (43% were racialized or Aboriginal). Fifteen percent had never been tested for HIV, citing perceived low risk, distrust of medical professionals, and fear of stigma. Some participants reported positive experiences accessing HIV testing as part of their health care routine, facilitated by having a trans-positive family physician who performed regular blood work related to hormone use. Other participants preferred anonymous or point-of-care tests, but often encountered barriers to access (including gender segregation and refusal of care). Many who accessed sexual health clinics described negative experiences, including mis-gendering or "outing", inappropriate questions or assumptions, and inadequate or harmful clinical care.

CONCLUSIONS: Efforts are needed to increase clinical competence and availability of care specific to trans men's bodies and sexual experiences, and to develop administrative procedures that respectfully accommodate trans clients. This is crucial for specialized sexual health services, which tend to be preferred by those at higher HIV/STI risk.

P188

PROBABILITY OF A FALSE NEGATIVE HIV ANTIBODY TEST RESULT DURING THE WINDOW PERIOD: A TOOL FOR PRE- AND POST-TEST COUNSELLING

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BACKGROUND: Testing for HIV can be anxiety provoking for many patients. Misunderstanding false negative test results during the

test's window period may increase anxiety as patients typically want an accurate test result as soon as possible after exposure and clinicians typically want to wait until the probability of a false negative is virtually nil. This systematic review summarizes the median window periods for antibody and antibody/antigen HIV assays and provides a table of probabilities of a false negative for various days post exposure.

METHODS: Seroconversion data was extracted from seroconversion panels published by manufacturers and in published literature. An eclipse period of 10 days was used to estimate days from infection to first detection of HIV via RNA testing. Median (interquartile range [IQR]) days to seroconversion were calculated and a Kaplan Meier graph was constructed displaying time from infection to seroconversion. Using the life table methodology, probabilities of a false negative for various time periods were calculated.

RESULTS: The median (IQR) window period for antibody tests was 22 days (19 to 25 days) and 18 days (16 to 24 days) for antibody/antigen tests. The probability of false positive is 0.01 at 80 days post-exposure for antibody tests and 42 days post exposure for antibody/antigen tests.

CONCLUSIONS: A table of probabilities of false negative antibody and antibody/antigen test results has been provided and may be useful during pre and post-test HIV counselling to inform co-decision making regarding the ideal time to test for HIV post-exposure thus reducing patient anxiety.

SOCIAL SCIENCES
SCIENCES SOCIALES

ASOs and Organizational Strategies in the Context of Policy and Funding Shifts

Organismes de services liées au sida et stratégies organisationnelles dans un contexte de changement de politique et de financement

P189
CAMP MOOMBA: A UNIQUE COMMUNITY SUPPORT FOR CHILDREN AND YOUTH AFFECTED BY HIV

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INTRODUCTION: Camp Moomba is a one-week summer camp for youth living with or impacted by HIV (YH). Since 1998, the non-profit Western Canadian Pediatric AIDS Society (WCPAS) has organized the camp for up to 100 YH age six to 17 years from across Canada. Camp and transportation are free for participants. HIV-trained counselors coach sports and specialized recreational programs at a waterfront YMCA site in British Columbia. Professional nurses stay on site.

OBJECTIVE: To demonstrate the impact of Camp Moomba on the youth's well-being.

METHODS: Testimonials from campers, parents, counselors, camp staff and health care providers.

RESULTS: The possibility for children to attend camp Moomba once they are aware of their HIV status has encouraged a timely disclosure process in some families.

Most YH are isolated in their communities. "None of my friends at home is HIV positive". Because bringing together YH who are scattered geographically is a challenge, previous attempts to hold teen groups have not been sustainable in some settings. Camp Moomba offers a unique opportunity for youth facing similar situations to make friends and have fun while building resilience in an environment free of stigma. Many look forward to camp Moomba during the entire year. They continue to connect and support each other year-round through social media and texting. Some become active in the HIV/AIDS community. "I wouldn't be the person I am today without Camp Moomba. Ten years a camper and now a counselor… [Moomba is] my family and [my] home away from home."

CONCLUSION: Camp Moomba provides invaluable support for Canadian YH who all face the isolation and stigma of HIV. To contribute to their well-being and empower them as they become young adults, the WCPAS is committed to continue to offer the camp experience and to expand outside-of-camp programs in the future.

P190
HIV AND AGING: AN ENVIRONMENTAL SCAN OF PROGRAMS AND SERVICES IN CANADA

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BACKGROUND: As Canadians age and require enhanced care, those aging with HIV are seeking support and information about programs and services for older people living with HIV (PLHIV). This community-guided environmental scan provides a national snapshot of what key health and community organizations are doing to address the issue of HIV and aging.

METHODS: A national team of service providers, community advocates and researchers guided the development of a bilingual online survey. In 2013 contacts at AIDS Service Organizations, HIV clinics and community health centres were recruited electronically to answer questions about the impact and prioritization of HIV and aging within their organizations and communities and available referrals. Participants described strengths and challenges of relevant programming. Descriptive data were summarized and open-ended responses were thematically coded through team consensus.

RESULTS: Ninety-two surveys were analyzed. Over two-thirds of settings with mandates to serve PLHIV prioritize aging. Programming has changed over time to emphasize aging with HIV and complex comorbidities, referrals to health, psychosocial and practical supports, and community collaborations including the aging sector. Organizations from the HIV sector are at different stages of information gathering, program planning and implementation. While the majority of organizations do not currently offer specialized programming on aging with HIV, 25 unique program examples were identified. These include integrated health and practical care, initiatives that address needs of long term survivors, cognitive issues, housing and long-term care, and educational forums and training for clients and staff. Peer involvement was common. Environments that did not offer specialized programming cited reasons including the recent nature of the issue, coverage by existing programming and/or better-suited organizations and scarce resources.

IMPLICATIONS: Increased need, available funding and champion-initiated advocacy largely drive development and adaptation of programs and services for older PLHIV in Canada. Promising program examples enhance our understanding of services.

P191
AGAINST SILOS: A GOOD PRACTICES GUIDE ON UNDERTAKING AN INTEGRATED APPROACH TO HIV AND HEPATITIS C

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BACKGROUND: CTAC has developed a Good Practices Guide on policies and programs that undertake an integrated approach to HIV and hepatitis C. This project focuses on integrating health systems and community-based service provision to fulfill unmet needs.

METHODS: Advised by a national committee of people with lived experience, service providers, researchers and policymakers, the development process included a literature review, national stakeholder survey and key informant interviews. The literature search identified 47 entries in scientific and grey literatures on issues including multidisciplinary care to support hepatitis C treatment for people who use drugs, and pilot program evaluations on providing hepatitis C care in HIV settings.

Following, a national stakeholder survey was disseminated to community-based organizations, clinics and community health centres across Canada. The survey focused on areas in which HIV and hepatitis C is included in governance, policy and programming in organizations and programs.

RESULTS: The survey was open for data collection in August and September 2013. 106 people who completed the survey, and 72% identified

their organizations as working in HIV and hepatitis C, while 19% and 13% identified themselves as working in HIV or hepatitis C, respectively. Most organizations included HIV and hepatitis C in funded projects, yet fewer integrated both diseases into constitution, bylaws or policies and procedures. Most identified benefits of an integrated approach related to reaching similar populations (especially through needle and syringe programs and testing), providing comprehensive care (ie. the "one stop shop" model), and strong referral partnerships. Most identified funding (especially regarding staffing, peer workers and siloing of "disease-specific" funds), as well as a lack of information resources (ie, good practices) inhibit successful integration.

Follow-up interviews with key informants were conducted in December 2013 and January 2014, reviewed by the National Stakeholder Committee with content included in the final Guide.

CONCLUSION: Completed in March 2014, capacity engagement sessions on the Guide will be held in 2014-2015 with organizations selected for the Community Action Fund planning process by the Public Health Agency of Canada.

P192
ARE MY NEEDS BEING MET? SHIFTING HIV CARE IN NEW BRUNSWICK, CANADA

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AIDS Service Organizations (ASOs) provide counseling, food programs, housing assistance, employment services, referrals, and advocacy to people living with the HIV/AIDS. According to the GPI Atlantic report (2007), $40 million is spent annually to support community-based prevention research and implement healthcare services. The annual allocation of funds for community-based HIV initiatives is determined in accordance with provincially reported cases of infection. Changes to federal and provincial financial infrastructure will affect service delivery in the Atlantic Provinces. Based on my M.A. research conducted in New Brunswick, A Cross-cultural Comparison of Illness Narratives of Seropositive Women in Kenya, Africa, and New Brunswick, Canada, there is a lack of consistent funding for core programs (eg, volunteer services, administration, and support positions) and an absence of HIV/AIDS strategies for people living with this disease in Atlantic Canada. Federal and provincial programs aimed at addressing prevention fail to address life after infection.

Community-based HIV programs in Atlantic Canada focus on the social and behavioral needs of men living with HIV/AIDS. This paper argues that the absence of specific services contributes to the reduced usage of community-based HIV services by women living with HIV and to rising rates of co-infection among women in New Brunswick. My ethnographic research in New Brunswick reveals the need to examine HIV service delivery, the effectiveness of these services or gaps in program availability, and whether allocated funding meets the needs of women living with HIV. This paper advocates that ASOs actively engage in participatory-action research to implement gender-specific strategies that meet the needs of women living with HIV in New Brunswick. More effective strategies, such as online networks and community-based research boards, would help ensure that the needs of women living with HIV are built into new initiatives.

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P193
READY, SET,…INTEGRATE! THE LANDSCAPE OF STBBI SERVICE DELIVERY IN ATLANTIC CANADA

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Community-based organizations (CBOs) have long been the cornerstone of a community response to HIV/AIDS. These CBOs have evolved to respond to complex policy and funding environments, each developing services/programs relevant for their own local environment. With indications that federal funding will integrate HIV, HCV and STIs (collectively known as sexually transmitted infections and blood borne pathogens, STBBIs), there is pressing concern among service providers and people living with HIV/AIDS in Atlantic Canada and across Canada over the implications for service delivery.

This project is a collaborative investigation into the current state of communicable diseases, affected populations, and associated service delivery needs in Atlantic Canada. The project was guided by an interprofessional community advisory committee. Through document review and extensive consultations with service providers, partner organizations and key client populations, we have identified current/emerging needs, key issues, and some of the gaps in providing effective and efficient services to those most affected by STBBIs.

This presentation will provide key findings about: 1) how organizations in Atlantic Canada have already been integrating STBBIs; 2) the experienced and anticipated impacts of these shifts in service delivery on both CBOs and people who access their services; 3) the challenges and successes of integration for individual CBOs and their partner organizations; and 4) future forecasting of collaborative models to meet the needs of those living with and those most affected by communicable diseases in the Atlantic region. This project's results will not only guide CBOs and their partners in Atlantic Canada, but will have relevance to others outside of Atlantic Canada.

P194
MAKING THE ROAD AS WE WALK: CRA ENGAGEMENT WITH THE ABORIGINAL HIV AND AIDS COMMUNITY

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BACKGROUND: The Aboriginal HIV & AIDS Community-Based Research Collaborative Centre (AHA Centre) is a 'network of networks' that strategically contributes to an effective response to HIV & AIDS-related issues relevant to Aboriginal Peoples in Canada.

Aboriginal Peer Research Associate roles were initially proposed as part of the AHA Centre's community engagement strategy. In practice and over time, however, it became clear that the AHA Center is best mobilized through Community Research Associates (CRAs). CRAS are housed at Aboriginal AIDS Service Organizations (AASOs) across the country acting as an on the ground presence; liaisons between the AHA Centre and member organizations of the Canadian Aboriginal AIDS Network (CAAN).

LESSONS LEARNED: As the AHA Centre begins to work with CRAs for the first time, there are many lessons learned. The transition from the PRA to CRA title was the result of important discussions between the AHA Centre Community-Based Research Managers and community stakeholders, the main concern being that the term PRA implicates; in the context of HIV and AIDS research; a positive HIV status.

There have been success and challenges throughout this process, such as recruitment (due to several local community contexts and realities). One noted success is the acknowledgement and need for local Aboriginal CRA's in AASO's. The proposed presentation will also highlight the CRA training manual that has been developed for the AHA Centre. The CRA training manual emphasizes training Aboriginal CRA's and PRA who are interested in and/or are already engaged in CBR and is offered as a resource for those are already working with or are interested in working with Aboriginal CRA's and PRA's.

Community Responses, Denials, Resistance, and Imagination in the Context of HIV

Interventions communautaires, refus, résistance et imagination dans le contexte du VIH

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'HAND STORIES' (HS) A VISUAL IMAGINATIVE METHODOLOGY FOR THE REPRESENTATION OF THE EROTIC NARRATIVES AND SEXUAL HIV RISK AMONGST LATINO GAY MEN IN TORONTO, AS PART OF A NEEDS ASSESSMENT CONDUCTED IN CHICOSNET (CN), A BEHAVIOURAL INTERVENTION

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Hand Stories (HS) are tools for representing sexual desires and pleasures. By using a community qualitative visual method, HS aims to further explore the meanings, symbolisms, rationales and contexts surrounding the 1) sexual experiences of Latino gay men, 2) major events in their life such as migration, coming out, HIV diagnosis, etc., and depicts an innovative format for narrative's representation.

BACKGROUND: HS is a community-based methodology that allows participants to tell their erotic experiences and reflect on HIV risk behaviours and social contexts. It is based on principles of "Telling Sexual Stories", and an adapted version of "Body Mapping" methodologies.

METHODS: In a pilot group (n=9), a HS visual representation was used as a tool for individual's needs assessment. A hand is sketched on a piece of paper that is used as a canvas. The hand's lines are used to represent major life events; the fingers' spaces are used for narratives related to social isolation, personal sexual life, resiliencies and resistances, allowing participants deeper awareness in relation to HIV risk contexts.

RESULTS: The HS narratives are accessible methodological tools for grassroots organizations to represent community knowledges, experiences and events related to HIV risk contexts and behaviours. Sexual desires and pleasures are part of the contextual narrative along with the role of race, class, immigration, HIV status and personal resilience and resistances.

CONCLUSIONS: Innovate ways of understanding and conveying narratives are relevant for the further understanding of sexual encounters, social contexts and the implications for HIV prevention interventions. Limitations include the requirement for further development and theoretical work.

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ACCOMPAGNER SOCIALEMENT LES PERSONNES QUI VIVENT AVEC LE VIH (PVVIH) ET LEUR VIHSIBILITÉ PUBLIQUE : COMPTE RENDU D'UNE RECHERCHE-ACTION SUR LES PRATIQUES ÉTHIQUES ET SOLIDAIRES AU QUÉBEC

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CONTEXTE : Plusieurs PVVIH décident de raconter leur histoire lors d'une entrevue médiatique, dans le cadre d'une recherche ou d'une activée communautaire. Or, il existe peu de discussion sur les enjeux éthiques du témoignage. Les rares outils disponibles sont peu connus des intervenant.e.s de ces différents milieux. Notre groupe de recherche, VIHSIBILITÉ, a réalisé le transfert et la mobilisation de connaissances sur l'accompagnement social des PVVIH qui livrent un témoignage public. Cette communication présentera la méthodologie collaborative utilisée et les retombées concrètes du repérage des pratiques d'accompagnement au Québec.

MÉTHODE : Par le biais d'un partenariat entre l'UQAM et la COCQ-SIDA, nous avons rencontré 14 organismes communautaires. Ces rencontres ont permis de colliger des informations-clés sur les pratiques d'accompagnement social au témoignage, ce qui a consolidé l'élaboration d'une formation et la création d'un répertoire des pratiques, le Porte-voix. Nous avons aussi engagé des intervenant.e.s dans un processus de réflexion critique sur les modalités de coproduction du témoignage.

RÉSULTATS : La recherche-action a donné lieu à un inventaire de ressources facilitant le travail de coproduction avant, pendant et après le témoignage. Les participant.e.s ont contribué à la publication de 18 fiches descriptives de pratiques de coproduction dans le cadre d'activités de prévention, d'éducation, de recherche ou de défense des droits. Sept études de cas ont été rédigées à partir de faits vécus et ont été formulées de manière à impliquer les accompagnateurs sociaux dans la résolution de dilemmes éthiques.

CONCLUSION : La recherche-action VIHSIBILITÉ a permis d'approfondir la compréhension des défis que rencontrent les intervenant.e.s qui accompagnent ou participent à la coproduction de témoignages. L'outil résultant, Le Porte-voix, permettra d'amplifier la voix des personnes témoins et de valoriser l'apport communautaire dans l'élaboration des réponses sociales face à l'épidémie. Nous conclurons sur l'importance de transférer cette démarche à d'autres populations marginalisées.

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ENGAGING THE 21ST CENTURY MOCCASIN TELEGRAPH: USING CYBERSPACE TO CAAN'S ADVANTAGE

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BACKGROUND: Effective communication strategies within the HIV and AIDS community are essential to improve the health of Aboriginal peoples who are affected by HIV and AIDS in Canada. The Canadian Aboriginal AIDS Network (CAAN), in partnership with the Universities of Toronto and Auckland, sought to learn how to maximize the positive impact of current information communication technologies (ICT) to strengthen its communications and conduct core business more efficiently. The results will further strengthen the knowledge translation and exchange work central to CAAN's commitment to community-based research by identifying innovative ways to share research findings.

