





for all of
genius

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A note to all readers

Research captured in this report was taken from NSW Health Pathology's Research Activity Register.

If your research is not included in this report, make sure you add your research activity to the register.

Email NSWPATH-research@health.nsw.gov.au to find out how.

welcome



Tracey McCosker
Chief Executive

Prof Roger Wilson
Chief Pathologist
Executive Director of
Clinical Governance & Quality

NSW Health Pathology is dedicated to supporting and promoting high quality research by creating a research environment where ongoing education, learning and improvement is encouraged.

Research and innovation is part of our core business and we are working to ensure it is integrated into our existing pathology and forensic governance and organisational structures. We want to position ourselves at the forefront of new tests and emerging technologies, harnessing a generation of new knowledge and supporting the translation of research into practice.

We're pleased to share with you our very first Research Activity Report, highlighting the data captured by NSW Health Pathology's Research Activity Register for 2017.

We are striving to embed a culture of research and innovation in our organisation, supporting high quality, peer-reviewed, scientifically-sound and ethically-approved research.

In determining the future role of technology and identify

emerging trends, we will design innovative models of service delivery, and high quality, safe, patient-centred pathology and forensic services.

Part of our model involves building strong research collaborations between our research groups and networking with our scientific, clinical and forensic colleagues within universities, medical research institutes, hospitals, industry and other health services.

An excellent example of a key collaboration was the launch of the NSW Health Statewide Biobank in partnership with the Office of Health and Medical Research (OHMR), Sydney Local Health District and Health Infrastructure.

As you will see in these pages, we have already made a valuable contribution to the national and international research community. We acknowledge there is probably much more research within our ranks than we've captured here. We encourage all of our researchers to include your activities in the Research Activity Register so we can highlight the important work you're undertaking in our next Research Activity Report.


Thank you to all of you who share your expertise and immense skill through your research to bring such incredible benefits to the people of NSW.

our values

We always walk our talk by committing to our RITE values and behaviours.

We treat our patients, partners, customers and each other with respect and dignity – always. We embrace what makes us unique as individuals and communities.

respect
We all deserve it




integrity
We are trusted partners



We are honest, reliable and accountable. We care about protecting the health, safety and wellbeing of all people who rely on and deliver our services.

teamwork
We are one team



We work together connecting our partners, customers and communities to meaningful answers regardless of who they are or where they live, at every stage of life.

excellence
We lead the way



We are curious and passionate about making a difference through innovation and excellence. We push boundaries and go above and beyond to strive for the best, every time.



for all of
trust

our research impact

Investment in research and innovation is the key to future-proofing NSW Health Pathology as a leading pathology and forensic service provider.

Current climate (2017-18FY)

- The Australian government invested \$10.3 billion in research and development (2.3% increase from 2016-17FY).
- NSW Health budget for Health and Medical Research, delivered through the Office of Health and Medical Research, invested \$92 million in research and development.

The year 2017 saw NSW Health Pathology continue its role as an innovative research powerhouse led by an interconnecting network of leading specialists. We launched a new Statewide Research and Innovation Framework. The framework focused on enhancing patient outcomes through applied research, with 25 initiatives setup to support the development of new diagnostic capabilities, forensic and analytical methods and models of service delivery, along with acknowledging the innovative contributions of our researchers.

- **Research-related impact:** We are involved in the dissemination and transfer of new knowledge.

NSW Health Pathology strategic directions with research and innovation objectives 2017



- Capacity building
- Organisational culture of research

- Governance & leadership
- Research collaborations
- Research support

- Commercial services enhancement
- Support for funding, finance & contracts
- Research performance

- Applied research

We are building the capacity for research with many of our researchers involved in training and leadership roles within tertiary hospitals and institutions. We work in partnership with many academic and medical research institutes across NSW, nationally and internationally.

- **Policy impact:** Our research findings influence policy developments with our leading researchers involved in policy decision-making.

- **Health and health system impact:** We continue to contribute to the development of evidence-based practices. We use research to continuously improve the quality of services (management and delivery).
- **Societal impact:** Our research helps to improve health literacy, knowledge and behavior, leading to improved outcomes.

achievements in 2017

NSW Health Pathology collectively made great advances in the research space in 2017.

Both researchers and the NSW Health Pathology Research Office (consisting of just one person, Research Project Manager, Amanda Koegelenberg) had major achievements in 2017, which can be seen on this page.

To make this report we have used our Research Activity Register to collect information about funding and publications from NSW Health Pathology employees.

However, we acknowledge the dataset may be incomplete depending on who has registered their data in the Research Activity Register.

Developed three research and innovation policies

- NSWHP Affiliation & Acknowledgement
- NSWHP Intellectual Property
- NSWHP Research and Innovation Framework

Developed a research contact database for communication

>600 researchers added

Launched the NSW Health Statewide Biobank

NSW Health Pathology launched the biobank in partnership with the Office of Health & Medical Research (OHMR), Sydney Local Health District and Health Infrastructure

- Established NSW Health Pathology's first Research and Innovation Advisory Committee
- Established NSW Health Pathology's first Intellectual Property Committee.

- Released the Research and Innovation Newsletter - promoting opportunities, initiatives and innovations.
- Created intranet and internet pages dedicated to research and innovation.
- Research groups were added and linked through social media.

Provided support to research grants eg: NSW Health Translational Research Grant Scheme.



advisory committee

The NSW Health Pathology Research and Innovation Advisory Committee is to provide:

- Research leadership: monitor the Research & Innovation Framework implementation plan, identify gaps in the activity and report back to the Strategic Leadership Team
- Research advocacy: facilitate research collaboration, promote partnering opportunities and advocate for the use of NSWHP research policies and procedures
- Research culture: encourage a culture of sharing research activity
- Research advisor: on issues that may impact NSWHP researchers
- Research support: grant application, business cases and implementation of new innovations
- Research promotion: gather research material required for an annual research report.



Roger Wilson
Executive Director,
Clinical Governance
& Quality



Amanda Koegelenberg
Program Director,
Research & Innovation



Andrew Harre
Research Governance
Officer



Bente Talseth-Palmer
Research Support
Project Officer



Stephen Adelstein
Head of Immunology
Department, Royal
Prince Alfred Hospital



Paul Bonnitcha
Chemical Pathology
Registrar - Clinical
Chemistry, RPAH



Stephen Braye
CMIO & Executive
Director, Clinical
Services

advisory committee



Dominic Dwyer
Director, Public Health
Pathology & WSLHD
Local Pathology Director



Mahtab Farzin
Anatomical
Pathologist, Central
West Pathology



Emmanuel Favalaro
Principal Hospital
Scientist (Haematology)
ICPMR, Westmead



Catherine Hitchcock
Senior Scientist &
Research Coordinator
FASS Lidcombe



Tom Karagiannis
Acting Chief Operating
Officer, NSW Health
Statewide Biobank



Murray Killingsworth
Principal Hospital
Scientist
Liverpool Hospital



Rob Lindeman
Executive Director,
Clinical Operations



Sue McLennan
Operations Director,
East



James Patterson
Chief Information
Officer



William Rawlinson
Director, Virology -
South East



Rodney Scott
Director, Molecular
Medicine - North



Michael Symonds
Executive Director,
Forensic & Analytical
Science Service



Vanessa Thomson
Executive Director,
Scientific & Technical



Denis Wakefield
Director, Sutherland
Centre of
Immunology (SCI)

external research services

If you would like to request NSW Health Pathology clinical, forensic or NSW Health Statewide Biobank services to support your research projects, our research co-ordinators can help guide you.



Toby Baldwin
NSW Health
Statewide Biobank



Erin Brighten
South Eastern
Sydney



Neil Catlett
Rural and Regional
NSW



Marette Dean
Illawarra Shoalhaven



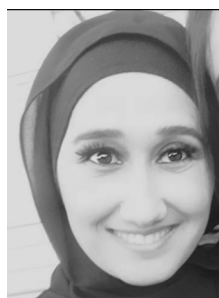
Catherine Hitchcock
Forensic & Analytical
Science Service



Karla Jerez
Sydney



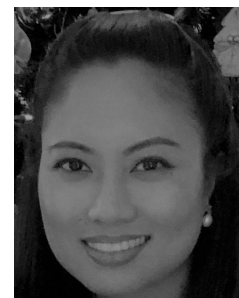
Tony Kay
Hunter New England
Central Coast
Mid North Coast
Northern Sydney
Northern NSW



Naheela Lalee
Western Sydney
Nepean
Blue Mountains



Andrew Sargeant
Point of Care Testing
(PoCT)



Zarah Timbol
Western Sydney
Nepean
Blue Mountains



Rina Upadhyay
South Western
Sydney



Santiago Vazquez
Forensic & Analytical
Science Service
Clinical Trials

our structure

The following clinical streams and services have access to the Research Activity Register used to create this report.

Clinical streams

- Anatomical Pathology
- Chemistry
- Haematology
- Immunology
- Microbiology
- Transfusion

Statewide clinical services

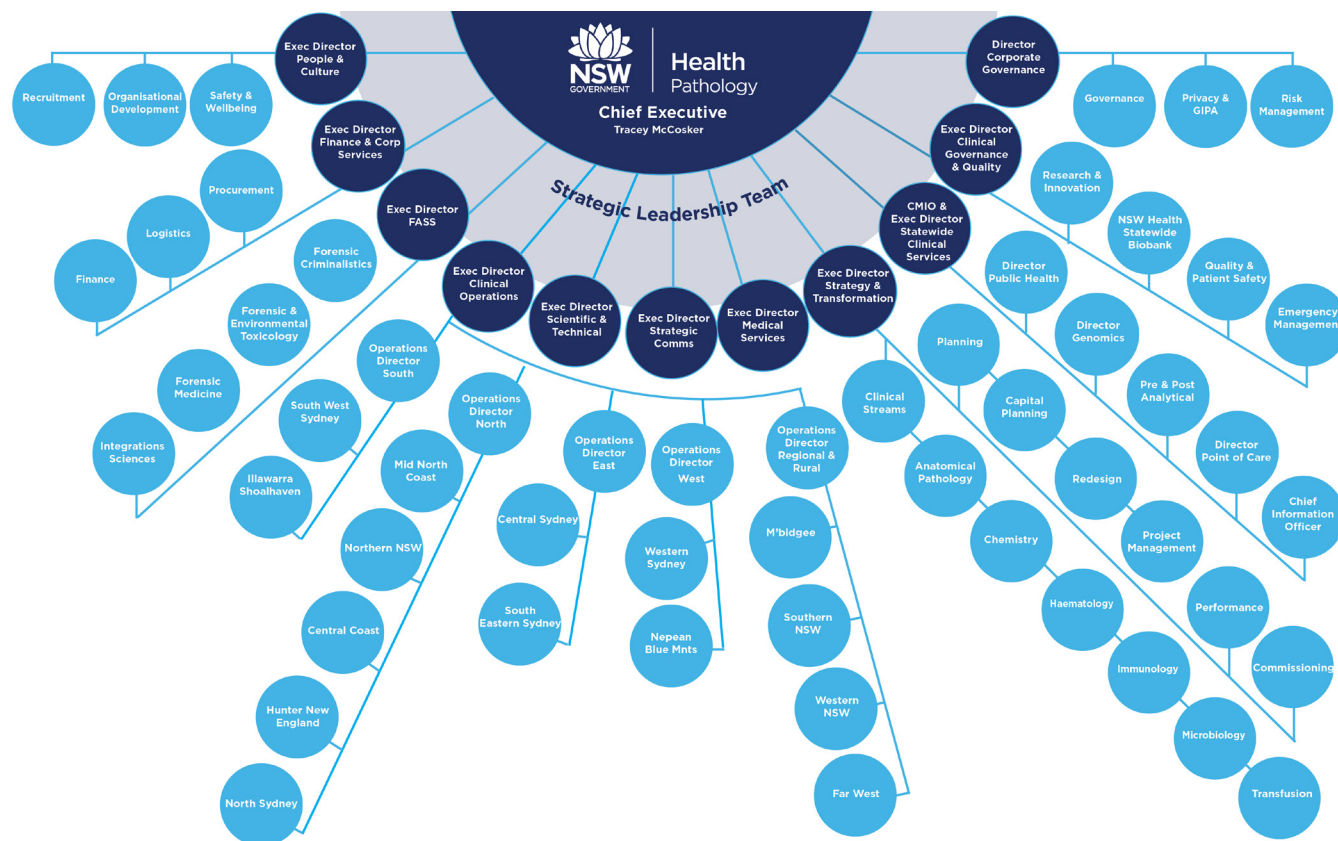
- Genomics
- Point of Care
- Pre and Post Analytical
- Public Health