METHODS: An online survey within CAAN and among member and partner organizations (n=58) was conducted in Dec 2012 – March 2013. Over 400 people (≥18 years of age) from CAAN's email lists were contacted over several months and the survey link was posted on CAAN's Facebook page and Twitter account (80% of responders are Aboriginal).

RESULTS: The survey results clarify the most common ways that Aboriginal people share information. Responses indicate which communications tools are in use by region, age, population and gender. The study indicates that most responders are well connected, at ease and familiar with internet communications in various forms. Over 80% have some form of high speed connectivity. Landlines and smart phones predominate, followed by e-mail. Faxes and Skype are used at least weekly by most respondents. Listservs and blogs are least utilized. Some 80% use smart phones, which are sophisticated devices that deliver full internet connectivity.

CONCLUSION: Findings from this survey will inform targeted capacity building to streamline and enhance CAAN's communications. The findings will provide a solid foundation for future research to test the top three communication vehicles highlighted in the survey: Facebook, email and websites. Future research will test these approaches to maximize CAAN's presence in social media and traditional forms of communication.

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CHANNELING CBR POTENTIAL: SETTING HIV/AIDS COMMUNITY-BASED RESEARCH PRIORITIES IN COMMUNITIES ACROSS CANADA

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BACKGROUND: At the heart of community-based research (CBR) lies meaningful involvement of community partners at every stage, starting with the identification of locally informed research needs. The

Canadian Institutes of Health Research (CIHR) CBR Collaborative: A Program of REACH (CIHR Centre for Research Evidence into Action for Community Health in HIV/AIDS) is a vibrant national network of community-based organizations, people living with HIV, researchers, clinicians and policy makers fostering relevant CBR that works to improve the health and well-being of people with or at risk of HIV. In order to strengthen regional partnerships and community voice, the CBR Collaborative conducted regional consultations in its seven regions to identify research and CBR capacity-building priorities across the country.

METHODS: The CBR Collaborative relies on regional core teams who are intimately familiar with the context and concerns in their areas to direct the consultation processes. Consultation methods varied to take into account regional specificities including language, priority populations and communities, geographic dispersion of targeted participants and regional histories of community-based research.

RESULTS:

Region	Regional Context	Participatory Priority Setting Process
Atlantic Canada (Nova Scotia, Newfoundland and Labrador, New Brunswick and Prince Edward Island)	• Strong levels of meaningful engagement, participation, collaboration and partnership have existed in the Atlantic region. Although the term "CBR" hasn't always been applied to the work in this region, it has been in practice for many years • AIRN has been a functional regional research network in HIV/AIDS and Hepatitis C (HCV) since 2005. Over the years, AIRN has hosted many workshops and strategic planning meetings to ensure that the work being moved forward in this region is in line with the needs of the communities directly impacted and affected by HIV/AIDS and HCV	• Document review (reports, research findings, open teleconference call and meeting discussions, etc.) and thematic coding for reoccurring themes (AIRN membership – over 250) • Discussion via monthly meetings with the Atlantic Core Team (15 members) followed by online voting • Priorities to be reviewed on a bi-annual basis.
Québec	• Although many stakeholders have been involved in CBR in the province, levels of expertise differ. A priority-setting meeting represented a novel opportunity to share past experiences and develop a concerted agenda • COCQ-SIDA (a coalition of community-based organization in Quebec) has been housing a CBR coordinator since 1995	• QC core team identified an initial list of research priorities and capacity-building priorities. The list was amended through consultation of a variety of partners. • 2-day workshop (52 participants) was held on October 2013 • Synthesis report will serve as a guide for action and periodic revisions of priorities
Ontario	• The Ontario HIV Treatment Network (OHTN) has a strong history of leadership and an established infrastructure to support HIV research in Ontario • OHTN houses the CIHR CBR Collaborative	• ON has relied on the already existing OHTN strategic plan Striving for Excellence that involved four consultation processes across the province to identify CBR research priorities
Manitoba	• There has been a long history of HIV related CBR in Manitoba • Current iteration of coordinated CBR, as well as involvement with REACH is in an earlier stage then many provinces	• Priority setting is done in consultation with a Manitoba Advisory Team, a voluntary group made up of academics, front line service providers, policy makers and community based organizations • The team meets bimonthly to discuss regional priorities, and stay connected to regional CBR in HIV/AIDS
Saskatchewan	• The multidisciplinary Saskatoon HIV/AIDS Research Endeavour (SHARE) was formed in 2011 to move research efforts forward and affect the research landscape for HIV in Saskatchewan • Coordinated CBR approach still in early stage	• Working on partnership development and developing a community network to discuss HIV CBR priorities • Priority setting has happened in a grassroots manner
Alberta	• Alberta Community Council on HIV (ACCH) supports community-based responses and provides provincial leadership • Does not have a CBR Manager	• With support of CIHR CBR Collaborative, national staff hosted a CBR Strategy meeting to identify gaps and opportunities for engagement in CBR
British Columbia	• BC has a strong history of HIV leadership and research and CBR has been a growing focus • The Pacific AIDS Network's CBR program was started in 2011, has hosted two HIV/AIDS CBR workshops and hosts quarterly "CBR in BC" meetings for diverse stakeholders	• BC Core Team identified a list of initial research priorities • 2-day workshop with (70 participants) with an additional follow up survey to confirm and revise initial list of research priorities and capacity building needs • Priorities reviewed and progress monitored by the BC Core Team

CONCLUSION: Overall this work has provided a focused agenda for CBR work both regionally and nationally and is supported by the efforts of the CBR Collaborative regional coordinators. Research priorities for each of the regions are in the process of being finalized, and initial findings show that priorities in each region are distinct, but also share common themes, and cross-regional priorities were also identified. Many research priorities are beginning to be addressed through the development of new regional or national projects.

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USING METAPHORS AND PARABLES TO COMMUNICATE ABOUT HIV SCIENCE: RESULTS FROM A QUALITATIVE STUDY IN SOUTH AFRICA

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BACKGROUND: Metaphors and parables are employed by physicians, nurses, and peer educators to clarify a range of health issues. Yet there are few studies that examine how metaphors and parables are used by front-line health care workers to communicate about HIV science in low and middle-income countries.

METHODS: Using purposive sampling, semi-structured interviews were conducted in English or isiXhosa with peer educators from the Treatment Action Campaign (TAC) office in Khayelitsha, South Africa. All interviews were digitally recorded, transcribed verbatim, and translated. Using narrative thematic techniques from grounded theory, data were coded and analyzed using a constant comparative method.

RESULTS: Peer educators (n=20; 13 women and seven men) use a range of conceptual metaphors and analogies to render scientific concepts more accessible to their patient population. Examples include: 1) The metaphor "the body's soldiers" to refer to the human immune system and explain how HIV attacks the CD4 cells; 2) A parable about a snake (HIV) being immobilized by a rock (anti-retroviral medications) to reinforce the importance of good adherence to ARVs, and 3) A parable about a thug (HIV) gaining entry to a school (the human body) by donning the school uniform to explain how HIV eludes the immune system's defenses when entering the human body.

CONCLUSION: This study contributes to a greater understanding of how knowledge translation and exchange (KTE) activities are conducted in practice. Peer educators in South Africa find figurative language to be a useful, and perhaps even necessary, adjunct strategy to communicate about HIV science. Though metaphors and analogies can be used to clarify scientific concepts and reinforce HIV prevention and treatment messages, they can also lead to confusing or mistaken conceptualizations of disease. This study highlights the advantages of figurative language, as well as opportunities for future training activities to improve its usage.

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PEER EDUCATORS' STRATEGIES TO ADDRESS MISTRUST OF HIV SCIENCE IN SOUTH AFRICA

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BACKGROUND: Suspicion of medical providers, HIV treatments, and public health prevention messages – collectively referred to as medical mistrust – can hinder access to HIV/AIDS prevention and treatment services. Some scholars recommend enlisting peer educators as trusted sources of information to advocate on behalf of biomedical HIV science with their peers. Yet few studies investigate how peer educators engage with medical mistrust among target populations, and what strategies they employ to reach individuals with doubts, suspicions or unanswered questions.

METHODS: Using purposive sampling, semi-structured interviews were conducted in English and/or isiXhosa with peer educators from the Treatment Action Campaign (TAC) office in Khayelitsha, South Africa. All interviews were digitally recorded, transcribed verbatim and translated, if necessary, into English. All respondents were asked about challenges they face in their work as peer educators, and their strategies for conveying complex scientific information. Using narrative thematic techniques from grounded theory, data were coded and analyzed using a constant comparative method.

RESULTS: Peer educators (n=20, 13 women and seven men) report being regularly questioned and challenged by their peers about the reliability and trustworthiness of scientific claims about HIV. In response, they employ four different techniques: 1) Reiterating biomedical concepts as accurately as possible; 2) Drawing on personal sources of credibility and experience as people who are living with HIV; 3) Referencing everyday observable experiences from the community and/or national debates; and 4) Employing metaphors or parables to explain complicated scientific concepts.

CONCLUSIONS: This study draws attention to the process of dissemination and interpretation of scientific information about HIV within South Africa. In their role as brokers on behalf of HIV science, peer educators report significant challenges. They respond less as passive conduits of information than as active mediators of scientific information. Training initiatives could further augment peer educators' skill in negotiating these challenging encounters.

Epistemic Injustice: Criminalization, Social, Political, Ethical, Legal and Human Rights Perspectives

Injustice épistémique : perspectives sociales, politiques, éthiques et juridiques et optique de criminalisation et des droits humains

P204

ON POINT: MAKING PRISON-BASED NEEDLE AND SYRINGE PROGRAMS WORK IN CANADA

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OBJECTIVES: While the issue of access to prison-based needle and syringe programs (PNSPs) is before an Ontario court, the question remains of how such programs might be effectively implemented in federal prisons. With the support of a grant from the Institutes of Gender, Sex and Health Research of the Canadian Institutes of Health Research, stakeholders in the fields of HIV, Indigenous health, women's health, harm reduction and prisoners' rights tackled this question at a national workshop earlier this year.

ACTIVITIES: Workshop presenters including prison in-reach workers, prison health care staff, former prisoners, harm reduction workers and prison health researchers helped 'set the stage' for participants concerning the HIV/HCV epidemic and access to health care behind bars and the structure and organization of Canadian prisons; discussed challenges to comprehensive harm reduction measures in the correctional system; described different PNSP models operating in a range of jurisdictions; considered PNSP implementation in diverse Canadian prison settings; debated critical issues for PNSP implementation; and developed a preliminary framework for PNSP guidelines.

LESSONS: A preliminary framework for PNSP guidelines was developed, taking into account the 'pros' and 'cons' of different programs models adopted elsewhere and differences in Canadian prison settings, Indigenous peoples' and women's unique experiences of incarceration, and 'best practice' approaches to community-based needle and syringe programs. The workshop concluded with a session devoted to strategizing next steps in PNSP implementation, yielding a number of advocacy initiatives.

CONCLUSION: The national meeting was indispensable in bringing together key stakeholders to disseminate PNSP research, building new partnerships, and developing a framework for practical PNSP guidelines, the results of which will be outlined in the presentation. These guidelines will serve as the basis for further consultation with currently and formerly incarcerated people and prison health care staff, with the ultimate objective of producing comprehensive guidelines for PNSP implementation in Canada.

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BEDFORD AND BEYOND: SEX WORK, HEALTH AND HUMAN RIGHTS BEFORE THE SUPREME COURT

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Over 20 years since the Supreme Court of Canada wrestled with the constitutionality of prostitution laws, three current and former sex workers in Ontario sought an order to strike down Criminal Code provisions dealing with common bawdy-houses, living on the avails of prostitution and communicating for the purpose of prostitution. While sex work in itself is

not illegal in Canada, these provisions endanger the health and safety of sex workers because most measures that could be taken to increase their personal security are against the law.
In 2013, the Canadian HIV/AIDS Legal Network, the Gender and Sexual Health Initiative of the BC Centre for Excellence in HIV/AIDS and the HIV & AIDS Legal Clinic Ontario intervened before the Supreme Court, arguing that there is ample evidence that the challenged provisions drive sex workers away from key health care and harm reduction services; leave sex workers with inadequate time to screen potential clients and negotiate the terms of a transaction (including condom use); render sex workers more vulnerable to violence and diminish their ability to practice safer sex by displacing them to more secluded areas; deter those working in bawdy-houses from making large quantities of safer sex materials available; and alienate sex workers from their networks of support.
In a landmark decision, the Supreme Court struck down the three challenged criminal provisions because they violate sex workers' constitutional right to security of the person. The invalidation of the provisions was suspended for one year to allow the federal government to consider whether to design new laws that comply with the Charter. In the interim, sex workers and their allies continue to strategize to find ways to meaningfully engage with parliamentarians to ensure a new legal framework respects and protects their human rights and is based on the best available scientific evidence.

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BILL C-2 OR MORE THAN TWO?: THE EVOLVING STATE OF CANADIAN DRUG LAW AND ITS IMPACT ON SUPERVISED CONSUMPTION SERVICES

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In September 2011, the Supreme Court of Canada upheld an exemption from Canada's criminal prohibition on drug possession for Vancouver's supervised injection site, meaning it could continue to operate without risk of clients or staff being prosecuted. The Court declared that allowing the prohibition to extend to Insite would force people who use drugs to choose between liberty and health. Denying access to Insite would contribute to preventable death and disease, violating their constitutional rights to life and to security of the person.
Two years later, and more than a decade after the first supervised consumption services (SCS) started in Vancouver, there is still only one exemption issued under the Controlled Drugs and Substances Act (CDSA), and only two sites offer SCS in an open, ongoing fashion. (Other, peer-driven services have periodically operated, with less legal security and at greater risk of interference by police.) This evidence-based health service remains illusory for most people in need, although plans to implement SCS are moving forward slowly in several municipalities, and applications for exemptions to open new sites are anticipated in 2014.
In 2013, the federal government introduced Bill C-2 to create multiple barriers to scaling up SCS (and possibly creating a legal premise for shuttering Insite). These pending amendments to the CDSA, and the legal and political fight they entail – including potential further court proceedings – will play a key role in determining whether, when and where SCS can be scaled-up to protect individual and public health.
This presentation gives an overview of a policy analysis prepared by the authors. In addition to an accessible background discussion of the history and scientific merits of SCS, it provides a critical human rights-based, evidence-based analysis of Bill C-2 and thoughts on how to resist such legislative initiatives, now and in the months ahead.

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FOSTERING CULTURAL SAFETY IN NURSING PRACTICE WITH PEOPLE WHO USE DRUGS

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BACKGROUND: People who use drugs often report negative health care experiences and as a result may delay, discontinue or avoid seeking care. Registered nurses are a key point of health care access and play an important role in the delivery of care to this group. However, there are few models to enhance and guide the provision of such care. Cultural safety is a value based framework that has been used successfully in some settings for the delivery of care to indigenous populations but has not been applied to the culture of drug use.
METHOD: This project's purpose was to generate new knowledge and foster understanding of what constitutes culturally safe nursing care in acute care settings for people who use drugs and are socially disadvantaged. Most of the patient sample was HIV positive. The research took place on two medical units at an urban Canadian hospital. We used a qualitative, ethnographic research design and used purposive sampling to recruit key informants. Data collection consisted of a) participant observation, b) in-depth interviews with nurses and nurse managers, c), in-depth interviews with patients, and d) document analysis, including patient charts, care plans and organizational policies. Data were analyzed using interpretive description.
RESULTS: Both nurse and patient interviews highlighted i) constructions of drug use and underlying values that are deeply embedded in organizational structures and ii) nursing approaches that helped mitigate negative experiences and create safe welcoming spaces. Nurses also highlighted that they operate within complex and contradictory layers of value laden policy in relation to harm reduction and patients highlighted how values towards drug use embedded in hospital environments shaped their hospital experience.
CONCLUSION: We conclude by proposing policy solutions to support the delivery of culturally safe care in acute care settings.

P208
THE EFFECT OF R V. MABIOR ON HIV/AIDS SERVICE PROVISION

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BACKGROUND: In October 2012, the Supreme Court of Canada ruled that prior to engaging in vaginal sex, a PHA must disclose their HIV status if having sex posed a "realistic possibility" of HIV transmission. The charge of "aggravated sexual assault" could be levied upon a PHA unless two conditions were met: 1) a condom was used, AND 2) the PHA had a low or undetectable viral load.
This criminalization of HIV nondisclosure raises several concerns, including how the ruling would impact support services offered to PHAs. This qualitative study examined the impact of HIV nondisclosure criminalization on support services to PHAs in Toronto.
METHODS: Semi-structured interviews were conducted with 15 HIV/AIDS service providers in Toronto. Through listserves and outreach a broad range of service providers were recruited. The interviews were recorded and transcribed verbatim. The research team used inductive thematic analysis to extract common themes reported among providers.
RESULTS: Preliminary analysis revealed three main themes: 1) increasing stigmatization of PHAs related to criminalization, 2) providers' and PHAs' fears regarding prosecution, and 3) confusion and/or lack of knowledge. Providers articulated that this ruling is further stigmatizing to PHAs, and many felt that certain populations would be particularly impacted, namely women, sex workers, those with mental health concerns or addictions, and those in controlling or abusive relationships. Providers conveyed clients' and their own fears regarding prosecution and ways to prove disclosure. Providers discussed that many clients did not know or fully understand their obligations to disclose their status. Many service providers themselves expressed confusion over the application of the ruling.
IMPLICATIONS: The findings highlight the impact of criminalization of nondisclosure on PHAs particularly for the provision of support services. These findings suggest this ruling may further stigmatize PHAs and increase their vulnerability to criminal charges.