Statewide services

- Forensic & Analytical Science Service
- NSW Health Statewide Biobank

Clinical Governance & Quality

- Research Office



grants

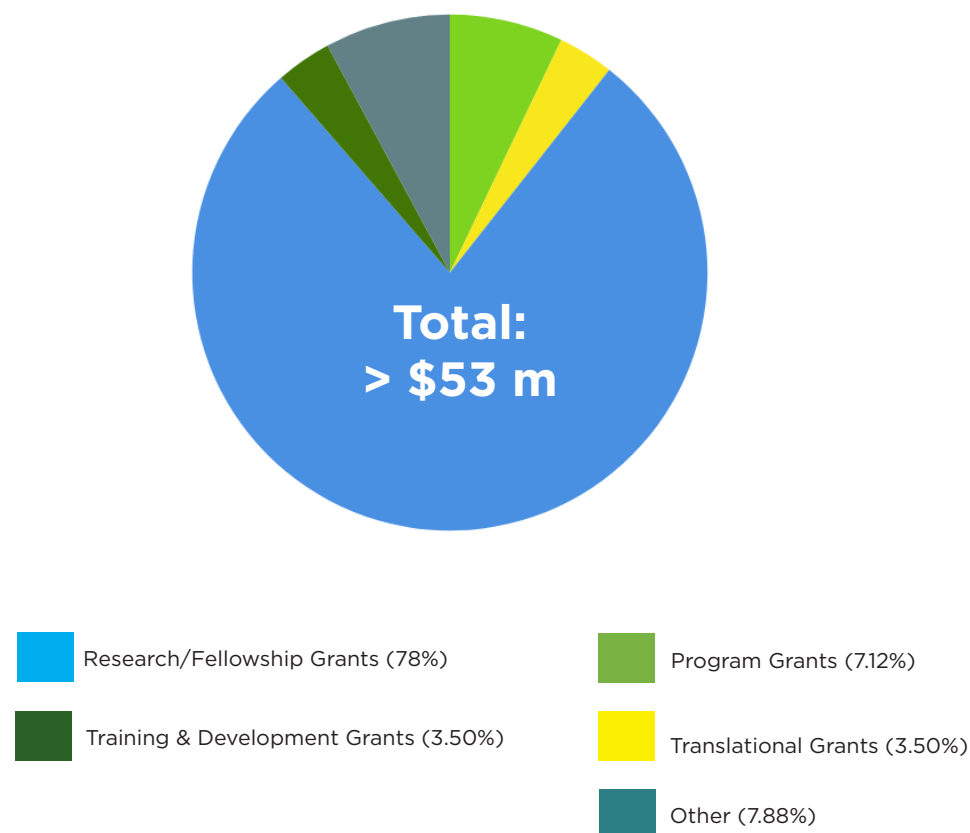
NSW Health Pathology researchers, in collaboration with external partners, accessed more than \$53 million in funding in 2017.

As chief and/or associate investigators, NSW Health Pathology researchers attracted a total of 60 registered grants across 2017. Of these, more than 15% are valued at over \$1,000,000. This included four NHMRC Centres for Research Excellence (CRE), seven large program grants and many project/fellowship grants.

The grants come from more than 25 funding agencies ranging from international (ie: National Cancer Institute and Qatar National Research Fund), national (ie: NHMRC, NFMRI and Cancer Australia), government (ie: NSW Health Prevention Research Support Program and NSW Health) and statewide agencies (Cancer Institute NSW and Cancer Council NSW). This would not have been possible without the great collaborative partnerships between our staff and fellow colleagues in local health districts, universities, medical research institutes and other commercial collaborations. Well done to all involved!

Figure 1: Breakdown of grant funding by type.

Figure 1: Proportion of funding type



grant in focus

NSW Health’s Translational Research Grant Scheme (first round).

Grant title	Translating pathogen genomics into improved public health outcomes
Awarded	\$2,000,000
Chief investigators	Associate Professor Vitali Sintchenko and Professor Jon Iredell
Collaborators	Centre for Infectious Diseases and Microbiology-Public Health at Westmead Hospital, Pathology West, NSW Health Protection and Marie Bashir Institute of Emerging Infectious Diseases of the University of Sydney
Funding period	2017-2019

The Translational Research Grant Scheme provides grants to staff employed within NSW public health system. Applicants are encouraged to partner with other research organisations.

The scheme is designed to accelerate the development of research capability and evidence translation within the NSW public health system.

Summary of outcome

The project sought to address major challenges with timely detection and management of bacterial foodborne diseases and tuberculosis. In Australia, there are an estimated 4.1 million cases of foodborne diseases annually, costing the economy more than AU\$1.2 billion/year.

While we have one of the lowest rates of tuberculosis in the world, to achieve elimination it requires a better understanding of how transmission occurs, together with the capacity to detect and track transmission events.

The main objectives of the project were:

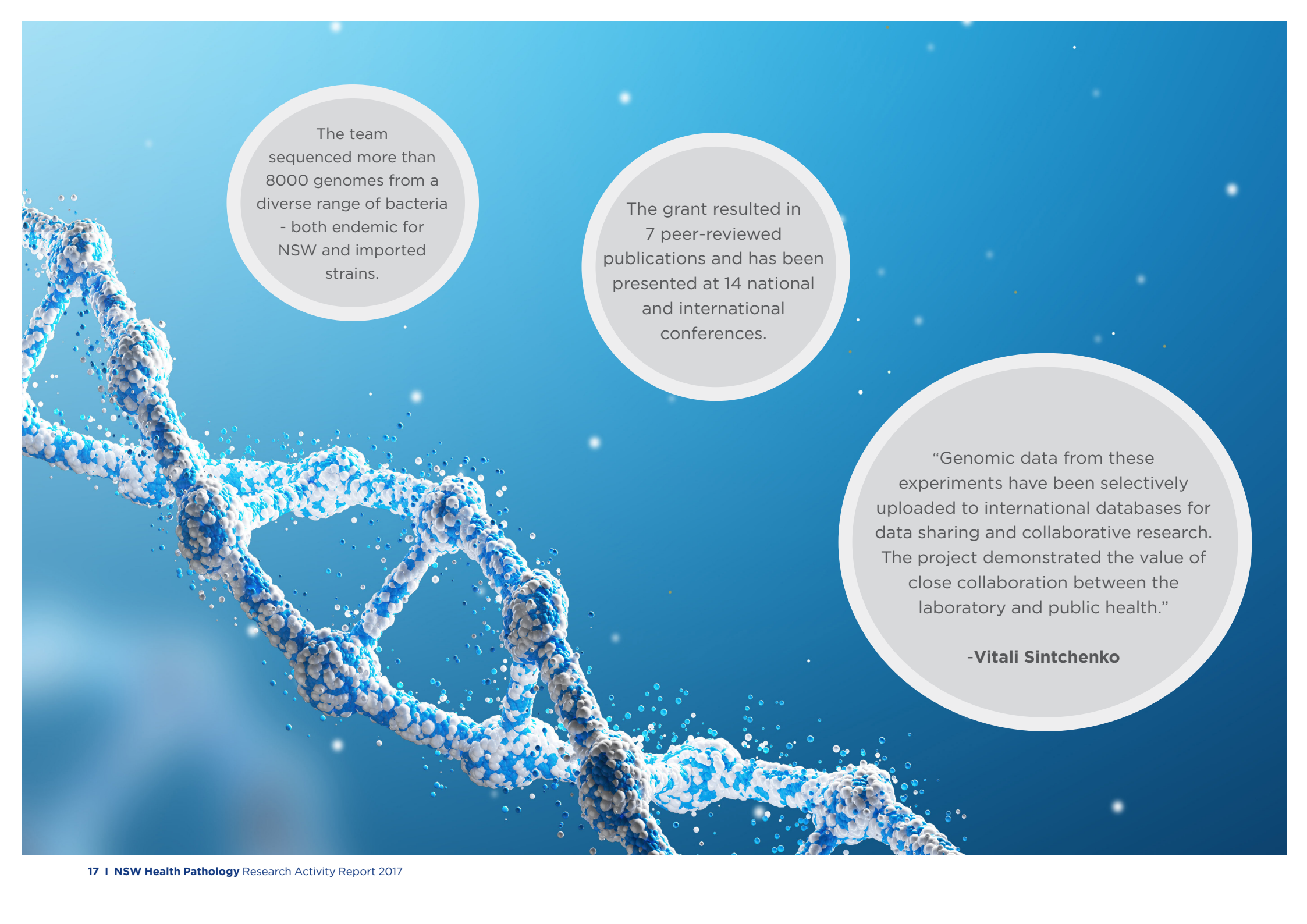
- To assess the effectiveness of incorporating whole genome sequencing (WGS)-based surveillance for public health response compared to current procedures in NSW targeting Salmonella typhimurium,

Mycobacterium tuberculosis and Listeria monocytogenes; and

- To describe the process of translating WGS into a tool for prospective surveillance, including exploration of enablers and barriers to implementation, impact on laboratory and public health workflows, and practical requirements for establishing genomic surveillance.

The final report from the project team was reviewed by the project advisory committee, which included all major stakeholders and expert advisors and was chaired by the Director of NSW Health Protection, Dr Jeremy McAnulty.

The committee endorsed the report and its recommendations which led to the translation of the project findings into practice of NSW Health Pathology. Use of whole genome sequencing (WGS) information for cluster detection and susceptibility testing was found to be accurate and timely for tuberculosis and foodborne diseases surveillance and has since been implemented as a routine service. NSW Health Pathology is in the process of establishing a statewide public health pathogen genomics service, funded by the NSW Ministry of Health.



The team sequenced more than 8000 genomes from a diverse range of bacteria - both endemic for NSW and imported strains.

The grant resulted in 7 peer-reviewed publications and has been presented at 14 national and international conferences.

“Genomic data from these experiments have been selectively uploaded to international databases for data sharing and collaborative research. The project demonstrated the value of close collaboration between the laboratory and public health.”

-Vitali Sintchenko

collaboration in focus

NHMRC Program Grant: Using healthcare wisely.

Grant title	Using healthcare wisely: reducing inappropriate use of tests and treatments
Awarded	\$9,578,895
Chief investigators	Prof Paul Glasziou, Prof Rachele Buchbinder, Prof Stacy Carter, Prof Jenny Doust, Prof Adam Elshaug, Prof Kirsten Howard, Prof Ian Kerridge, Prof Chris Maher, Prof Kirsten McCaffery, Ray Moynihan and Prof Chris Semsarian.
Associate investigators	Juan Brito, Prof John Brodersen, Prof John Chalmers, Prof Richard Deyo, Prof Gordon Guyatt, Prof Ian Harris, Prof Andrea Horvath , Prof Nehmat Houssami, Dr Jodie Ingles, Prof Les Irwig, Dr Barnett Kramer, Dr Kevin McGeechan, Prof Andrew McLachlan, A/Prof Ainsley Newson, Prof Martin Tattersall, Prof Martin Underwood, Prof Robyn Ward and Prof Andrew Wilson.
Collaborators	University of Sydney, Bond University, Monash University, University of Wollongong and international colleagues.
Funding period	2017-2021

Wiser Healthcare is a group of collaborating researchers based in Australia, including NSW Health Pathology's Andrea Rita Horvath.

This collaboration is researching the prevalence, causes and consequences of overdiagnosis and overtreatment, evaluate solutions and widely disseminate findings.

Focus area

The overdiagnosis and overtreatment is an unintended consequence of modern healthcare.

Expanded disease definitions, labelling of people with mild problems or at 'low risk' of illness, diagnostic tests that identify inconsequential abnormalities and screening programs that detect disease that won't progress are all contributors.

The result is unsustainable overuse and potential harm to patient safety.

Grants

The Wiser Healthcare group was awarded two related grants from the

National Health and Medical Council at approximately the same time:

- a Centre for Research Excellence award (running from June 2016 to May 2021), and
- a Program Grant (running from January 2017 to December 2021).

We decided to join forces to maximise the productivity of both grants.

Outcomes

The research program has published extensively. A list of all publications can be found online at www.wiserhealthcare.org.au



“No guidelines exist currently for advisory panels and others considering changes to disease definitions. We propose a checklist be piloted and validated by groups developing new guidelines, anticipating that the use of the checklist will be a first step to guidance and better documentation of definition changes prior to introducing modified disease definitions.”

Doust, J., Vandvik, P.O., Qaseem, A., Mustafa, R.A., **Horvath, A.R.**, Frances, A., Al-Ansary, L., Bossuyt, P., Ward, R.L., Kopp, I., Gollogly, L., Schunemann, H., Glasziou, P. Guidance for modifying the definition of diseases: A checklist.
JAMA Int Med 2017;177(7):1020-1025
(IF: 16.538)

“We have raised issues that highlight the critical need for laboratory expertise when drafting clinical guidelines involving the use of laboratory testing, as universal application of i.e. ALT cutoffs (used in evaluation of liver disease) may lead to overdiagnosis and unnecessary further testing.”

Panteghini M, Adeli K, Ceriotti F, Sandberg S, **Horvath AR.** American Liver Guidelines and Cutoffs for “Normal” ALT: A Potential for Overdiagnosis. Clin Chem 2017; 63(7):1196-1198.

publications overview

In 2017, NSW Health Pathology staff had 357 research publications registered in our Research Activity Register and many unregistered publications are likely to exist.

Unrestricted, free online access to scholarly articles through open access has revolutionised medical communications.

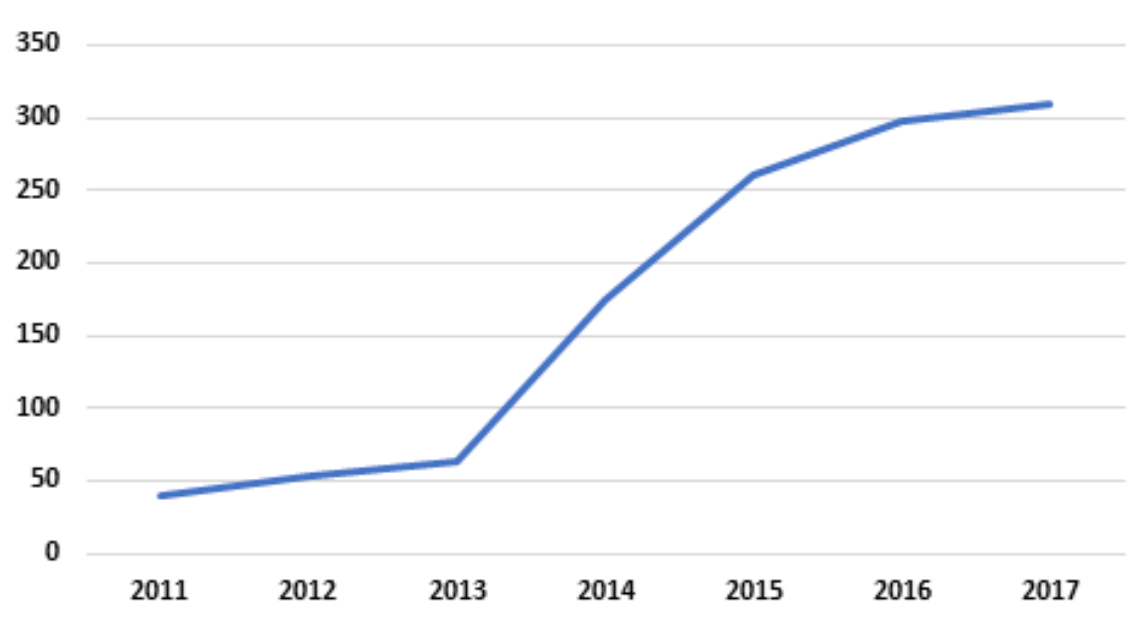
Publication types in this report range from original peer reviewed articles, review articles, editorials/commentary, book chapters and reports/guidelines.

Our Research Activity Register for 2017 outlined the following:

- 262 original peer reviewed articles
- 25 review articles
- 17 editorials/commentary
- 30 book chapters
- 23 reports/guidelines.

The two major contributors are from our clinical streams, with 105 original peer reviewed articles from

Figure 2: NSW Health Pathology publications



Anatomical Pathology and 80 original peer reviewed articles from Microbiology. Well done!

As we can see in Figure 2 above, NSW Health Pathology's publication impact has increased progressively since 2011.

Figure 3 (pg 21) shows the number of publications by clinical streams and statewide services.

In Figure 4 (pg 21) we have split the publication into operational areas to give you an idea of the distribution in geographical location.

NSW Health Pathology publications by clinical stream/service

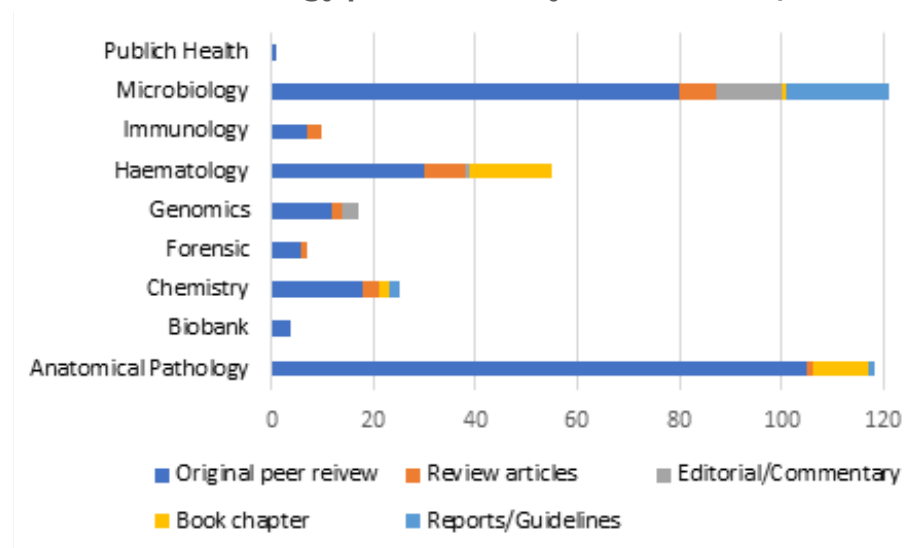


Figure 3: This graph displays the number of publications by clinical streams and statewide services using 2017 data from NSW Health Pathology’s Research Activity Register with 357 publications.