P209
SEXUALITY, PREVENTION WORK & THE CRIMINALIZATION OF NON-DISCLOSURE OF HIV

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In 1998, the Supreme Court of Canada (SCC) ruled that persons with HIV have the legal responsibility to disclose their status to partners if their sexual interaction would expose their partners to 'significant risk of bodily harm'. Failure to do so constituted fraud, as the partner did

not have enough information to make an adequately informed decision, thereby vitiating consent to sexual activity and often resulting in a charge of aggravated sexual assault. In 2012, the SCC revisited the issue of non-disclosure and clarified their ruling, replacing the need to prove 'significant risk' with the 'realistic possibility of transmitting HIV'. Currently, the only legally determined situation where there is no such 'realistic possibility' is instances of heterosexual vaginal intercourse under which both condoms are used and the positive individual has a low viral load. From a legal standpoint, at this time, other sexual acts could qualify as being a realistic possibility of transmission and thus legally requiring disclosure. Many advocacy organizations, researchers and people living with HIV/AIDS (PHA) point out that the law criminalizes instances of potential exposure where the chance of transmission of the virus is infinitesimal, serves to perpetuate and produce stigma, and undermines HIV prevention initiatives.

Through qualitative interviews with 40 PHAs and 15 prevention workers, this sociological study examines how the criminalization of non-disclosure interacts with prevention work. Criminalization and perceptions of criminalization function as a barrier to prevention initiatives as such discourage PHAs from engaging in prevention and risk-reduction programs. Criminalization produces an air of paranoia and uncertainty in which PHAs are uncomfortable with participation in programs which involve talking about sex due to fears of persecution. Ramifications for prevention work & recruitment, public policy and human rights are discussed.

Intersectional Framing of HIV, Sex, and Gender: Contested Contexts, Experiences, and Responses

Encadrement intersectionnel du VIH, du sexe et du genre : contextes, expériences et interventions contestés

P210
A SYSTEMATIC REVIEW OF STIGMA-REDUCING INTERVENTIONS FOR DIASPORIC BLACK, AFRICAN AND CARIBBEAN WOMEN LIVING WITH HIV IN CANADA

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BACKGROUND: Despite the growing number of African diasporic women living with HIV (WLWH) in Canada, little current research has been conducted to determine the social and structural factors driving these health inequities. There exists significant literature documenting the association between health, well-being, and quality of life of African diasporic WLWH and intersecting forms of stigma. However, there remains a gap in knowledge pertaining to effective HIV-related stigma-reducing interventions to improve health that also attend to diversities across race, gender, sexuality, and culture for such populations. Therefore, the objective of this systematic review was to identify evidence-based practice interventions that have been proven or are promising in terms of effectiveness in reducing intersectional stigma in this population.

METHODS: The Cochrane methodology was used to develop a search strategy. Databases searched included: Cochrane Library, EMBASE, PsycInfo, and thirteen others. Two reviewers independently assessed the studies for potential relevance and conducted the Cochrane grading of RCTs to assess risk of bias and the Newcastle-Ottawa scale to assess the quality of non-randomized studies. Eligible papers employed an intervention design with African diasporic WLWH as the target population and had a primary outcome of stigma reduction.

RESULTS: Of the 10,931 titles screened, five articles were selected for full inclusion; three of the selected studies were small scale RCTs and the remaining two studies had a quasi-experimental design. They included two emotional writing disclosure (EWD) interventions, and one each involving self-care symptom management, a coping intervention and a didactic workshop. One study in particular, "the Unity Workshop" was shown to be particularly effective in reducing stigma.

CONCLUSIONS: The review did not identify an intervention that combined multiple forms of stigma including race, class, gender and sexual orientation; however it was successful in identifying an HIV stigma-reducing intervention that can be used to inform intervention design.

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POSITIVE WOMEN'S LEADERSHIP TRAINING INITIATIVE: FOSTERING INDIVIDUAL AND COMMUNITY GROWTH

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ISSUE: There is a lack of leadership opportunities for HIV+ women (WLHIV) living in BC. Many WLHIV are multi-barriered from achieving full participation in BC's social and democratic life.

DESCRIPTION: Pacific AIDS Network (PAN) is a member-based coalition that supports its member organizations to respond to HIV, HCV and related diseases in BC. PAN, in partnership with Positive Women's Network (PWN), an organization that provides education, support and resources for WLHIV in BC, is providing leadership training for 54 WLHIV from BC's diverse geographic regions from June 2011 to May 2014, funded by Status of Women Canada. The goal is to support WLHIV to realize leadership potential and increase capacity to participate meaningfully in community life through trainings: "Core Leadership Training - Who am I as a leader?"; "Bored? Get on Board!"; "Communication Skills;" as well as leadership graduate retreats and mentoring events. All training-related expenses including transportation are covered. Qualitative interviews are conducted with participants at three, six and 18 months post-training. Training is based on Ontario AIDS Network's Positive Leadership Development Institute.

LESSONS LEARNED: To date, 40 WLHIV have graduated. PAN and PWN offering individual support for women is critical, from recruitment to post training follow-up. On average, 90% of participants self-report higher level of confidence, 81% report new knowledge acquired, 85% report deeper motivation to build their own lives, and 100% report strengthened leadership capacity and are exploring volunteer and job opportunities to strengthen their skills.

CHALLENGES: Housing instability, addiction and mental health issues, poverty, childcare issues, fear of disclosure, HIV stigma, gendered violence and other barriers continue to prevent some women from participating.

NEXT STEPS: Our results thus far indicate that combining personalized individual support with leadership training significantly improves women-specific capacity and representation within decision-making for influencing programs and services for women affected by HIV/HCV.

P212
THE NATIONAL CONSENSUS STATEMENT ON WOMEN, TRANS PEOPLE AND GIRLS AND HIV RESEARCH IN CANADA: RECOMMENDATIONS FOR SOCIAL SCIENCE RESEARCHERS

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INTRODUCTION: Although sex and gender are recognized as key determinants of health, the unique HIV research needs of women, trans people and girls continue to remain largely underexplored. Given the complex and diverse lived experiences of women, trans people and girls in relation to HIV prevention, treatment, care, and support, greater emphasis on the interplay of sex and gender with other determinants of health, including their impact of health outcomes, is needed in framing research approaches.

METHODS: Starting with the 2009 CAHR conference, a series of in-person and online consultations took place with various stakeholders to understand gaps in current research approaches in meeting the needs of women, trans people and girls. Through these national consultations, including government, public health, ASOs, researchers, and individuals

living with HIV, key recommendations for HIV research spanning all research tracks were developed.

FINDINGS: Recommendations specific to social science HIV research include: examining lived experiences of women and trans people as they age and enter care facilities (#14), exploring social factors which increase the risk of women, trans people and girls of contracting HIV (#15), conducting novel research in communities most affected by HIV (#16), examining unique treatment barriers experienced by those raising children (#22), exploring the impact of emerging biomedical prevention strategies with diverse populations of women, trans people and girls (#31).

CONCLUSION: This National Consensus Statement provides 31 recommendations as a jumping-off point for future, novel research that recognizes and addresses structural drivers of HIV infection as they impact women, trans people and girls. A core guiding principle is concern for the wellbeing of women, trans people and girls living with or at risk of HIV and to preserve and promote their inherent right to health. In this regard, social sciences can play a key role in shaping the future of innovative HIV research responses in Canada.

P213
JUDGING MOTHERS: CRIMINALIZATION'S CREEP INTO THE HEALTH AND SOCIAL CARE OF HIV-POSITIVE MOTHERS

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INTRODUCTION: The criminal law is one of society's most powerful methods of regulating conduct and punishing behaviour that diverges from societal norms. Canadian criminal law is applied aggressively to HIV, resulting in considerable debate regarding the current requirement to disclose before sex posing a "realistic possibility of transmission." These debates focus on the formal legal consequences for people living with HIV with respect to their sexual behaviours, usually disregarding how health and social care practices and policies mirror HIV criminalization. This presentation exposes the surveillance experienced by HIV-positive mothers within this criminalized context.

METHODS: Interviews were conducted with 77 HIV-positive women from Ontario in their 3rd trimester and at three and 12 months postpartum as part of the HIV Mothering Study. Narrative informed content analysis was conducted by researchers and peer research associates (mothers living with HIV) to unpack the women's stories focusing on two settings: perinatal care in hospital and interactions with child protection services. Jurisprudence and legal literature were reviewed to contextualize the narratives within the socio-legal discourse on HIV criminalization. Critical feminist analysis was used to highlight the intersection between criminalization of HIV and the experiences of HIV-positive pregnant women and mothers.

RESULTS: Pregnant women and mothers are under surveillance regarding the management of their HIV, preventing transmission to the baby, and the deemed social appropriateness of their parenting. Positioning their narratives within the HIV criminalization discourse highlights: connections between formal and informal judgments of mothers living with HIV; the surveillance women are subjected to beyond the criminal sphere; and the impact of this surveillance and judgement on their experiences of health and social care.

CONCLUSION: The formal criminalization of HIV creates conditions for health and social care providers to monitor, intervene in, and condemn parenting by women living with HIV across Ontario. Responding to the far-reaching consequences of the criminalization of HIV requires focusing beyond sex to a holistic understanding of the lives of people living with HIV, in particular women during pregnancy and motherhood.

P214
PERINATAL CARE EXPERIENCES OF MOTHERS LIVING WITH HIV IN ONTARIO: WHAT WORKS AND WHAT DOESN'T

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INTRODUCTION: The evolution of HIV into a chronic illness means that people living with HIV will access care in multiple settings. A good rapport between service user and health provider is important to reduce health disparities and HIV-related stigma. Motherhood can be a stressful time for all women, however, mothers with HIV contend with unique decisions and procedures in the perinatal period. Furthermore, the perinatal healthcare experiences of HIV-positive mothers across Canada are not well understood. This paper highlights how relationships with healthcare providers can affect the experiences of mothers living with HIV when navigating perinatal care in Ontario.

METHODS: Narrative interviews were conducted with 77 HIV-positive women in their 3rd trimester and three months postpartum as part of the HIV Mothering Study in Ontario. Transcripts were coded for healthcare interactions focusing on mothers' and infants' HIV treatment and infant HIV testing. Through thematic analysis and reflexive team debriefing, relationships with healthcare providers emerged as an important theme contextualizing the continuum of care of mothers living with HIV across Ontario.

RESULTS: Healthcare interactions with providers in HIV and non-HIV services ranged from troubling to positive. How relationships with providers were established and maintained was a strong predictor for healthcare experiences. Difficult interactions were non-communicative, silencing, stigmatizing, and frustrating with little regard for confidentiality, disclosure and women's identities as mothers. Positive interactions were characterized by effective communication, establishing a connection with a provider who took the time to listen, was accessible and responsive to holistic needs. Trusting and open relationships with their healthcare team facilitated mothers' adherence to HIV medications, reduced anxiety of perinatal HIV transmission and supported administration of ARVs to their newborn.

CONCLUSIONS: Healthcare providers strongly influence a woman's perinatal experience and how they navigate the healthcare system. More training of providers across all sectors is needed to appropriately engage mothers living with HIV in treatment decision-making and care. Building trusting patient-provider relationships that pays attention to power dynamics is critical to ensuring HIV-positive mothers receive appropriate perinatal care.

P215
COMPULSORY AND INTERSECTIONAL HETEROSEXISM IN HIV RESEARCH CONFERENCES: THEORIZING QUEER WOMEN'S (NON) INCLUSION

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BACKGROUND: Queer women have been elided from HIV discourse, in part due to heterosexist constructions of HIV transmission risk categories that omit women's sexual orientation. Intersectionality has been increasingly applied to understand the complex interrelationships of social identities and power relations. Intersectional approaches to heterosexism, and the interface of intersectional and biomedical frameworks in HIV discourse, warrant further interrogation.

METHODS: This study involves a reflection on presenting at two international HIV research conferences on queer women and their erasure from HIV discourse. I employ an autoethnographical approach to critical discourse analysis to investigate how my personal experiences as a queer woman presenting at these HIV conferences mirrored queer women's marginalization in HIV research.

DISCUSSION: Reactions to my presentations focused on dominant biomedical and neoliberal discourses that neglect social and structural drivers of the epidemic. This study reveals how conference attendees also

challenged context, topics and structures of my presentations in ways that (re)produce queer women's invisibility and institutional, social, and material exclusion. Heterosexist and categorical constructions of sexuality constrain theoretical possibilities of women's sexual identities and practices. Audience members also supported my call for intersectional approaches to queer women's sexuality. This discursive resistance highlights the multidirectionality of shaping ideology through discourse and can rupture heterosexism in discussions of queer women and HIV.

CONCLUSIONS: This study calls for HIV researchers to integrate analyses of women's complex sexualities, social public health, and reconsider the purpose of knowledge production. Expanding the possibilities of queer women's sexualities can inform more complex theorizations of 'risk' and has the potential to challenge intersectional and compulsory heterosexism. The social public health lens reframes HIV research, typically dominated by biomedical narratives, to create space for the social. Finally, these experiences at HIV research conferences demonstrate the need to move beyond a neoliberal focus on individualism and economic efficiency in HIV knowledge production to challenge social exclusion.

Living with HIV/Living with GIPA: Resilience(s), Stigma(s) and Disclosure(s)

Vivre avec le VIH / vivre selon le principe GIPA : résilience, stigmatisation et divulgation

P218
DECIDING TO STAY WITH OR RETURN TO WORK

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This study examines PHA narratives concerning the decision to stay with or return to work. It draws on 30 qualitative interviews with employed and unemployed PHAs drawn from a wide range of occupations in Ontario as part of the Employment Change and Health Outcomes in HIV and AIDS (ECHO) study. Narratives were generated in response to the questions, Why did you decide to stay with or return to taxable employment? What rewards does returning to work entail? and What difficulties or challenges does returning to work entail? The leading theme emerging from the interviews is a narrative about working being part of a core sense of the self coupled with a sense of obligation to be productive. Related to this is a set of narratives about how work provides its own satisfactions. An alternative current running through the narratives is the desire for a better standard of living, often stated in contrast to being on ODSP which is characterized as restrictive, controlling, and financially inadequate. Challenges raised concerning return to work concern anticipating the adequacy of drug coverage or provision of time off for illness. Age and health status also enter into self-assessments of career opportunity. Finally some PHAs express a feeling of being "trapped" in being unable to abandon ODSP or if employed, to move to other job opportunities because of the drug and other health benefits they may have at present.

P219
POSITIVE WOMEN'S NETWORK'S MEMBER ENGAGEMENT SURVEY: ENGAGING POSITIVE WOMEN'S VOICES IN HIV SERVICES

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ISSUE: There is a lack of women-specific services available to women living with HIV (WLHIV) in BC. There is also a lack of knowledge about how WLHIV are connecting and engaging with HIV services. WLHIV are underrepresented at all organizational levels of HIV services; their voices are not often heard. Positive Women's Network (PWN), a partnership of women living with and affected by HIV, is the only women-specific HIV organization in BC. PWN seeks to provide relevant and timely resources, services, and programs by engaging directly with the membership; currently over 750 "members" (WLHIV).

DESCRIPTION: Since 1991, PWN has provided a range of leadership, support, and health education to WLHIV across BC. From May-November 2013, the survey author, a PWN staff member also living with HIV, conducted a survey in order to assess member needs and relevance of PWN's programs. Survey was mailed/emailed to 301 members with a 12% return rate. Diversity of survey participants is representative of PWN's membership demographics. Survey topics included: access to and evaluation of PWN programs and resources, perceived benefits of being a member, and feedback on program development.

LESSONS LEARNED: Survey participants report connecting with HIV+ women through PWN as life changing. Accessing PWN's website and print resources, and attending wellness retreats are highly valued, particularly for rural WLHIV.

CHALLENGES: Because of housing instability, fear of disclosure, barriers associated with seeking services, social and structural violence and gendered power relations, and stigma, PWN has contact information for less than 50% of its members and there was a low survey return rate.

NEXT STEPS: Our results indicate that women-specific HIV services focusing on peer support significantly improves the lives of WLHIV. Promoting WLHIV representation at all levels of HIV services and making women-specific HIV services and resources more readily available beyond urban centres are proposed.

P221
UNDERSTANDING THE LIVED EXPERIENCES OF OLDER ADULTS LIVING WITH HIV IN ONTARIO: AN EXAMINATION OF STRENGTHS AND RESILIENCE IN A VULNERABLE POPULATION

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BACKGROUND: Older adults constitute an increasing proportion of those living with HIV. While some face serious medical and psychosocial issues, many others report they are doing well. This qualitative study aimed to understand characteristics associated with aging well with HIV and to understand factors that hinder this process.