A total of 310 publications in 2017 has used one of the following affiliations: NSW Health Pathology, Pathology North, Hunter Area Pathology Service, Pathology West, ICPMR, SSWPS, SEALS or FASS.

A steady increase in the use of the affiliation NSW Health Pathology when publishing can be seen since the organisation’s name changed in 2012.

NSW Health Pathology publications by region

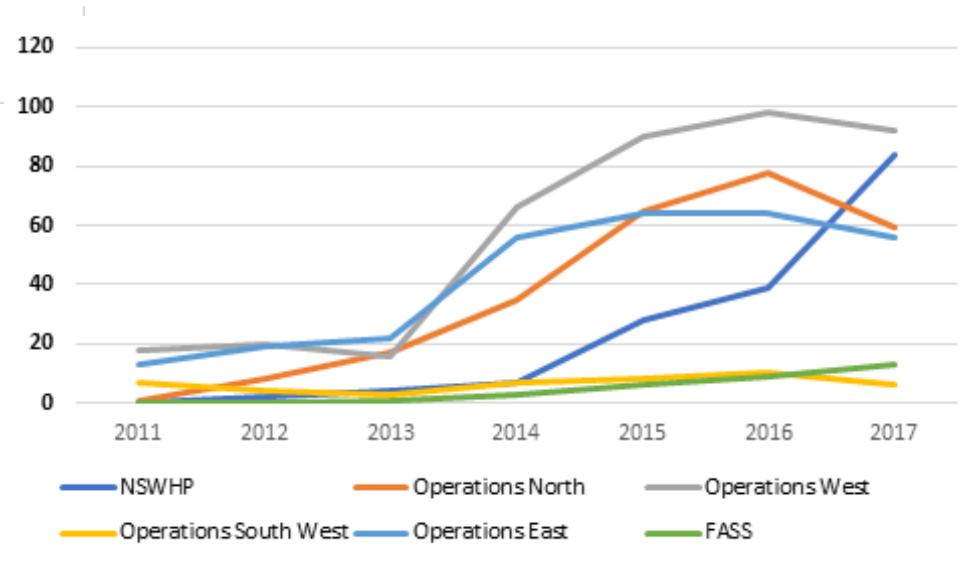


Figure 4: This graph displays the number of publications by NSW Health Pathology region 2011 to 2017 using data from PubMed. Note: Regional and Rural is captured in relevant previous pathology network.

research streams



clinical streams



Scott Jansson
Clinical Streams Coordinator

NSW Health Pathology has six clinical streams.

The Clinical Streams were established to improve the quality, safety and efficiency of public pathology services, and promote collaboration among clinicians, scientists and other staff across pathology disciplines.

They are charged with developing strategies that will improve the outcome and value for patients, clinicians, customers and stakeholders through the equitable, safe and efficient delivery of pathology services across NSW and to all patients.

The Clinical Streams provide expert advice and undertake tasks to achieve NSW Health Pathology's strategic initiatives.

The Clinical Streams are:

- Anatomical Pathology
- Chemical Pathology
- Haematology
- Immunology
- Microbiology
- Transfusion.

The purpose of Clinical Streams is:

- To provide leadership in shaping the statewide direction for clinical services
- To develop recommendations for innovative models of service delivery to patients and customers
- To set best practice clinical standards and policy for services at a statewide level
- To provide clinical advice on emerging issues and areas of risk to help ensure NSW Health Pathology provides high quality, safe clinical services to the NSW Health system .

The Clinical Streams actively support research in medical and scientific areas relevant to public pathology through their respective clinical disciplines.

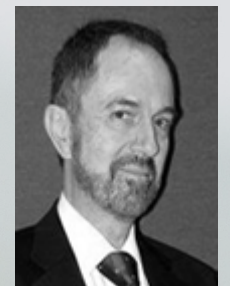


anatomical pathology

Anatomical Pathology is the branch of pathology that deals with the tissue diagnosis of disease.

For this, Anatomical Pathologists need a broad-based knowledge and understanding of the pathological and clinical aspects of many diseases.

The work of most Anatomical Pathologists is, however, on tissue from living patients. Modern Anatomical Pathologists examine not only samples of solid tissue, but also small specimens of separated cells (cytology).



Paul McKenzie
Clinical Stream Lead

publication in focus

Whole-genome landscape of pancreatic neuroendocrine tumours.

Nature 2017; 543:65-71.

Authors

Scarpa A, Chang DK, Nones K, Corbo V, Patch AM, Bailey P, Lawlor RT, Johns AL, Miller DK, Mafficini A, Rusev B, Scardoni M, Antonello D, Barbi S, Sikora KO, Cingarlini S, Vicentini C, McKay S, Quinn MC, Bruxner TJ, Christ AN, Harliwong I, Idrisoglu S, McLean S, Nourse C, Nourbakhsh E, Wilson PJ, Anderson MJ, Fink JL, Newell F, Waddell N, Holmes O, Kazakoff SH, Leonard C, Wood S, Xu Q, Nagaraj SH, Amato E, Dalai I, Bersani S, Cataldo I, Dei Tos AP, Capelli P, Davi MV, Landoni L, Malpaga A, Miotto M, Whitehall VL, Leggett BA, Harris JL, Harris J, Jones MD, Humphris J, Chantrill LA, Chin V, Nagrial AM, Pajic M, Scarlett CJ, Pinho A, Rooman I, Toon C, Wu J, Pinese M, Cowley M, Barbour A, Mawson A, Humphrey ES, Colvin EK, Chou A, Lovell JA, Jamieson NB, Duthie F, Gingras MC, Fisher WE, Dagg RA, Lau LM, Lee M, Pickett HA, Reddel RR, Samra JS, **Kench JG**, Merrett ND, Epari K, Nguyen NQ, Zeps N, Falconi M, Simbolo M, Butturini G, Van Buren

G, Partelli S, Fassan M; Australian Pancreatic Cancer Genome Initiative, Khanna KK, **Gill AJ**, Wheeler DA, Gibbs RA, Musgrove EA, Bassi C, Tortora G, Pederzoli P, Pearson JV, Waddell N, Biankin AV, Grimmond SM.