METHODS: Using a modified grounded theory approach, men and women 50 years and older were recruited in Toronto and Hamilton, Ontario. Inclusion criteria were age (50+), self-defined "aging well" with HIV and ability to provide informed consent. Participants were recruited through ASOs, community and university based medical clinics and other community agencies. Thirty in-depth semi-structured interviews were conducted between February-May 2013. Interviews were audio-recorded and transcribed verbatim. Open coding was used to identify themes that were consistent throughout the transcripts. Major themes were finalized by consensus by all team members.

RESULTS: Through preliminary analysis, six themes were associated with aging well with HIV: 1) Centrality of HIV, 2) Gift of life, 3) Self-Care, 4) Spirituality, 5) Social Connectedness and 6) Resilience. Participants routinely stated they were not defined by HIV and proclaimed it was not central to their identify. While many professed gratitude for a longer life they did not expect, they identified others (family, partners and HIV+ friends) and a variety of traditional and non-traditional spiritual approaches that helped with well-being. Self care was also important and included medical care, medication adherence and alternative therapies including massage, acupuncture and meditation. Resilience or overcoming difficult and tragic life events including suicide attempts, addiction, abuse and violence, was an important context.

IMPLICATIONS: Participants identified intrapersonal and interpersonal strengths that they associated with aging well, while many identified serious life course events that required resilience. Future research should create and test potential intervention strategies for assisting older adults in maximizing wellness as they age.

P222
RELIABILITY AND VALIDITY OF THE HIV DISABILITY QUESTIONNAIRE (HDQ) WITH ADULTS LIVING WITH HIV IN CANADA AND IRELAND

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OBJECTIVE: The HIV Disability Questionnaire (HDQ) is a 69-item self-administered questionnaire, developed in Canada, that measures disability experienced by people living with HIV. Our purpose was to assess internal consistency reliability, and construct validity of the HDQ with adults living with HIV in Canada and Ireland.

METHODS: We recruited adults with HIV from hospital clinics and AIDS service organizations in southern Ontario, Canada and Dublin, Ireland. We administered the HDQ along with health status and demographic questionnaires. We calculated HDQ disability presence, severity and episodic scores (scored from 0 to 100). We calculated internal consistency coefficients for the disability and episodic scores and considered coefficients >0.80 acceptable. To assess construct validity, we tested 40 a priori hypotheses of correlations between scores on the HDQ and other measures and two known group hypotheses based on age and comorbidity. We considered acceptance of >75% of hypotheses as demonstrating support for construct validity.

RESULTS: Of the 235 participants (139 Canada; 96 Ireland), the majority were men taking antiretroviral therapy. Compared with Irish participants, Canadian participants were older and reported living with a higher median number of comorbidities. Highest median disability severity scores were in the uncertainty domain. HDQ severity and presence scores were higher among Canadian participants across all domain and total scores, except for uncertainty. The internal consistency coefficients for Irish and Canadian participants were 0.973 and 0.965 respectively, for the severity scale and 0.978 and 0.963, respectively, for the episodic scale. Of the 40 construct validity hypotheses, 32 (80%) and 22 (55%) were supported among the Canadian and Irish populations respectively; both (100%) known group hypotheses were also supported.

CONCLUSIONS: The HDQ demonstrates internal consistency reliability and construct validity when administered to adults living with HIV in southern Ontario and Ireland. Differences in validity between Ontario and Ireland may be due to lower HDQ scores among Irish participants who were younger and reported less comorbidity, cultural differences, and differences in HDQ interpretation. Further work to explore HDQ applications outside of Canada is needed.

P224
BUZZ 2: A FOCUS ON MOTIVATIONAL TRIGGERS

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OBJECTIVE: Buzz 2 is a workshop that focuses on motivational triggers to enhance communication between patients and Health Care Providers (HCPs) and the results to date will be described.

BACKGROUND: Buzz 1 was a workshop that focused on learning about one's own communication style and how to identify and adapt to someone else's communication style. Buzz 2 is a follow up workshop that focuses on two Motivational Triggers: Internal/External, which deals with how people take in and process information and Away From/Towards, which deals with how people view situations. Participants learned ways to identify these Triggers and how to adapt their own communication style in order to enhance communication with patients. Participants completed pre- and post workshop questionnaires.

RESULTS: Before the workshop, 56% of participants felt it was important to motivate a patient to live a healthier lifestyle and this increased to 80% post workshop. There was also an increase in how confident they felt in being able to apply motivational triggers to affect a lifestyle change (30% versus 73%). Before the workshop 67% of participants felt confident in proactively engaging patients in a discussion on ARV side effects and post workshop this increased to 84%. At the end of the workshop 84% of participants stated that they would be likely to identify motivational triggers when communicating with patients.

CONCLUSION: A workshop designed to enhance communication between HIV patients and HCPs may have a beneficial effect on reducing communication barriers and enhancing patient care.

P225
EXPLORING SOCIAL, STRUCTURAL AND HEALTH CONTEXTS OF POVERTY AMONG AFRICAN, CARIBBEAN AND BLACK WOMEN LIVING WITH HIV IN ONTARIO

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BACKGROUND: Poverty is a powerful structural driver of HIV infection; for women living with HIV (WLWH) poverty may contribute to deleterious health and social outcomes. Structural drivers of HIV, such as poverty, are strongly implicated in African, Caribbean and Black women's overrepresentation in HIV infections in Ontario. Few studies have explored how poverty continues to impact the lives of African, Caribbean and Black WLWH. We explored associations between poverty and social (social support), structural (racism, sexism, HIV-related stigma) and health (health care access, depression, quality of life) factors among African, Caribbean and Black WLWH in Ontario.

METHODS: We conducted a community-based study to explore the multifold impacts of poverty on the lives of African, Caribbean and Black WLWH. Building on qualitative findings from 15 focus groups with WLWH (n=104) in Ontario we implemented a cross-sectional survey with African, Caribbean and Black WLWH in three Ontario cities. We conducted multivariate logistic regression analyses to assess correlates of perceived poverty.

RESULTS: Participants' (n=176) mean (± SD) age was 40.7±8.8 years and median monthly income was $1400.00 (range 0 to 7917). Over one-half (52%) of participants agreed with the statement: "I think of myself as poor". Controlling for socio-demographic characteristics, perceived poverty was associated with higher reported mean frequencies of HIV-related stigma (OR 1.18 [95% CI 1.04 to 1.33]; P<0.01), racism (OR 1.13 [95% CI 1.07 to 1.19]; P<0.001), sexism (OR 1.08 [95% CI 1.04 to 1.13]; P<0.001), depression (OR 1.01 [95% CI 1.01 to 1.18]; P<0.05) and lower self-care (OR 0.88 [95% CI 0.77 to 0.99]; P<0.05), social support (OR 0.91 [95% CI 0.85 to 0.97]; P<0.01), quality of life (OR 0.96 [95% CI 0.91 to 0.99]; P<0.05), and fewer physical exams in the past five years (OR 0.93 [95% CI 0.86 to 0.99]; P<0.05).

CONCLUSIONS: This research highlights the salience of an intersectional approach to explore the convergence of multiple axes (eg, poverty, racism, HIV-related stigma, sexism) of social exclusion. Understanding the complex social, structural and health correlates of poverty among African, Caribbean and Black WLWH can inform multi-level interventions to promote health, challenge poverty and reduce stigma.

P226
SHARING THE LAY OF THE LAND: APHA LEADERSHIP INTERVENTIONS

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BACKGROUND: As of 2011, the Public Health Agency of Canada (PHAC) estimates there are 6,380 Aboriginal People living with HIV and AIDS (APHAs). The APHA and at-risk population are not homogenous and many of them are now found in rural, on-reserve and remote communities where information-sharing, internet access, confidentiality and capacity-building opportunities may be very limited. While CAAN and regional Aboriginal and non-Aboriginal AIDS Service Organizations provide a framework for APHA engagement, they do so mostly in southern Canada and do not always have the capacity to facilitate prevention interventions with the hard to reach and underrepresented populations who may not access services. There is anecdotal information however, that some APHAs in these regions demonstrate leadership by providing HIV prevention and intervention services through individual, volunteer, and peer-to-peer outreach.

METHODS: Within an Indigenous and community-based research framework, the Sharing the Lay of the Land project, led by University of Victoria in collaboration with CAAN's APHA Caucus, has completed a literature review on PHA leadership models, an APHA leaders

consultation report and an environmental scan with Aboriginal AIDS Service Organizations (AASOs).

FINDINGS: Innovative, culturally-sound models of engagement have been identified to strategically complement the integration of the GIPA (greater involvement of PHAs) and MEPA (meaningful engagement of PHAs) principles when working with APHAs and AASOs.

RESULTS: A prevention intervention is now in development, grounded within an APHA leadership strategy. The CAAN APHA Caucus recommends that adapted Leadership Training should be pilot tested in local communities and then prepared for scale up to the regional and national levels. CAAN's membership base of Aboriginal AIDS organizations and APHAs is the ideal setting in which to undertake this next phase of research.

P227
DILEMMAS OF AFRICAN, CARIBBEAN AND BLACK (ACB) HIV-POSITIVE WOMEN SERVICE PROVIDERS' EFFORTS TO PROVIDE CULTURALLY APPROPRIATE SERVICES

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BACKGROUND: GIPA principles facilitated the employment of African, Caribbean and Black (ACB) HIV-positive women in peer support services in the HIV/AIDS sector in Canada. However, immigrant ACB women often experience differences in organizational cultures, community values, dominant societal norms and social and legal liabilities in Canada. These issues create tension, contradictions, and conflicts in providing culturally appropriate peer support services for ACB women. To resolve the conflicts, I propose creating Afrocentric models of service provision, taking into consideration best practices from the South, and merging them with the best practices from the North.

METHODS: Based on experiences and observation, we will address how the service provider role emerges for many immigrant ACB women who provide services. We will explore: 1) ways in which individual and community value systems and worldviews shape peer relationships within a Western context, 2) western conceptualization of service provision and how they hinder/facilitate effective delivery of culturally appropriate services, 3) ways in which the worldviews from the North and South can be hybridized, and 4) support systems to optimize ACB women's contribution to delivery of culturally appropriate services

RESULTS: Many PHAs from ACB communities have been employed mostly based on their experience living with HIV and their role as service providers "back home", and sometimes formal Canadian training in social work or public health. Although they have made significant and valuable contributions in providing culturally appropriate (peer)support services, individual/community values and organizational and institutional western concepts of social-legal liabilities creates tension in service provision.Effective Service delivery has to be located in women's everyday lives. Cultural identity values, norms and practices have to be integral to service delivery.

CONCLUSION: Our analysis suggests mechanisms that can be implemented to support ACB women living with HIV as they deliver culturally appropriate services. Further research with immigrant ACB women who provide and use HIV services is also necessary.

P230
AGING WITH HIV: A MODEL OF DISABILITY

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OBJECTIVE: The purpose of this research was to develop a theoretical model of disability describing the challenges of living with HIV from the perspective of older adults.

METHODS: This grounded theory study recruited men and women over the age of 50 living with HIV for participation in qualitative interviews related to various aspects of disability and their health related challenges ageing with HIV. Interviews were audio-recorded, transcribed verbatim and analysed using a grounded theory approach. Recruitment and iterative analyses continued until saturation of data was achieved. The final step consisted of examining the relationships between the themes and developing a preliminary model which was then reviewed by validity check focus groups.

RESULTS: Participants included 29 men and 20 women (mean age of 56; mean years since diagnosis of 13.5). Uncertainty was at the core of the disability experience. Disability was experienced within the context of intrinsic or personal factors including positive living strategies and gender; and extrinsic or external factors such as social supports and stigma. Time emerged as an overarching component which had an impact of the contextual factors and the disability.

CONCLUSIONS: The model builds on existing disability models through highlighting the central role of uncertainty related to ageing with HIV, suggesting health and social service providers have an important role to play in supporting individuals to cope with the uncertainty in their lives. Further research will need to focus on how ageism and age related stigma affects the disability experience of older adults living with HIV and how to support those at most risk of social isolation. The importance of time as a overarching component of the model reinforces the need for longitudinal research to understand the consequences and contributors to disablement over time.

P231
INITIAL VALIDATION OF THE HEALTH CARE PROVIDER HIV/AIDS STIGMA SCALE (HPASS)

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BACKGROUND: HIV stigma is a pressing concern for people living with HIV, particularly when it is perpetuated by health care providers, as it may affect access to and use of health care services. Here we present the development and initial validation of a contextually-appropriate HIV stigma scale for health care providers in North America, called the Health Care Provider HIV/AIDS Stigma Scale (HPASS).

METHODS: The HPASS was developed using a ground-up qualitative approach and was assessed psychometrically with health care trainees across Canada. We generated content for the scale via four separate focus groups conducted with: women living with HIV, men living with HIV, medical and nursing trainees, and health care providers working with people living with HIV. Subsequently, we constructed the HPASS using feedback from focus group participants, a reference group of researchers, and a community advisor. The scale was tested with a sample 224 medical and nursing students across Canada.

RESULTS: The final scale consists of 30 items. Exploratory factor analysis demonstrated a factor structure with three subscales: prejudice, stereotyping, and discrimination. The HPASS demonstrates excellent internal consistency for the total scale score (Cronbach's alpha = 0.940), and prejudice (0.913), stereotyping (0.871), and discrimination (0.917) subscales. The HPASS also demonstrated very strong test-retest reliability ($r=0.933$, $P<0.001$), and convergent and divergent validity. Confirmatory factor analysis demonstrated a stable three-factor structure [$\chi^2/df = 1.885$; RMSEA = 0.063 (90% CI 0.056 to 0.070); CFI = 0.902; SRMR = 0.062].

DISCUSSION: The HPASS comprises a tripartite model of HIV stigma consisting of prejudice, stereotyping, and discrimination. The HPASS provides a new tool to assess HIV stigma in health care providers and can be used to inform training, intervention, and self-evaluation of stigmatizing attitudes, beliefs, and behaviours among providers.

Moving Beyond At-risk and Hidden Populations: Prevention and Intervention Grounded in Local Realities

Au-delà des populations à risque et cachées : prévention et intervention fondées sur les réalités locales

P232
LOCATING PREVENTION, SUPPORT, AND TREATMENT WITHIN TRUSTING HANDS

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The African Caribbean Community Development and HIV Health Initiative (ACCDHHI) Project was developed to reduce the incidence of HIV within African, Caribbean, and Black Canadian (ACB) communities; and to increase both the availability and quality of services to ACB communities affected by HIV/AIDS within the Ottawa region. A qualitative study was conducted to assess the project's relevance and objectives. Representing three populations, 28 participants were employees of "official" service providing agencies, faith-based leaders, and home-country association leaders. To improve responses to HIV/AIDS prevention, support, and treatment within Ottawa's ACB communities, there were two major findings. The ACCDHHI project should: 1) organize basic HIV/AIDS training workshops for service providers that emphasize how to build trusting relationships; and 2) increase service providers' visibility and outreach focus within faith-based groups. Further, participants strongly supported a local agreement that a service providers' network should be established to build capacities, promote resource sharing and best practices, and serve as a circle of care for its members. Without the development of a formal network that engages their recommendations, an interrelated outcome was identified: service providers would continue to lack the capacity to meet the unique needs of ACB communities, and ACB communities would remain inadequately served.

P233
DEVELOPMENT OF A TAILORED VIRTUAL INTERVENTION BASED ON INTERVENTION MAPPING TO PROMOTE POSITIVE HEALTH BEHAVIOURS AMONG PERSONS LIVING WITH HIV: AIDES-TAVIE

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BACKGROUND: Long-term use of antiretroviral therapy, normal aging and presence of certain risk factors are associated with metabolic disorders that predispose persons living with HIV (PLHIV) to diabetes and cardiovascular disease. PLHIV can contribute to prevent the emergence and evolution of these problems by adopting health behaviours such as being physically active, following a healthy diet and quitting smoking. There is a need for early intervention to prevent comorbidity associated with HIV. In the field of health education, using the internet to deliver intervention holds a great deal of promise.

OBJECTIVE: A tailored virtual intervention, AIDES-TAVIE, was developed to empower PLHIV to adopt positive health behaviours.

METHODS: Based on the Theory of planned behavior (TPB), AIDES-TAVIE was developed through Intervention Mapping (IM). IM is a framework that guides the use of theory and empirical evidence in intervention development.

RESULTS: The intervention, which consists of coaching and teaching sessions facilitated by a virtual nurse, was tailored by way of a three-step process: Step 1: Choice of behaviour. After completing a baseline assessment, which includes questions related to TPB components (attitude, perceived control, intention), the PLHIV chose a health behaviour that they wished to change (physical activity, healthy diet or smoking cessation).

Step 2: Profile attribution. Based on the data provided regarding the TPB components, participants were assigned one of three profiles (P) and, accordingly, were directed to the intervention that consists of two to six sessions (P1 = low attitude/six sessions; P2 = low perceived control/four sessions; P3 = high intention/two sessions).

Step 3: Message tailoring. Each profile contained messages geared to developing and strengthening skills required for the selected behaviour change. During the sessions, the virtual nurse provided feedback and positive reinforcement tailored to the participant's profile.

CONCLUSION: AIDES-TAVIE will next be evaluated via a multisite randomized control trial among Canadian PLHIV.

P234
FROM RISK TO RESISTANCE: RESHAPING THE ROLE OF INDIGENOUS YOUTH IN HIV PREVENTION

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BACKGROUND: Indigenous youth are often framed as "risky bodies" that are difficult to manage. Our goal was to shift the paradigm and focus on the potential of Indigenous youth to be active leaders and positive change agents in their communities, as a strategy for "decolonizing" the research process.

METHODS: Our community based participatory action research approach used arts-based methods to build and support youth leadership in HIV research, activism and outreach. We have worked with hundreds of youth in over a dozen communities to develop "by youth, for youth" culturally appropriate HIV prevention messaging. In this paper, we reflect on key "decolonizing" moments over the six years of Taking Action! Building Aboriginal Youth Leadership in HIV Prevention in order to render explicit the process of our work.

RESULTS: Here we describe five key pivotal moments wherein we began to experience the shifts: a) establishing a structure for meaningfully sharing power with youth; b) partnering with community-specific ethics boards/bodies to fine-tune our protocols; c) witnessing the growth and capacity of our leaders taking on new responsibilities and healing journeys; d) watching them step up to take care of each other through ceremony; e) participating in political activism together.

DISCUSSION: Our approach has always been grounded in understandings of ongoing colonial violence, a deep respect for self-determination and a desire to work with youth to create opportunities to connect with their culture, while building on their strengths and talents. By challenging conventional models of health promotion programming, we hoped to challenge dominant colonial constructions of knowledge and to re-conceive who has the power to produce and shape it. Supporting these processes means aiding cultural resurgence alongside HIV prevention messaging.

P235
REACHING PEOPLE ''WHERE THEY ARE'. THE ''MESSAGERS DE RUE'' PROGRAM AT CACTUS MONTREAL

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CACTUS Montreal has been offering harm reduction services to the downtown community for several years. While its' fixed needle exchange program is well utilized, the need for another service delivery model was identified. The "Messagers de rue" program was put in place in 2010, with the aim of increasing access to harm reduction supplies through street-based peer intervention.

The team is constituted of current or former drug users, people who are street-involved and/or working in the sex industry. Candidates are recruited using word-of-mouth and posters placed in agencies throughout the city. The Messagers are provided with training on a range of issues including HIV, hepatitis C, harm reduction and safe needle disposal. They are supported by a Program Coordinator and a Support Worker, who offers guidance while out on the streets. The Messagers receive an hourly wage for their work.

The role of the "Messagers de rue" is to increase the quality of life of people who use injection or inhalation drugs in Montreal, by meeting them "where they are." This applies to geographical location, as they travel throughout the city to reach those who may be unable to access the needle-exchange program, due to mobility issues and other reasons. In

addition to providing clean works, the Messagers also act as harm reduction promotion agents. Meeting people "where they are" in their experience of addiction, the Messagers help their peers to better understand and reduce risks related to drug-use, and encourage them to seek testing and treatment for STBBIs.
Distribution of syringes, condoms and pipes has increased exponentially at CACTUS since the advent of the "Messagers de rue" Program, thus demonstrating both the need and value of a harm reduction approach that meets people "where they are."

P236
WHAT MAKES IT WORK? A THEMATIC ANALYSIS OF FACILITATORS AND CHALLENGES IN THE ROLL OUT OF RAPID HIV POINT-OF-CARE TESTING IN HALIFAX, NOVA SCOTIA

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Halifax, NS

PURPOSE: Access to rapid HIV point-of-care (POC) testing within vulnerable and hard-to-access populations presents an opportunity to refer individuals who test positive into care, treatment and support in a timely way. Despite the benefits of such testing innovations, there are unique challenges to rolling out such interventions in low prevalence contexts. The purpose of this paper is to discuss the challenges and facilitators in access and uptake of rapid HIV POC testing in Halifax, Nova Scotia.

METHODS: As part of a pilot project on rapid HIV POC testing, regular team meetings provided a key forum to share information on the roll out process. Team members included frontline healthcare practitioners, community advisory members, public health, health researchers, and AIDS service organizations. Detailed notes were taken at each meeting and these notes formed the basis for the thematic analysis.

FINDINGS: Based on thematic analysis of meeting minutes and email correspondence, a variety of challenges, including issues of client stability, health care provider time constraints, perceived relevance of HIV compared to HCV, and immediate social care concerns, were seen as barriers to HIV testing. Key facilitators of the HIV POC pilot test roll-out process included dedicated staff time, limited access to health care providers through other means, support from within laboratory services, and the ability for community outreach beyond fixed clinical settings.

CONCLUSIONS: Although rapid POC testing is seen as an important health equity issue among vulnerable and hard-to-access populations, overcoming barriers to access to and uptake of HIV testing are critical to the success of this type of intervention. The perceived importance of HIV, relative to Hepatitis C and other health and social concerns, requires addressing complex social and intersecting health issues among, particularly in low prevalence settings.

P237
ONLINE TECHNOLOGY AND HIV PEER HELPING IN NEWFOUNDLAND AND LABRADOR

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This presentation focuses on a community-university partnership aimed at developing and evaluating an online peer helping program in the province of Newfoundland and Labrador. Project partners included community members and people living with HIV (PHAs) from the AIDS Committee of Newfoundland and Labrador (ACNL) with expertise and interest in counselling, peer helping, and online communication as well as academic researchers with expertise in counselling, education, and community-based research. Based on local needs assessment data, and a literature review focused on models of peer helping, the team developed an online platform to offer peer helping support to PHAs throughout the province. Goals of the intervention included: reaching disconnected PHAs, reducing PHA isolation, and connecting PHAs with support, education, and other professional resources. Through multiple team meetings consisting of a process orientated and iterative decision making approach, the team established specific characteristics of the website (eg, chat-room, one-on-one discussions, education links), program goals, a PHA peer helping training curriculum (eg, goals of peer helping, HIV testing, counselling microskills, stages of change, problem solving, ethics of helping, medications and treatments), a tool to assess the training, a survey to evaluate the website and PHA peer helping, as well as a plan to recruit PHAs to the website. This presentation reviews the process of establishing the peer helper program as well as the nature and outcomes of the peer helper program, including the training curriculum. Issues encountered such as developing website disclosure statements, recruitment and retention of peer helpers, supervision of peer helpers, enhancing website traffic, and sustainability of the program are discussed. Evaluation data, future program directions, and implications for research are also considered.

P238
"IT FELT GOOD TO BE A PART OF IT FROM THE BEGINNING RIGHT UNTIL THE END": THE PROCESS OF ENGAGING PEERS IN A COMMUNITY BASED RESEARCH PROJECT IN WINNIPEG, MANITOBA

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Community Based Research (CBR) has gained popularity as a methodology that has the potential to take research out of the abstract and into the "real world" of the community. While CBR can encompass a variety of approaches with a spectrum of community involvement, the common thread is that it draws upon the strengths and abilities of both community members and academics in a mutually beneficial learning environment. As such, CBR can be an excellent approach to explore complex issues within a community context.
The 595 Prevention Team is a Manitoba-wide organization that works with Peers, network members, policy makers, community leaders, and academics to make recommendations about the development, implementation, and evaluation of prevention initiatives focused on sexually transmitted and blood borne infections (STBBI). The 595's work is largely steered by the Peers – a group of 20 individuals who identify as members of a community affected by HIV and/or HCV, and who are actively involved in reducing the transmission of STBBIs. The Peer group includes individuals with a diverse range of experiences, such as individuals involved in sex work, transgender individuals, people who use substances, and people who are HIV and/or HCV positive. In 2013, the 595 Peers undertook a community based research project entitled "What Goes Around: How Peers Use Their Social Networks to Share STBBI Education and Information". In this case, the Peers were the community researchers who drove this project, from designing the focus of the project and the guiding research questions, to participating in data collection, ongoing involvement in data analysis, and creating and executing a plan for knowledge translation. This presentation will address how the 595 Peers were able to successfully engage in the process of conducting meaningful and relevant community based research.

P239
HIV-TESTING AND RISK BEHAVIOR AMONG MIGRANT MEN WHO HAVE SEX WITH MEN IN L'ACTUEL SUR RUE RAPID TESTING SITE

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BACKGROUND: In Canada, migrant men who have sex with men (MSM) are identified as most vulnerable to HIV. Therefore, access to them is a particular challenge in communities where homosexuality is stigmatised and these men have difficulty being open about their sexuality.

INTERVENTION: Actuel-sur-Rue (AsR) is a community based non-medicalized facility opened since July 2012 in the heart of Montreal gay village, offering counselling, gratis rapid HIV testing, syphilis testing and linkage to care to Clinique l'Actuel for follow-up. We aimed to compare the use of AsR of migrant and local MSM.

METHODS: A cross-sectional study was conducted between July 2012 and November 2013, a convenience sample of participants was enrolled.

Sociodemographic and clinical data was collected through IPad-based questionnaires. Continuous variables were compared by Student t-test and proportions were compared by Pearson Chi2.

RESULTS: Of 1519 men recruited, 1301 (85.6%) were MSM. Among MSM, 405 (31.1%) were born abroad (migrant). Compared to Canada-born MSMs, migrant were younger (28.3±12.6 years of age vs 30.9±14.7 years of age; P<0.011), more educated (P<0.001), residing in Montreal/suburbs (94.6 vs 89.1; P<0.001) with comparable incomes (P=0.110). Multi-partners practices were comparable (63% of migrants vs 65%; P=0.780). No statistically significant difference was detected between migrant and others regarding a history of previous sexual infection (13.8% vs 14.1%; P=0.980), ever been screened for HIV (94.3% vs 92.5%; P=0.330), nor history of a recent unprotected anal intercourse (48% vs 49%; P=0.970). 10.0% reported a frequency of three HIV testing per year vs 5.6%; P=0.014) while frequencies were similar who those undertook one or two tests per year. Finally, the visit of migrants was motivated by gay friendly aspect of AsR 47.5% versus 33.5% (P=0.000).

CONCLUSION: AsR reachs a significant proportion of migrants MSM and succeeds to become an adequate testing facility for this population in Montreal area.

P240

MOBILIZING AN EFFECTIVE RESPONSE TO REDUCE THE RISKS ASSOCIATED WITH INJECTION DRUG USE IN HALIFAX, NOVA SCOTIA

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The benefits of MMT are well documented for the individual, their families and the broader community. By reducing drug cravings, withdrawal symptoms and the need to spend time accessing drugs, MMT can provide individuals with increased stability and engagement in self-care and disease self-management. Adherence to MMT has multiple positive impacts including decreases in drug-related crime, better health, lower mortality rates, increased employment rates, improved family relations, and reductions in risk-taking behaviours.

Direction 180 (D180) is a community-based, low threshold methadone program located in Halifax, Nova Scotia. Direction 180's goal is to decrease the spread of HIV/AIDS and Hepatitis C and decrease the health and social risks associated with injection drug use through the provision of methadone treatment, primary health and ancillary support services. Since the program's inception in 2001, D180 has made contact with over 1200 opioid dependent people, treated or assessed 750, and is currently treating 275 at a fixed site.

Given limited resources, a growing demand for services, and a wait list of over 300 in 2012, D180 explored a number of waitlist management strategies. In January 2013 D180 rolled out a mobile program, "Broadening Access, Improving Lives and Engaging You 180 BAILEY Bus" which provides interim MMT and minimal supports. This presentation illustrates the successes and challenges in expanding access to >200 individuals in three communities in Halifax Regional Municipality and plans for future expansion. An overview of the program and outcomes related to client engagement, HIV and HCV testing uptake and links to health and ancillary support services will be reported. The mobile service has reduced the wait time for initiation of treatment from years to days.

Participants will gain knowledge of the benefits of interim/ wait list MMT that may be useful in other communities where access to comprehensive MMT is limited.

P241

PATTERNS AND PREDICTORS OF HIV TESTING AMONG HETEROSEXUAL BLACK MEN IN TORONTO

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In Ontario, men account for 60% of the estimated number of Black people infected with HIV through heterosexual contact, but Black men test for HIV at lower rates than Black women. However, HIV prevention efforts among Black communities have hardly engaged heterosexual men. Similarly, research to understand their testing behaviour and inform testing initiatives is virtually non-existent.

To understand patterns in HIV testing among heterosexual Black men in Toronto, we examined HIV testing in relation to sociodemographic and behavioural factors among 361 self-identified heterosexual Black men who reported being HIV-negative. Participants completed a cross-sectional survey for the KALI Black Men's Health Study between April 2012 and March 2013.

Eligible participants ranged from 16 to 72 years old (median age 33 years). Sixty percent were foreign born, and 42.2% had at least some post-secondary education. Three-quarters were single, and 70% reported sex with a woman in the previous six months. One-half (50.7%) reported annual personal incomes of less than $10,000. Two-thirds reported having tested for HIV at least once in their lifetime. In bivariate analysis, being older, having completed college/university, and being born in the Caribbean or Africa were associated with 'ever tested' for HIV (P<0.0001 for each). However, in multivariate logistic regression, only age (OR 1.03 [95% CI 1.01 to 1.05]) and education (OR 0.36 [95% CI 0.18 to 0.72]) remained significantly associated with 'ever tested' for HIV. In relation to age, rates of 'ever tested' were highest among men 30 to 44 years of age (82.4%), and lowest among those 15 to 29 years of age (49.3%).

Campaigns to promote HIV testing among heterosexual Black men should be reinforced particularly among those younger than 30 years and older than 55, and those who may not have completed tertiary education. Further research on testing frequency and recent testing is required to inform specific HIV testing initiatives for heterosexual Black men.

P242

"THE CANGO LYEC PROJECT – HEALING THE ELEPHANT": PTSD AND DEPRESSION AMONG PEOPLE SURVIVING ABDUCTION AND DISPLACEMENT IN POST CONFLICT NORTHERN UGANDA

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BACKGROUND: Recent attention has been given to the role of PTSD and other trauma related disorders as a risk factor for HIV infection. In post conflict Northern Uganda HIV-related vulnerability arising from exposure to war may continue well into the post-conflict period as internal refugees return to their ancestral homes. The Northern Uganda cohort (Cango Lyec Project) allowed us to assess the prevalence and risk factors for depression and PTSD among people in the aftermath of war.

METHODS: Standardised assessments for PTSD (HTQ mean score ≥2.0) and depression (HSCL-25 mean score ≥1.75) prevalence were calculated and multivariable logistic regression analyses done to establish associated risk factors.

RESULTS: From an assessment of 2448 study participants, 15% screened positive for depression, 11.7% for PTSD and 9.4% for ≥12 traumatic events. Higher prevalence of these conditions was observed among the 1961 sexually active participants (17.5%, 13.6% and 11.5%, respectively). Among the sexually active, PTSD was significantly lower in Gulu (Adjusted OR (AOR) 0.60 [95% CI 0.43 to 0.82) and Nwoya (0.40 [95% CI 0.26 to 0.63]) compared to Amuru District; was higher in those who reported genital ulcers in the last year (2.14 [95% CI 1.48 to 3.09]); were ≥35 years old (1.66 [95% CI 1.21 to 2.28]); experienced sexual violence (2.91 [95% CI 1.99 to .258]); were female (1.64 [95% CI 1.18 to 2.29]) and had been abducted by the rebel army (2.08 [95% CI 1.54 to 2.81]). Depression was significantly higher in participants who were ≥35 years of age (1.67 [95% CI 1.25 to 2.22]); experienced ≥12 trauma events (5.74 [95% CI 3.94 to 8.34]); were female (3.01 [95% CI 2.15 to 4.23]); were HIV positive (1.65 [95% CI 1.12 to 2.30]); experienced sexual violence (1.48 [95% CI 1.00 to 2.21]); reported genital ulcers in the past year (1.62 [95% CI 1.11 to 2.35]) and lower in Nwoya (0.70 [95% CI 0.49 to 0.99]) compared to Amuru and Gulu Districts.

CONCLUSIONS: PTSD and depression are prevalent in the region, particularly among women, former abductees and in Amuru District due to socio-economic factors common in post conflict areas. PTSD may be

accelerating the spread of HIV and a culturally sensitive approach to mental health service delivery is urgently recommended..

P243
CAUGHT BETWEEN INDIVIDUAL AND STRUCTURAL RELATIONS IN WORKING WITH PEOPLE WHO USE INJECTION DRUGS: A SCOPING REVIEW OF PEER HARM REDUCTION EFFORTS

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Stigma and criminalization have been identified as barriers to accessing medical care, treatment, and harm reduction services for people who use injection drugs (PWID). One of the ways harm reduction services have improved connections with drug users who are harder to reach has been through peer helpers, individuals with lived experience who are often community leaders within drug using networks. While there has been considerable research assessing the efficacy of peers in helping PWID combat the spread of HIV and other blood borne pathogens, the content of, and struggles associated with, such work are generally accorded at best tangential consideration.

This presentation provides results from a scoping review exploring two primary research questions: What types of roles/activities are being carried out by peer helpers in injection drug using networks? What structural and/or community conditions facilitate or undermine such work? The authors, in consultation with community and academic partners, systematically searched academic databases using an iterative approach beginning with the search terms of (peer or "natural helper") and (IDU or "injection drug"). Based on review and discussions between two reviewers, 191 of the 1623 articles were selected for detailed assessment using a standardized information extraction form.