Editorial summary

Pancreatic neuroendocrine tumours (PanNETs) are the second most common epithelial neoplasm of the pancreas. Aldo Scarpa, Sean Grimmond and colleagues report whole-genome sequencing of 102 primary PanNETs and present analysis of their mutational signatures as part of the International Cancer Genome Consortium.

They find frequent mutations in genes with functions that include chromatin remodelling, DNA damage repair, activation of mTOR signalling, and telomere maintenance.

They also identify mutational signatures, including one resulting from inactivation of the DNA repair gene MUTYH, and report a larger than expected germline contribution to PanNET development.

Citations

Article accesses: 3939

Web of science: 187

CrossRef: 187

Altmetric score: 200*

Tweets 308 | Blogs mentions 2

Facebook mentions 5 | News outlets 5

Mendeley readers 361 | Citeulike readers 4

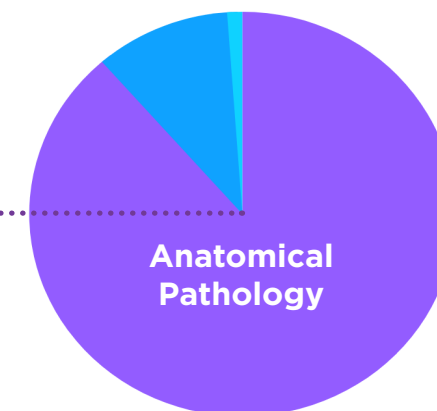
* This score means the article is in the 98th percentile of the 258,822 tracked articles of a similar age in all journals; and the 67th percentile of the 876 tracked articles of a similar age in Nature.

*Citation count from the journal's website.

grants & scholarships

Total funding
\$4,361,016

- Research (project/ fellowships) \$449,174
- Program \$3,861,842
- Translational \$50,000



Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
Priority-driven collaborative cancer research scheme (PdCCRS): Hide and seek with hereditary cancer; improving detection of colorectal cancer patients with a high risk of Lynch syndrome.	\$591,241; Program (2017-2020)	Taylor N; Kench J, Tucker K, Macrae F, Gill A, Pachter N, Parkinson B, Solomon M, Shaw T, Canfell K, Morris S, Debono D, Long J, Khalessi K, Hawkins N, Williams R, Lakhani S, Marfan H (Macquarie University)	Cancer Australia
Nutrient stress-mediated adaptive responses as novel targets in BRAF mutant melanoma	\$449,174; Research (2017-2019)	Holst J; Scolyer RA, Long GV, Menzies AM, Wilmott J (University of Sydney)	Cancer Council NSW
NSW-China partnership in mucosal melanoma research: integrated genomics for better clinical outcomes	\$750,000; Program (2017)	Mann G; Scolyer RA, Guo J, Mattick J, Reddel R, Hayward N, Joshua A, Waddell N, Pearson J, Wilmott J, Long, G (University of Sydney)	OHMR/ Curran Foundation
Centre of Research Excellence in Melanoma: Person, tumour and system-focussed knowledge to drive better outcomes in melanoma	\$2,520,601; Program (2017-2022)	Mann G; Cust A, Scolyer RA, Braithwaite J, Kelly J, Morton R, Spillane A, Saw R, Henderson M, Yang J (University of Sydney)	NHMRC
John Raftos Medal: The Role of Tumour-Resident CD8+ T cells in Metastatic Melanoma and Immunotherapy	\$50,000; Translational (2017)	Cooper W	NFMRI
Travel Award - Annual Scientific Meeting 2018	\$?; Training & Career Development (2017)	Ferguson P	Society of Melanoma Research

publications

No.	Publication type	Reference/Citation
1	Original peer review	Pre-Clinical Study of Panobinostat in Xenograft and Genetically Engineered Murine Diffuse Intrinsic Pontine Glioma Models. Hennika T, Hu G, Olaciregui NG, Barton KL, Ehteda A, Chitranjan A, Change C, Gifford AJ, Tsoli M, Zeigler DS, Carcaboso AM and Becher OJ. PLoS One 12(1)
2	Original peer review	Antenatal gastrointestinal anomalies in neonates subsequently found to have alveolar capillary dysplasia. Goel D, Ieou Oei JL, Lui K, Ward M, Shand AW, Mowat D, Gifford AJ and Loo C. Clin Case Rep 5(5):559-566
3	Original peer review	Suppression of the ATP-binding cassette transporter ABCC4 impairs neuroblastoma tumour growth and sensitises to irinotecan in vivo. Murray J, Valli E, Yu DMT, Truong AM, Gifford AJ ..et al. Eur J Cancer 83:132-141
4	Original peer review	Distinct Patterns of Stromal and Tumor Expression of ROR1 and ROR2 in Histological Subtypes of Epithelial Ovarian Cancer. Henry C, Emmanuel C, Lambie N, Loo C, Leung , Kennedy C, de Fazio A, Hacker N, Ford C. Translational Oncology 10(3):346-356
5	Original peer review	Lung and liver growth and retinoic acid status in human fetuses with congenital diaphragmatic hernia. Loo C, Pearen MA, Pereira TN, Perry-Keene J, Payton D, Ramm GA. Human Early Development 116:17-23
6	Original peer review	miR-139-5p Modulates Radiotherapy Resistance in Breast Cancer by Repressing Multiple Gene Networks of DNA Repair and ROS Defense. Pajic M, Froio D, Daly S, Doculara L, Millar EKA, Graham PH, Drury A, Steinmann A, de Bock CE, Boulghourjian A, Zaratzian A, Carroll S, Toohey J, O'Toole SA, Harris AL, Buffa FM, Gee HE, Hollway GE, Molloy TJ. Cancer Research 78(2):501-515
7	Original peer review	Andy's Algorithms: new automated digital image analysis pipelines for FIJI. Law AMK, Yin JXM, Castillo L, Young AIJ, Piggin C, Rogers S, Caldon CE, Burgess A, Millar EKA, O'Toole SA, Gallego-Ortega D, Ormandy CJ, Oakes SR. Sci Rep 7(1):15717
8	Original peer review	A case of amoebic colitis following remote historical exposure. Parikh R, Millar EKA, Phan-Thien KC. ANZ J Surg Epub2017
9	Original peer review	LRH-1 expression patterns in breast cancer tissues are associated with tumour aggressiveness. Pang JB, Molania R, Chand A, Knowler K, Takano EA, Byrne DJ, Mikeska T, Millar EKA, Lee CS, O'Toole SA, Clyne C, Gorringer KL, Dobrovic A, Fox SB. Oncotarget 8(48):83626-83636
10	Original peer review	Breast ductal carcinoma in situ carry mutational driver events representative of invasive breast cancer. Pang JM, Savas P, Fellowes AP, Mir Arnau G, Kader T, Vedururu R, Hewitt C, Takano EA, Byrne DJ, Choong DY, Millar EKA, Lee CS, O'Toole SA, Lakhani SR, Cummings MC, Mann GB, Campbell IG, Dobrovic A, Loi S, Gorringer KL, Fox SB. Modern Pathology 30(7):952-963