Our results highlight the interplay of various levels of risk environments. Peer helpers are often called upon to do more than distribute safe injection supplies. These additional tasks not uncommonly involve moral dilemmas, backlash and/or criminalization because of contradictions that arise between the safety needs of PWID and the structures of health and legal systems. For example, peer helpers may feel pressured to 'inject' inexperienced users as a harm reduction measure, or in other situations they may face legal charges when others flee the scene of an overdose and they are left to make the call for emergency services. Recommendations for community practice, policy, and research will be discussed.

P245
THE POTENTIAL OF HOSPITAL-BASED HARM REDUCTION SERVICES: PERSPECTIVES OF PEOPLE WHO INJECT DRUGS WHO HAVE BEEN DISCHARGED FROM HOSPITAL AGAINST MEDICAL ADVICE

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BACKGROUND: While people who inject drugs (PWID) are frequently hospitalized, particularly those living with HIV, they are also more likely to be discharged against medical advice than other populations. PWID who are discharged from hospital against medical advice are at an increased risk of hospital readmission, longer stays, and death. Although contextual forces operating within hospitals, including abstinence-based drug policies, contribute to discharges against medical advice, the potential role of harm reduction programming in improving retention in care has not been adequately examined. This study explores the perspectives of PWID discharged against medical advice regarding the potential integration of harm reduction programming into hospitals.

METHODS: Semi-structured interviews were conducted with thirty PWID, including fifteen living with HIV, recruited from ongoing observational cohort studies of drug-using populations (ACCESS and VIDUS) in Vancouver, Canada. All participants had been discharged from hospital against medical advice within the previous two years. Interview transcripts were imported into NVivo and analyzed thematically.

RESULTS: Participants described how harm reduction programming, specifically supervised injection services and heroin maintenance, could improve retention in care by minimizing the need to leave hospital to inject drugs to manage withdrawal and undertreated pain. Participants indicated that these approaches could likely improve relationships with hospital staff by minimizing conflicts arising from the enforcement of abstinence-based drug policies. Furthermore, some participants emphasized the need to balance efforts to provide harm reduction programming with the need to support those wishing to initiate drug treatment or pursue abstinence.

CONCLUSION: Hospital-based harm reduction programming, including supervised injection services and heroin maintenance, should be considered as a targeted strategy to improve care for PWID. Notwithstanding the potential barriers to implementing these approaches, they have significant potential to reduce discharges against medical advice, and thus minimize the impact of such events on morbidity and mortality among PWID.

P246
WHAT ENCOURAGES HARD TO REACH (HTR) MSM TO ACCESS A MOBILE HELPLINE?

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BACKGROUND: MSM in India have a HIV prevalence rate of around 7% (Department of AIDS Control, 2008-09). A 24 h confidential helpline dedicated to MSM was established in Chhattisgarh, Delhi and Maharashtra as part of a CIDA funded operations research project to determine if a mobile helpline can effectively reach HTR MSM (not registered with government targeted intervention (TI) or not accessing TI services for >6 months) and promote HIV/AIDS prevention.

METHODOLOGY:
The project conducted training with Community Mobilisers (CMs) to build their capacity to engage MSM. The helpline was promoted through one to one contact by CMs in the field who pasted helpline posters, stickers at vantage points and motivated stakeholders like the government targeted intervention projects and MSM preferred health care providers to communicate the helpline information to MSM. Social media, including Facebook, Twitter and Planet Romeo, was utilized to disseminate messages, and was distributed evenly across the three states. In addition, news articles were published by online and print media on the helpline.

RESULTS: The results are from four months (September to December 2013) of helpline operation. A total of 29,882 HTR MSM were contacted one to one by CMs; 16,330, 9788 and 3764 in Chhattisgarh, Delhi and Maharashtra respectively. Out of 29,445 callers to the helpline, 15,445, 7322, 6678 were from Chhattisgarh, Delhi and Maharashtra respectively. Out of total 38,495 calls received from all over India, 20,871, callers spoke to counselors, 16,785, listened to messages and 839 received SMS. Three percent of callers first listened to messages and then spoke to counselor.

CONCLUSION: The proportion of calls received in the three states followed the proportion of contacts made by CMs, indicating a significant role for interpersonal communication in prompting calls from HTR MSM. Promotion through news articles helped boost the number of calls as well.

P247
THE SEPO II STUDY: USING A DISABILITY FRAMEWORK TO EXAMINE EXPERIENCES OF ART AMONG WOMEN AND MEN LIVING WITH HIV IN LUSAKA, ZAMBIA

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OBJECTIVE: To describe the treatment-related experiences of women and men living with HIV on ART in Zambia, as conceptualized through the World Health Organization's International Classification of Functioning, Disability and Health (ICF).

METHODS: This is a qualitative, interpretive analysis involving in-depth, semi-structured interviews with 17 men and 18 women receiving ART in Lusaka, Zambia. Participants were purposively recruited for variability across gender, time on treatment, and SES. Interviews were translated and transcribed, and analyzed by our international team of

researchers and community activists using the collaborative "DEPICT" analysis (Flicker & Nixon, 2013).

RESULTS: Participants described their experiences with ART in terms of the strategies they used to support adherence and their profound belief in the value of treatment. They viewed "impairments" and "activity limitations" (as per the ICF model) as challenges to ART adherence (eg, disruptions to work and school to collect treatment, lack of food to tolerate medication). Despite ART side effects (eg, numbness, fatigue), participants expressed strong commitment to their regimens. All participants viewed ART as life-giving medication directly linked to "participation" now and in the future (eg, as a parent).

CONCLUSION: The aim of this research is to conceptualize HIV within a rehabilitation paradigm in a hyper-endemic country to enhance the lives of people living with HIV. This first round of data provides a cross-sectional picture of participants' perceptions of and experiences with ART in Zambia through a rehabilitation lens. Further analysis is needed to better understand the experiences related to treatment of gender, SES and length of time on treatment. This is the first wave of a longitudinal inquiry, which will build understanding of how and why change occurs and the episodic nature of HIV, which is essential for understanding the mechanisms that play a role in shaping the lives of people living with HIV.

P248
ADAPTING CWGHR'S EMODULE ON HIV AND REHABILITATION FOR SUB-SAHARAN AFRICA: RESULTS OF PHASE 1

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OBJECTIVE: This Grand Challenges Canada-funded project aims to adapt the CWGHR online educational 'HIV and Rehabilitation eModule' for health workers in Sub-Saharan Africa (SSA) to improve health and reduce disability for people living with HIV (PHAs) in that region. This presentation describes Phase 1 results.

METHODS: In Phase 1, a team of content experts was engaged from Kenya, Zambia and the region to conduct a detailed content review of the eModule. Reviewers were asked to identify sections that need to be changed and why; what content is not included that should be; how the eModule could be used to improve the lives of PHAs in SSA; who would benefit most from using the eModule; and, suggestions for how the adapted eModule could be structured and organized.

RESULTS: Detailed content review was conducted from December 2013 to January 2014 by ten reviewers with expertise in disability, HIV and/or rehabilitation in SSA. The reviewers identified the need for content to reflect the epidemiology of HIV in SSA; the differences between services and access within the (under-resourced) public and (similar to first-world) private healthcare sectors in SSA; the triple burden of unemployment, poverty and inequality and their impact on PHAs; the challenges of providing services in under-resourced rural and remote communities; issues related to co-infections, food security and access to basic needs (eg, clean water); and the role of traditional medicine. They also recommended making the resource accessible in SSA through consolidating material, modifying the language level, and providing a print option to reflect limited internet access.

DISCUSSION AND CONCLUSION: These findings will be used to adapt the eModule (Phase 2) and then pilot (Phase 3) the adapted version for knowledge and feasibility with rehabilitation students in Zambia and community-based rehab providers in Kenya.

P249
WHY A RECREATION PROGRAM FOR SOLVENT USERS IS HIV PREVENTION

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In Winnipeg, the adult solvent-using population experiences high degrees of stigma resulting in social isolation and increased vulnerability. This stigma also likely influences an under-reporting of solvent use. Despite this, reported prevalence of solvent use in Winnipeg is up to three times higher than in other cities, such as Toronto (Winnipeg Street Health Report, 2011). Preliminary information suggests that solvent use damages the integrity of the respiratory mucosa. And, while this has not been explored fully from a biological point of view, there is some evidence to suggest that people who are solvent users are at increased risk of acquiring HIV and its rapid progression. In addition to the challenges of stigma surrounding solvent use, solvent users exist within the street-involved context, relying on agencies for both shelter and nutritional support. A wide body of evidence posits that people who are street involved are unable to access recreational services/activities because of the nature of their survival. However, from a population health perspective, the benefits of engaging in recreational activities have widespread benefits for physical health and mental health.

In 2012, Sunshine House, a non-profit organization that works with the street-involved population, notably people affected with HIV and Hepatitis C, launched the Solvent Users' Recreation Project (SURP). SURP provided eight interactive modules, each ranging from between five and eight weeks, including activities such as boxing, art, music, and automotive repair. This presentation will outline how SURP provided a platform to engage with this underserved population and, among the many benefits of the program, to describe how engagement in SURP was an effective means of HIV prevention. This included SURP participants' increased access to harm reduction supplies, becoming "plugged in" to a wider network of social support (including medical referrals), and opportunities for organic HIV-related information sharing during the project.

P250
EMOTIONAL AND SEXUAL WELL-BEING OF WOMEN LIVING WITH HIV IN QUEBEC: CULTURAL ADAPTATION AND FORMATIVE EVALUATION OF THE PROGRAM « PLURIELLES »

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BACKGROUND: Thanks to a longer life expectancy, many women living with HIV (WLHIV) have recovered the desire to live a fulfilling sexuality. However, despite the many difficulties they experience at this level, few programs address their emotional and sexual well-being.

OBJECTIVES: 1) To culturally adapt to WLHIV in Quebec, a first version of a program that we initially developed for the Malian WLHIV in partnership with ARCAD-SIDA (Mali) and Coalition PLUS (France); 2) To verify the degree of implementation of this program in Quebec and describe contextual factors hindering or facilitating its implementation; 3) To describe participants' appreciation and the program's short term effects.

METHOD: A committee (community workers, researchers, and WLHIV) was formed to culturally adapt the program. Mapping intervention steps were taken as to ensure fidelity to the program by conserving its core elements, while adapting it to the key characteristics of the new population (Tortolero et al., 2005). Then, 17 WLHIV from three community organisations were recruited on a voluntary basis and completed the program. Logbooks, assessment questionnaires and focus groups were used to collect qualitative and quantitative data on the implementation, appreciation, and effects of the program.

RESULTS: Overall, the program appears to have achieved most of its objectives and to have had a positive impact on the psychological well-being, knowledge and skills of the participants. Its degree of implementation and appreciation are high.

CONCLUSIONS: This research provides additional information on issues related to cultural adaptation, on the factors influencing the implementation of a sexological intervention program and on its evaluation. In addition, by providing a validated and enhanced version of the program, which will be, in the short term, implemented and evaluated in about ten community organizations in Quebec, this research fills a need still largely unmet.

P251
PREVENTION, DIAGNOSIS AND TREATMENT OF HIV IN WAYUU COMMUNITIES OF LA GUAJIRA, COLOMBIA: A COLLABORATIVE INITIATIVE

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HIV is increasingly impacting Indigenous peoples in the Americas. This has been documented in Canada, The United States, and Mexico. In Colombia, with an Indigenous population of 1.5 million, the magnitude of the problem is unknown. The poster will present a collaborative research project between an Indigenous health organization in Colombia (Anas Wayuu), Colombian researchers from the University of Antioquia, and Canadian researchers from the University of Manitoba. The collaborative research/intervention project is currently working with 55 Indigenous communities, seeking to research, plan, implement, and evaluate an inter-sectorial intervention for the prevention, diagnosis, and treatment of HIV.

La Guajira, located in northeastern Colombia, is a dryland area, with the majority of the population being Wayuu (415,098), and whose livelihood relies on raising goats and commerce with Venezuela. The project area covers a population of 100,000 where in 2012, 29 new HIV cases were reported. During the first year our project conducted surveys, interviews, focus groups, and rapid tests with 1,000 individuals. During the second year we conducted education programs with local authorities, teachers, students, and parents from the 55 communities. A geographic information system is currently being implemented. In 2014 the interventions will continue as well as the evaluation of their impact.

The poster will present information about the phases of the project, including the rich collaboration among Anas Wayuu (that has a central role in the entire project), and academic researchers from Colombia and Canada. It will showcase key success factors, such as the: lead role of traditional Indigenous authorities; creation of a Wayuu committee that assisted with the design, revision, and translation of the research and education material; training initiatives with bilingual (Wayuu/Spanish) project staff; involvement of Indigenous community leaders, local health institutions, and academic partners. It will also discuss contributions from Canadian partners to the project.

P252
HIV AND ILLICIT DRUG USE PREVENTION AND INTERVENTION STRATEGIES GROUNDED IN THE REALITIES OF A SMALL, NORTHERN BC COMMUNITY

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Prevention and intervention strategies often target larger, visible populations of people using illicit drugs in urban centres. Yet illicit drug use also occurs in smaller communities, where it is less visible and more hidden suggesting the need for strategies grounded in small, northern community realities. Research was conducted with over 200 illicit drug users and a number of service providers in a small northern BC community. Research goals include identifying patterns of drug use specific to this community and developing ways to improve local services to illicit drug users. Barriers to service provision include the diversity of those using illicit drugs and their hidden nature. "We are all shape-shifters, some of us are grungy-looking and some of us are professionals…". Participants included youth, those over age 50, both genders, various ethnicities, people with low-incomes as well as those working and with incomes >$30,000/year. Participants identified barriers to service access including being judged by service providers: They've "already determined that you're not gonna succeed." Many participants were not receiving harm reduction information from professionals and were reluctant to ask for it equating the 'two degrees of separation' in small communities with a lack of confidentiality. Findings suggest ways to improve local service access. The use of peers to access research participants has been incorporated by the local health authority as a unique way of sharing clean drug use paraphernalia. Over 75% of participants have a family physician and 70% have been tested for HIV, indicating an opportunity to reach them with information. Professionals need improved access to harm reduction information, training on how to share it, and recognition that drug use can occur among middle-class, working clients. Where professionals take time with clients and treat them "like a person, not an addict" people were more likely to ask for assistance.

P255
PROMISING HIV PREVENTION PROGRAMS AND INTERVENTIONS FOR RURAL AND REMOTE REGIONS IN CANADA: SERVICES SCOPING

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BACKGROUND: A key issue emerging in the HIV field in Canada is the need for information on effective HIV prevention programs focusing on rural/remote populations. This study sought to learn from community, and document promising HIV prevention programs that are being delivered to rural/remote populations throughout Canada in order to provide a foundation for information sharing, future implementation and intervention research.

METHODS: The research team developed a list of 177 AIDS Service Organizations (ASOs) and community-based agencies across Canada. The team accessed online information about HIV prevention programs, projects and interventions. Screening calls were made to 160 agencies outside large metropolitan areas to determine if they: a) identified as an ASO or had HIV prevention in their mandate; 2) offered programs, projects or interventions for rural/remote populations; and 3) collected data on program effectiveness through evaluation activities. Thirty-six agencies met the study criteria, and 25 (69%) were interviewed. Information was collected about why and how the program developed, how it works, the goals/objectives, resources required, key learnings, and challenges.

RESULTS: The Rural HIV Prevention in Canada Compendium profiles 25 promising HIV prevention programs targeting rural/remote areas. These programs were profiled in an online electronic compendium. See Table 1 for program characteristics.

Rural HIV Prevention in Canada Program Compendium: Program Characteristics (n=25)		
Type of Program		Number of Programs (categories are not mutually exclusive)
Programs for Individuals	Education	20
	Harm reduction	12
	Counselling	7
	Other	3
Programs for Community	Education	23
	Harm reduction	12
	Peer-to-peer	11
	Resource creation	7
	Social media	3
	Other	3
Programs for Policy	Advocacy	1
	Education (for policy makers)	1
	Resource creation	1
Population Served	Aboriginal Peoples	14
	Communities of colour	1
	Incarcerated and/or remand individuals	5
	General public	5

	People at risk of contracting HIV, HCV and/or other BBIs	6
	People living with HIV/AIDS	5
	People who use illicit drugs	8
	Service providers	7
	Sex workers	1
	Sexual minorities (MSM, LGBTQ2I, trans)	3
	Women	4
	Youth	7
Province/Territory	AB	5
	BC	7
	MB	1
	NB	1
	NL	2
	NS	1
	NWT	1
	ON	2
	QC	1
	SK	3
	YK	1

DISCUSSION: Our scoping study profiled 25 HIV prevention programs for rural/remote areas. Profiles are presented in our live database and available for use by community organizations and academics interested in HIV prevention programming and research. The compendium provides a framework to assess programs and a basis for further research.

P257

WHEN THE RAINBOW AIN'T ENOUGH: INTERSECTIONALITY AND HIV PREVENTION FOR DIVERSE TRANS MSM COMMUNITIES

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BACKGROUND: Prioritizing the voices of racialized, Indigenous and regional populations is uncommon in HIV prevention research. Within trans health research there have been even fewer examples of diverse study samples. Our team aimed to address these gaps through a reflexive process and targeted recruitment within diverse trans MSM communities; an approach that results in stronger data that better reflects the lived experiences of people in our communities.

METHOD: The Trans MSM Sexual Health Study is a community-based participatory research project in Ontario, aiming to understand the social contexts of trans men's HIV vulnerability and resilience.

In order to ensure increased ethno-racial and geographic diversity in our sample we set the following targets at the start of recruitment: 1) at least 38% of our sample would identify as racialized and/or Indigenous men; 2) at least 25% would live in regional areas outside Toronto, and; 3) at least 25% of men recruited from outside Toronto would come from racialized communities.

RESULTS: While we were initially uncertain about the implications of setting quantitative recruitment targets, there was receptivity within the team to experiment with this way of working. The study coordinator collected demographic and behavioural information from potential participants as part of the process. Setting recruitment priorities early in our project provided us with increased opportunities to adjust timelines, methods, and approach. We reviewed our sample regularly and adjusted our recruitment strategies to support our pre-established targets. As our sample quickly filled our quota for men outside our added priorities, we held additional 'non-target' participants on a wait list. We re-focused our outreach via personal referrals, ethno-specific community groups and AIDS Service Organizations. We completed 40 semi-structured interviews: 42.5% of our sample identified as racialized and/or Indigenous; 30% of the sample were from outside Toronto (25% racialized and/or Indigenous). By setting targets, following our sample throughout the process and allowing for adjustments we were able to produce research that better reflects the diversity of our communities, highlighting the benefits of prioritizing marginalized voices.

Social, Structural and Systemic Drivers and Contexts of HIV Risk

Facteurs sociaux, structurels et systémiques et contextes du risque lié au VIH

P259

THE IMPORTANCE OF ABORIGINAL CULTURAL IDENTITY FOR WOMEN AS DESCRIBED BY THE SOCIAL IDENTITY THEORY

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BACKGROUND: The impact of the loss of Aboriginal cultural identity from mainstream society has had enormous consequences on the perception Aboriginal women have of themselves, how society perceives them, and in reshaping their relationships and roles.

OBJECTIVES: To identify the ways Aboriginal women view their identity using the principles of the Social Identity Theory (SIT) which are: 1) social categorization, 2) social comparison, 3) social identity and 4) self-esteem.

METHODS: Seventeen HIV-negative Aboriginal women and 13 Aboriginal women living with HIV over the age of 18 were recruited to discuss their lived experiences of life stressors. Qualitative data was collected through semi-structured discussions within the context of four Sharing Circles and seven interviews. Data was analyzed using thematic analysis and a process of researcher reflexivity.

RESULTS: Aboriginal women described their identity as placing them in various social categories including, but are not limited to: sexual and gender minority communities; former or current drug user and/or sex worker groups; mothers and grandmothers; and being HIV-positive. Stories accompanying identities highlighted the impact of colonialism and the loss of culture, reshaping women's roles in the community. Although the women believed they were viewed as being inferior to non-Aboriginal women in similar categories, they held a personal belief in the important benefits of engaging in Aboriginal cultural practices. The women exhibited a strong attachment to the social identity of being Aboriginal. However, self-esteem, a consequence of knowing one's self, was described through stories of difficulties in self-actualization.

CONCLUSIONS: Aboriginal women holding similar social positions did so irrespective of HIV status. Moreover, their life journeys were characterized by similar events which had shaped their realities and society's perception of Aboriginal women. Nevertheless, the social identity of being Aboriginal among all their identities was associated with the hope for social change and held significant value.

P260

THE DYNAMICS OF HIV SERODISCORDANT RELATIONSHIPS: AN INTEGRATED APPROACH TO KNOWLEDGE EXCHANGE AND RESEARCH DEVELOPMENT

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BACKGROUND: In response to an absence of information on HIV-serodiscordant couples in Canada, we consulted individuals living with HIV/AIDS, their HIV-negative partners, and practitioners from AIDS Service Organizations (ASOs) to assess research needs, feasibility and relevance in support of a national research protocol. We report on findings from individual consultations.

METHODS: From April-September 2013, subsequent to institutional ethics approval, we approached eight individuals recently/currently involved in a primary serodiscordant relationship. HIV-positive persons were referred by national ASOs; HIV-negative persons were referred by their partner. Six individuals responded and consented to participate in private audio-recorded telephone consultations, based on a semi-structured qualitative interview guide. Recordings were transcribed, anonymized, and thematically analyzed.

FINDINGS: Consulted individuals included four women and two men, 32 to 42 years of age, including two couples. Four individuals were HIV-positive and on antiretroviral therapy. Five individuals were currently involved in a serodiscordant relationship (range four to 15 years). The following issues were highlighted: i) While HIV was disclosed early within relationships, disclosure to social networks was sometimes delayed or avoided; ii) perceived HIV risk and the need for safe sexual practices tended to diminish over time; iii) HIV diagnosis had perpetuated breakups in prior relationships; iv) HIV-positive partners experienced overlapping stigmas tied to their status and risk group (eg, MSM); v) HIV-negative partners had limited access to supportive services; and vi) except for HIV testing, HIV-negative partners did not utilize prophylactic strategies. All consulted individuals expressed support and were willing to be contacted again for a national study, and recommended strategies for larger-scale recruitment.

CONCLUSIONS: Our analysis identified the challenges of disclosure, stigma and prevention fatigue within serodiscordant relationships, and the emphasis on treating the infected rather than preventing HIV in seronegative partners. How such themes vary by gender, sexual orientation, geography, and culture will be important areas of continued exploration. Including the voice of our target population strengthened our research protocol. This integrated approach to knowledge exchange and research development is particularly useful in providing insight in underdeveloped areas of research.

P261

IMPACT OF THE USE OF SMART PHONE APPLICATIONS TO MEET SEXUAL PARTNERS ON RISK-TAKING AMONG PARTICIPANTS AT SPOT, A COMMUNITY-BASED RAPID HIV TESTING INTERVENTION FOR MSM IN MONTREAL

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BACKGROUND: SPOT is an on-going intervention-research project offering HIV and STI testing for MSM in Montreal. Among SPOT participants, use of social networking applications on smart phones with GPS locators has quickly emerged as one of the most popular ways to meet sexual partners. The connectivity made possible by this technology has raised concerns about the potential for increased risk-taking.

OBJECTIVE: Characterize and describe the sexual practices of SPOT participants who use smart phone apps to meet sexual partners.

METHOD: Between July 2013 and January 2014, 375 participants were tested for HIV and/or other STIs at SPOT. Participants who reported using smart phone apps to meet sexual partners in the past three months (29.8%) were compared with those who did not meet partners in this way for socio-demographic, psychosexual and behavioural variables using multivariate logistic regression.

RESULTS: Multivariate analysis indicated that participants who use smart phone apps were more likely to be under 30 years of age (AOR 0.93 [95% CI 0.90 to 0.96) and to have been tested at least once for HIV in the past (AOR 3.99 [95% CI 1.22 to 12.99]). They were more likely to have had a one-night stand (AOR 6.82 [95% CI 3.41 to 13.63]) in the past three months but less likely to have met sexual partners in a sauna (AOR 0.16 [95% CI 0.05 to 0.46]) or on the Internet (AOR 0.29 95% CI [0.16 to 0.53]). However, there was no difference in the proportion who reported unprotected anal sex with a HIV-positive partner or partner of unknown HIV status (AOR 1.42 [95% CI 0.66 to 3.02]) in the past three months.

CONCLUSION: Smart phone applications are rapidly transforming how MSM, in particular younger men, meet their sexual partners. However, among SPOT participants this does not translate into a greater degree of risk-taking. Prevention interventions are required that take into account the specific approaches to risk calculation developed by MSM who use smart phone apps to meet sexual partners.

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INCREASED AWARENESS OF PREP AND PEP AND HIGHER IMMEDIATE UPTAKE OF PEP AMONG MIGRANT MEN WHO HAVE SEX WITH MEN IN L'ACTUEL SUR RUE CHECKPOINT

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BACKGROUND: Among MSM Migrants in Montreal, little is known about Post-exposure prophylaxis (PEP) and Pre-exposure prophylaxis (PrEP) of peer-delivered testing and counseling. Our objective was to assess PrEP and PEP awareness, interest and experience among at-risk MSM consulting at l'Actuel sur Rue (AsR) checkpoint. AsR is a community based non-medicalized facility opened since July 2012 in the heart of Montreal gay village, offering counselling, rapid HIV testing and linkage to care with clinic l'Actuel for follow-up.

METHODS: This cross-sectional study was conducted among MSM who consulted AsR from july 2012 to november 2013. Self-reported responses by Canada born and migrants MSM were gathered in a self-administered digital IPAD based questionnaire. Data on continuous variables were analyzed with Student *t* test while proportions were compared by Pearson Chi2.

RESULTS: Of 1519 men recruited, 1301 (85.6%) were MSM. Among MSM, 405 (31.1%) were born abroad (migrant). Similar proportion of migrants and Canada-born have ever heard about PEP (68.6% vs 64.8%; P=0.52). Sources of information were comparable and most important were: health professional (22.7%), magazine (18.0%), friend (16.8%) and website (14.1%). While acceptability of PEP was comparable (91.3% among migrants versus 88.2%, P=0.19), migrants were more prone to have ever consulted for PEP (22.8% vs 15.9%, P=0.028) within months preceding their visit at AsR. Few participants have ever heard about PrEP (30.4% among migrants vs 29.8%, P=0.98). Its acceptability was 54.1% among migrants vs 55.8%, P=0.87)

CONCLUSION: Knowledge and acceptability of either PEP or PreP were low and comparable among MSM visiting AsR. Nevertheless, migrant MSM appeared more prone to have consulted for PEP within months preceding their visit. Interventions are needed to better inform MSM consulting in AsR and to increase PEP use particularly among Canada-born MSM.

P263

DISPLACEMENT AND DISPERSAL: THE HIV-RELATED HEALTH IMPACTS OF URBAN DEVELOPMENT ON DRUG-USER COMMUNITIES IN DOWNTOWN MONTRÉAL

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In the late 1990s and early 2000s downtown Montréal - in addition to many other North American cities - witnessed a period of unparalleled

urban development. Such development has had significant impacts on experiences of urban space for drug users in the city including but not limited to: a transformed relationship to HIV prevention services, displacement and dispersal into peripheral neighbourhoods, and an undermining of previously existing networks of mutual aid and support within street-involved community. The paper proposed here provides preliminary findings from research that is currently underway examining this process of displacement, from the standpoint of street outreach HIV prevention workers working in downtown Montréal from 1995-2005.

The methods employed consist of in-depth open-ended qualitative interviews with former street outreach workers (eight to 10 individuals), as well as ethnographic fieldwork of street outreach practice. Using a method known as theory elaboration (Vaughn, 1992), based on grounded theory, this research aims to examine the institutional relations at play at the intersection of urban planning policy, public health policy, and HIV prevention practice grounded in a particular locale.

The paper asks how various public policy shifts in terms of urban planning and public health have contributed to a transformation of how drug user communities are constituted, how HIV risk is experienced, and how access to HIV prevention has been reshaped in the process. Preliminary findings suggest: a substantial reorganization of how HIV prevention resources are accessed, an exacerbation of the spatial dimensions of HIV risk, a migration of drug use from public to private space, and the dispersal and erasure of street culture and with it, informal networks of mutual aid and support between drug-user communities.

This research aims to illuminate the previously unexamined devastation of urban renewal on the constitution of HIV risk.

P264

SILENCES, WHISPERS AND UPROARS ON BIOMEDICAL ASPECTS OF HIV RISK, TRANSMISSION AND PREVENTION AMONG GAY MEN IN MONTREAL, TORONTO AND VANCOUVER

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In the last 10 years, biomedical research around HIV testing, transmission and prevention has increased dramatically. We now have much better knowledge of the biological factors that change HIV risk, such as viral load, acute HIV infection, antiretrovirals, sexually transmitted infections, and inflammation. Gay men have been in the forefront of adopting new behavioural strategies to reduce HIV risk, such as serosorting and strategic positioning.

The Resonance Project is a three-year CBR project led by CATIE, along with three other national NGOs and three gay men's health organizations. The Resonance Project seeks to understand how biomedical knowledge of HIV is entering the discourses, prevention strategies, and folk wisdoms of gay men and their service providers. As a guiding concept in this project, resonance refers to the waves of discourse and resulting action generated by new information about biomedical knowledge of HIV, and its incorporation into the community wisdom and individual decision-making of gay men.

This presentation will provide preliminary findings from 15 focus groups in Montreal, Toronto and Vancouver regarding the discourse and understanding (or lack thereof) around biomedical aspects of HIV, and how these in turn are influencing gay men's sexual encounters and relationships. The focus groups prioritized five categories of participants: gay men connected to the HIV sector, gay men in serodiscordant relationships, HIV+ men who are sexually active, HIV- men who are sexually active and at high risk, and service providers working with gay men. We found some silences, some whispers and some uproars between and within these different groups, reflecting significant variations in the level of familiarity, accurate understanding and real-world application of biomedical knowledge of HIV risk, transmission and prevention. Ultimately, we will create KTE initiatives and tools that translate biomedical knowledge of HIV in ways that are culturally resonant to gay men.

P265

THE CEDAR PROJECT: INCARCERATION RELATED VULNERABILITIES AMONG YOUNG ABORIGINAL PEOPLE WHO USE DRUGS IN TWO CANADIAN CITIES

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BACKGROUND: Aboriginal people are overrepresented in the Canadian corrections system, however very little is understood regarding the risk for incarceration among young Aboriginal people who use drugs.

METHODS: The Cedar Project is a cohort study of young Aboriginal people (aged 14-30) in Vancouver, Prince George, and Chase, BC, who use drugs. This study used generalized linear mixed models (GLMM) to assess trends of incarceration and associated risk factors between 2006-2012, adjusting for confounders. Predicted probability of incarceration, adjusted odds ratios (AOR) and 95% CIs were estimated.

RESULTS: Overall, 429 participants (52% female) were eligible for the analysis. The mean age of participants was 23 years. Over the course of the study there were 521 incident cases of being in jail or prison among 221 participants (range: one to nine events per-person). Among participants who had been incarcerated, 31.7% reported that they had used drugs while in jail, of which 4% had used injection drugs, and 40% had accessed services and treatment programs while in jail or prison (range: 1-7 events per-person). The odds of being incarcerated decreased significantly over time (AOR 0.84 [95% CI 0.81 to 0.89]), and were significantly lower for women (AOR 0.23 [95% CI 0.15 to 0.35]). Participants with unstable housing had the highest odds of being incarcerated (AOR 1.84 [95% CI 1.35 to 2.5]) and recent injection drug use was marginally significant (AOR 1.40 [95% CI 0.98 to 1.98]). HIV status and sero-conversion during the study period were not associated with incarceration.

CONCLUSION: The decline in the number of Cedar Project participants reporting incarceration is an encouraging trend, especially for women. However, unstable housing and homelessness present significant risk for recidivism. Public health and prevention efforts must focus on providing young Aboriginal people who use drugs with culturally safe access to addiction treatment and transition housing upon release from jail or prison to further reduce the trend of incarceration.

P267

EVENT-LEVEL ANALYSIS OF SUBSTANCE USE AND SEXUAL POSITIONING AMONG VANCOUVER GAY AND BISEXUAL MEN PARTICIPATING IN THE MOMENTUM HEALTH STUDY

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BACKGROUND: To investigate relationships between substance use and sexual positioning, gay and bisexual participants in Vancouver's Momentum Health Study completed a computer assisted questionnaire including a section asking about substance use 2 h before or during sex, partner's age, sero-status and substance use, meeting venue, and specific sexual behavior, for their last five partners over the past six months. The resulting sample of 667 men reported a total of 2351 partners.

METHODS: These event-level data were analyzed via the SAS® PROC GLIMMIX mixed logistic regression procedure, which accounts for data interdependence and uses the sexual encounter as the unit of analysis. In this analysis we were interested in what substances, socio-economic variables and psycho-social measures were associated with receptive or insertive anal intercourse (RAI/IAI).

RESULTS: Multivariate analysis results confirmed our hypothesis that RAI (n=952 (40%)) would be significantly associated with popper (AOR 1.952 [95% CI 1.452 to 2.620]) and crystal methamphetamine (AOR 1.867 [95% CI 1.202 to 2.901]) use, while IAI (n=920 [39%]) would be significantly associated with erectile dysfunction drugs (AOR 2.795 [95% CI 1.892 to 4.127]). Additional variables associated with RAI included annual income ≥$30,000 (AOR 0.700 [95% CI 0.533 to 0.920]), group sex attendance (AOR 1.353 [95% CI 1.000 to 1.828]), and higher Cognitive Escape Scale values (AOR 1.398 [95% CI 1.068 to 1.831]). Higher

Sensation Seeking Scale values (AOR 1.311 [95% CI 1.005 to 1.712]) were significantly associated with IAI.

CONCLUSIONS: Correspondence of specific substances and sexual positioning suggests decision-making about sexual roles prior to substance use. Adopting a mixed methods approach, we will next show these results to Momentum participants to elicit their emic, or internally derived, explanations of these results and extend future quantitative analysis to consider unprotected versus protected anal intercourse

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ASSOCIATIONS BETWEEN SEXUAL RISK TAKING AND CHILDHOOD SEXUAL ABUSE AMONG GAY AND BISEXUAL MEN OF COLOUR IN TORONTO: RESULTS FROM THE IMAGINE MEN'S HEALTH STUDY

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BACKGROUND: Previous research has established a relationship between HIV sexual risk and prior experiences of childhood sexual abuse primarily among White GBM.

OBJECTIVE: The purpose of this analysis is to examine the association between experiences of childhood sexual abuse, demographic factors (age, income, education, employment status, HIV status, sexual orientation) and HIV sexual risk among a sample of 369 gay and bisexual men (GBM) of colour in Toronto.

METHODS: Experiences of childhood sexual abuse (CSA) were measured by asking participants if, as a child or adolescent they were forced to have unwanted sex with other male adults who were at least four years older and if so, with what frequency (never/once/rarely /sometimes/frequently). HIV risk (dependent variable) was assessed as unprotected anal intercourse in the last six months with a partner whose status was serodiscordant or unknown. Multivariable logistic regression (LR) analyses were conducted to test for the association between CSA frequency, demographics and HIV risk.

RESULTS: The online survey included a total of 369 GBM. Childhood sexual abuse was reported by 32.9% of the survey respondents (n=108). Among respondents, 64 (17.3%) were HIV-positive, 276 (74.8%) were HIV-negative, and 29 (7.9%) were unsure of their HIV serostatus. Multivariable LR analysis indicated an association between HIV risk and the following variables: CSA (frequent compared to never) (AOR 1.86 [95% CI 1.06 to 3.27]), levels of education (high school or less compared to Bachelor's degree or greater) (AOR 2.18 [95% CI 1.05 to 4.55]), and HIV status, where HIV-positive (AOR 5.80 [95% CI 2.80 to 12.0]) and HIV-unknown men (AOR 8.60 [95% CI 3.00 to 24.50]) reported greater association with HIV risk compared to HIV-negative men.

CONCLUSIONS: HIV sexual risk was significantly associated with the experiences of childhood sexual abuse, education, and HIV status among GBM of colour. Further research is needed to better understand the link between experiences of CSA and sexual risk-taking among GBM of colour.

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HIV-RELATED SEXUAL BEHAVIOURS AMONG SELF-IDENTIFIED HETEROSEXUAL BLACK AFRICAN-CARIBBEAN MEN IN TORONTO

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[1]Toronto, ON; [2]Rochester, FL, USA

BACKGROUND: To understand sexual behaviours of Black men who self-identify as heterosexual, we examined data from the KALI Black Men's Health Study, a community-based study of HIV and other sexually transmitted diseases implemented in the Greater Toronto Area in 2012-2013.

METHODS: Black men were recruited by peer recruiters through a network of community-based organizations and social events. Men were eligible if they, a parent or grandparent were born in Africa or the Caribbean. Participants provided biologic samples and completed a socio-behavioural questionnaire which included demographic and sexual behaviour questions using ACASI. We examined questions related to HIV-related sexual behaviours.

RESULTS: 361 heterosexual HIV-negative men with a median age of 33 years (range 16-72) participated. Region of birth was: Canada 40%, Caribbean 30% and Africa 26%. 84% of participants believed condoms prevent AIDS/HIV though this was significantly lower (75 vs 88%) in those under 25 years of age. 30% of the participants indicated they start having sex before putting on a condom; delayed application was more common (34 vs 16%) in those born in countries other than Africa; 22% reported they took the condom off after starting sex.

In multivariate regression models a) belief that condoms can effectively prevent HIV was associated with younger age ((OR 0.32 [95% CI 0.15 to 0.68]), being single (OR 0.34 [95% CI 0.11 to 1.05]), ever smoking (OR 0.25 [95% CI 0.11 to 0.58]) and with excellent/very good health status (OR 2.57 [95% CI 1.32 to 5.00]); b) Delayed condom application was associated with region of birth (OR 0.44 [95% CI 0.18 to 1.05]), excellent/very good health status (OR 0.46 [95% CI 0.23 to 0.95]) and having a casual female partner (OR 0.44 [95% CI 0.22 to 0.88]).

CONCLUSIONS: Data from our community-based study revealed important new information about HIV-related sexual behaviours among Black men in Toronto, results that will be invaluable to policy makers and service providers involved in HIV prevention initiatives in ACB communities, in particular Black men.

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INTERPROFESSIONAL HEALTH EDUCATION (IPHE) EXPERIENCES AS A SUCCESSFUL MODEL FOR INCLUDING HIV CONTENT INTO THE EDUCATION OF FUTURE HEALTH CARE PROVIDERS IN THE POST-AIDS ERA

Wilson, Jeffrey D; Gahagan, Jacqueline; Furlotte, Kirk
Halifax, NS

INTRODUCTION: Due to breakthroughs in treatment fewer people are dying from AIDS in North America. HIV/AIDS has become a chronic illness instead of a terminal illness for most. There is widespread belief that the AIDS epidemic is over despite prevalence and incidence rates rising in Canada between 2008 and 2011.

OBJECTIVES: The 'Post-AIDS' discourse has shifted public focus away from HIV/AIDS as a significant health and social issue. Concurrent with this shift, post-secondary education for Health Professions, Medicine and Dentistry often lacks content on HIV prevention, intervention, prevalence and incidence. As a result, many students from the health professions are graduating with incomplete skills, bringing them forward into their professional practice. Health care professionals with little knowledge and experience with HIV/AIDS are a structural and systemic driver for increased risk of transmission.

RESULTS: Faculties of Health Professions, Medicine, and Dentistry at Canadian universities that are utilizing IPHE components have the opportunity to use those experiences to include HIV/AIDS content and make it a meaningful experience for their students. Dalhousie University organized IPHE events focusing on the marginalized experience of the aging LGBTQ population as they interacted with health care. These successful events included a component where students interacted with community mentors. Evaluation data indicated that students greatly valued this opportunity to study an area not covered in their formal curriculum and received information that would make a difference in their professional practice.

CONCLUSION: Health Profession, Medicine, and Dentistry students in Canada in the Post-AIDS era are not receiving adequate education to be able to address HIV/AIDS in their professional practice. Health care professionals with little knowledge on HIV/AIDS may create further structural and systemic barriers to culturally competent care. IPHE can be utilized to provide targeted information to address knowledge gaps and improve care for individuals living with or at risk for HIV infection.

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THEORETICAL PROMISE AND PRACTICAL CHALLENGES: REFLECTIONS ON AN ONGOING INTERNATIONAL PROJECT ON TRANSNATIONALISM AND HIV RISK

Zhou, Y Rachel[1]; Huang, Yingying[2]; Cain, Roy[1]; Wei, Wei[3]; Sinding, Christina[1]; Gahagan, Jacqueline[4]; Su, Helen H[5]; Arnold, Emmy[1]; Micollier, Evelyne[6]; Johnson, Nancy[1]; Bao, Yu[2]
[1]Hamilton, ON; [2]Beijing; [3]Shanghai, China; [4]Halifax, NS; [5]Vancouver, BC; [6]France

While the notion of "transnationalism" has been widely explored in immigration studies since the 1990s, its implications in health research, including HIV/AIDS research, in the context of immigration have been little considered. Most studies have examined HIV risk faced by immigrants in their host countries, ignoring the simultaneous impacts of the home country (not limited to its culture) on these immigrants' risk awareness, risk behaviours, and help-seeking practices. Consisting of multi-disciplinary researchers from three countries (Canada, China and France), our research team aims to understand the vulnerability to HIV faced by the current generation of Chinese immigrants, one of the largest groups of newcomers to Canada, who are living in what are increasingly recognized as "transnational spaces" – spaces in which their lives are not limited by the territorial boundaries of Canada (as the host country) and China (as their home country). This paper discusses some of the theoretical contributions and practical challenges of conducting a CIHR-funded international project on transnationalism and HIV risk. Researching transnationalism makes it possible to understand HIV risk from a broader theoretical perspective that goes beyond the traditional state-centric approach to health research that has been increasingly challenged by the ongoing globalization processes. However, "doing" transnationalism turns out to be challenging for two major reasons: a) the technical difficulties in implementing the abstract idea of "transnationalism" in the various phases of research (eg, research design, data collection, and data analysis), and b) the practical complexities associated with the different social, cultural, political, and linguistic contexts in the two countries under study. The changing context and novel aspects of HIV research call for new theories and new methods. It is concluded that incorporating "transnationalism" into HIV/AIDS research opens up a promising new research field, yet its complexities at a practical level merit further reflection and discussion by researchers and policy makers.

The Arts and Humanities in Social Scientific HIV Research

Les arts et les sciences humaines dans la recherche en sciences sociales sur le VIH

P273

"MOTHERS WITH VOICES" MATERNAL DISCLOSURE OF HIV/AIDS IN VANCOUVER AND VICTORIA BRITISH COLUMBIA

Johnson, Mary Ellen F
Victoria, BC

This research looks to acknowledge the issue of maternal disclosure of HIV/AIDS by seropositive women to their children in both Vancouver and Victoria, British Columbia Canada. Throughout this research the patterns and pressures involved in the decision making process of HIV-positive mothers to disclose their HIV positive status to their children will be explored. Maternal disclosure also plays into larger ideas regarding mothering discourses, women's issues within HIV/AIDS, stigma, and the syndemic nature of HIV/AIDS. Using a descriptive case study approach and using narratives this research addresses three key issues: 1) to understand what decisions were involved in mothers disclosing to their child/children 2) to explore the costs and benefits associated with the decision to disclose to a child/children and, 3) to explore the notion of a "gold standard" of maternal disclosure. In regards to the last issue, I examine recent literature suggesting that disclosure can be handled either "poorly" or "properly" and argue that there is no "proper" way of disclosing since each situation presents unique variables. I suggest that mothers who disclosed to children often find themselves in a contrasting good/bad mothering zone where they are constantly attempting to make the best decisions for themselves and their children while dealing with illness and stigma. I situate my observations in literature from various disciplines regarding maternal disclosure. I argue that the decision to disclose to a child is often aggravating, stressful, can be spur of the moment, and can sometimes seem hopeless, but with the necessary support maternal disclosures can bring mother and child closer and reinstate positive mothering ideas for women living with HIV.

P274

HEALTH LITERACY: A NEW CHALLENGE FOR HEALTH CARE PROVIDERS

McCall, Jane; Wilson, Carol
Vancouver, BC

BACKGROUND: Health literacy is a crucial skill that patients need to possess in order to successfully navigate the health care system and maintain wellness. Patients need adequate health literacy to access the health care system, understand health related information, evaluate health related information and communicate about health. People with low health literacy are at risk for repeated hospitalization, decreased medication adherence, poor health outcomes and increased risk of mortality. About 42% of Canadians have low literacy and research reveals that a significant number of patients have low health literacy.

METHOD: 120 patients on the inpatient and out patient HIV units were screened to determine their level of health literacy. In addition, the interdisciplinary team was screened to determine their level of knowledge about health literacy and the techniques that can be used to support it.

RESULTS: The majority of the patients had inadequate health literacy levels despite their level of education. Staff exhibited low levels of knowledge about health literacy and tools that can be used to support it.

CONCLUSION: This presentation will review the results of the study and followup interventions that have been adopted to support health literacy on both the inpatient and outpatient unit.

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NOTES

CALENDAR OF EVENTS

2014

May 1-4, St John's, Newfoundland: 23rd Annual Canadian Conference on HIV/AIDS Research (CAHR 2014). Contact the Canadian Association for HIV Research, One Rideau Street, Suite 744, Ottawa, Ontario K1N 8S7. Telephone 613-670-5842, fax 613-670-5701, e-mail info@cahr-acrv.ca, website www.cahr-acrv.ca

May 9-10, Hamilton, Ontario: 2014 Canadian Society for Epidemiology and Biostatistics (CSEB) National Student Conference. E-mail chair.studentcseb@gmail.com, website www.cseb.ca

May 17-20, Boston, Massachusetts: American Society for Microbiology 114th Annual Meeting. Contact the American Society for Microbiology, 1752 North Street Northwest, Washington, DC 20036-2904, USA. Telephone 202-737-3600, e-mail generalmeeting@asmusa.org, website www.asm.org

May 21-23, Marseille, France: 2014 International Symposium on HIV & Emerging Infectious Diseases (ISHEID). Contact ISHEID 2014 Conference Organizer, 3-5 Boulevard Paul Emile Victor, Neuilly sur Seine, Ile-De-France, 92523. Telephone 33-0-1-40-88-97-97, fax 33-0-1-46-41-05-2, e-mail isheid@overcome.fr, website www.isheid.com

May 25-28, Halifax, Nova Scotia: Community and Hospital Infection Control Association (CHICA) Canada 2014 National Education Conference. Contact CHICA Canada Conference Office, PO Box 46125 RPO Westdale, Winnipeg, Manitoba R3R 3S8. Telephone 204-897-5990, fax 204-895-9595, e-mail chicacanada@mts.ca, website www.chica.org

May 26-29, Toronto, Ontario: Canadian Public Health Association 2014 Annual Conference. Contact the Conference Department, Canadian Public Health Association, 404-1525 Carling Avenue, Ottawa, Ontario K1Z 8R9. Telephone 613-725-3769, fax 613-725-9826, website www.cpha.ca

May 31-June 4, Ottawa, Ontario: Canadian Association of Emergency Physicians (CAEP) 2014 Annual Conference. Contact the CAEP, 104 – 1785 Alta Vista Drive, Ottawa, Ontario K1G 3Y6. Telephone 613-523-3343, fax 613-523-0190, e-mail admin@caep.ca, website http://caep.ca

June 7-9, Anaheim, California: Association for Professionals in Infection Control and Epidemiology (APIC) 41st Annual Conference. Contact APIC, 1275 K Street Northwest, Suite 1000, Washington, DC 20005-4006, USA. Telephone 202-789-1890, fax 202-789-1899, e-mail annual@acip.org, website www.apic.org

June 8-10, London, Ontario: 20th Canadian Connective Tissue Conference 2014. Contact Dr Boris Hinz (Secretary), University of Toronto, Room 234, Fitzgerald Building, 150 College Street, Toronto, Ontario M5S 3E2. Telephone 416-978-8728, fax 416-978-5956, e-mail boris.hinz@utoronto.ca, website http://connective-tissue-canada.com

June 10-13, Montreal, Quebec: Canadian Society for Pharmaceutical Sciences 2014 Conference. Contact the Canadian Society for Pharmaceutical Sciences, Bev Berekoff, University of Alberta, Room 2-020L, Katz Group Centre for Pharmacy & Health Research, 11361 – 87 Avenue, Edmonton, Alberta T6G 2E1. Telephone 780-492-0950, fax 780-492-0951, e-mail bberekoff@cspscanada.org, website www.cpspcanada.org

June 18-21, Vancouver, British Columbia: 12th Annual Meeting of the International Society for Stem Cell Research. Contact the International Society for Stem Cell Research Headquarters, 5215 Old Orchard Road, Suite 270, Skokie, Illinois 60077, USA. Telephone 224-592-5700, fax 224-365-0004, e-mail isscr@isscr.org, website www.isscr.org

June 21-25, Fort Collins, Colorado: American Society for Virology 33rd Annual Meeting. Contact Dr Jeff Wilusz, Colorado State University, Professor of Microbiology, Immunology and Pathology, Fort Collins, Colorado, USA. Telephone 970-491-0652, e-mail asv2014@colostate.edu, website www.asv2014.com

July 27-August 1, Montreal, Quebec: 2014 Canadian Society of Microbiologists Annual Conference in conjunction with the IUMS 2014 Conference. Contact the CSM-SCM Secretariat, 17 Dossetter Way, Ottawa, Ontario K1G 4S3. Telephone 613-421-7229, fax 613-421-9811, e-mail info@csm-scm.org, website www.csm-scm.org

July 27-August 1, Montreal, Quebec: International Union of Microbiological Societies 2014 Congress. Contact the Congresses Management Office, Marie Lanouette, Congresses Manager, National Research Council Canada, 1200 Montreal Road, Building M-19, Ottawa, Ontario K1A 0R6. Telephone 613-993-0414, fax 613-993-7250, e-mail iums2014@nrc-cnrc.gc.ca, website www.montrealiums2014.org

August 17-20, Ottawa, Ontario: 147th Annual Meeting of the Canadian Medical Association. Contact the Canadian Medical Association, 1867 Alta Vista Drive, Ottawa, Ontario K1G 5W8. Telephone 888-855-2555, fax 613-236-8864, e-mail cmamsc@cma.ca, website www.cma.ca/aboutcma.annualmeeting

August 21-25, Seattle, Washington: 2014 International Papillomavirus Conference and Clinical Workshop. Contact c/o Conference Solutions, HPV 2014, 520 Southwest Yamhill Street, Suite 430, Portland, Oregon 97204, USA. Telephone 504-244-2942, e-mail hpv2014@conferencesolutionsinc.com, website www.hpv2014.org

September 17-21, Vancouver, British Columbia: The 2014 Canadian Surgery Forum. Contact the Canadian Surgery Forum, 421 Gilmour Street, Suite 300, Ottawa, Ontario K2P 0R5. Telephone 613-882-6501, fax 613-249-3326, e-mail cboland@cags-accg.ca, website www.canadiansurgeryforum.com


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