publications

No.	Publication type	Reference/Citation
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90	Original peer review	Blocking CTLA-4 while priming with a whole cell vaccine reshapes the oligoclonal T cell infiltrate and eradicates tumors in an orthotopic glioma model. Field CS, Hunn MK, Ferguson PM, Ruedl C, Ancelet LR, Hermans IF. Oncoimmunology. 2017;7(1):e1376154
91	Original peer review	Lysyl oxidases regulate fibrillar collagen remodelling in idiopathic pulmonary fibrosis. Tjin G, White ES, Faiz A, Sicard D, Tschumperlin DJ, Mahar A, Kable EPW, Burgess JK. Dis Model Mech 2017;10:1301 1312
92	Original peer review	The interstitial lung disease multidisciplinary meeting: A position statement from the Thoracic Society of Australia and New Zealand and the Lung Foundation Australia. Prasad JD, Mahar A, Bleasel J, Ellis SJ, Chambers DC, Lake F, Hopkins PMA, Corte TJ, Allan H, Glaspole IN. Respirology 2017;22:1459-1472
93	Original peer review	BK Virus Nephropathy: Histological Evolution by Sequential Pathology. Brian J Nankivell, Jasveen Renthawa, Raghwa Sharma, Kathy Kable, Philip J O'Connell, Jeremy R Chapman. Am J Transplant. 2017 Aug; 17(8): 2065-2077.
94	Original peer review	Biological responses of T cells encapsulated with polyelectrolyte-coated gold nanorods and their cellular activities in a co-culture system. Wattanakull P, Killingsworth MC, Pissuwan D. Applied Nanoscience (2017) 7: 667-679.

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No.	Publication type	Reference/Citation
95	Original peer review	Cuticular drusen: Clinical phenotypes and natural history defined using multimodal imaging. Balaratnasingham C, Cherepnaoff S, Dolz-Marco R, Killingsworth MC, Chen FK, Mendis R, Mrejen S, Curcio CA, Too LK, Gal-Or O, Freund KB, Yanuzzi LA. <i>Ophthalmology</i> 2018 Jan;125(1):100-118. doi: 10.1016/j.ophtha.2017.08.033. Epub 2017 Sep 28. Plus: Editorial: Guymer R 2017
96	Original peer review	"Unearthing" the cause of acute injury in a gardener. Ariyaratna D, Hsu D, Yong J, Killingsworth MC, Rutland J, Wong J. <i>Nephrology</i> 2017;22:52
97	Original peer review	Specific localization of LC3B in autophagosome: A correlative labelling study with nanoparticles in oral squamous cell carcinoma. Lai K, Killingsworth MC, Yong J, Matthews S, Ebrahimi A, McGuinness J, Ngo Q, Caixeiro N, Hong A, Lee CS. <i>Exp. Mol. Pathol.</i> 2017 (102);422-427
98	Original peer review	CD68/macrosialin: Not just a histochemical marker. Chistiakov D, Killingsworth MC, Myasoedova V, Orekhov A, Bobryshev YV. <i>Lab. Invest.</i> 2017 Jan;97(1):4-13. Epub 2016 Nov 21.
99	Original peer review	Isolated ventricular non-compaction cardiomyopathy presenting as fetal hydrops at 24 weeks gestation: a genomic analysis. Armes, J.E., Squires, L., Lourie, R., Williams, M., Gallagher, R., Price, G., Stubbs, A., Swagemakers, S.M., van der Spek, P.J., Harraway, J., Thomas, J.T., Venter, D.J. <i>Pediatr Dev Pathol</i> 20: 245-50, 2017
100	Original peer review	Extracorporeal life support in multisystem smooth muscle dysfunction syndrome. Prabhu, S., Fox, S., Mattke, A., Armes.J.E., Alphonso, N. <i>World J Pediatr Congenit Heart Surg</i> 8: 750-53; 2017.
101	Original peer review	The outcome of papillary lesions of the breast diagnosed by standard core needle biopsy within the Australian Breast Screen Program. Armes, J.E., Galbraith, C., Grey, J., Taylor, K. <i>Pathology</i> 49: 267-270, 2017.
102	Original peer review	Absent progesterone receptor expression in the lymph node metastases ER-positive, HER2 negative breast cancer is associated with relapse on Tamoxifen. Snell, C.E., Gough, M., Middleton, K., Hsieh, M., Furnas, L., Seidl, B., Pyke, C., Shannon, C., Woodward, N., Armes, J. E. <i>J Clin Pathol</i> 70: 954-60, 2017.
103	Original peer review	Ectopic Intralaryngo-tracheal thyroid tissue causing neonatal death. Furnas, L., Safa, H., Hutchinson, F., Joseph, L., Armes, J.E. <i>Fetal Pediatr Pathol</i> 36: 412-15, 2017.
104	Original peer review	Histological evaluation of explanted tissue engineered bovine pericardium (CardioCel®). Prabhu, S., Armes, J.E., Bell, D., Justo, R., Venugopal, P., Karl, T., Alphonso, N. <i>Semin Thorac Cardiovasc Surg</i> 29:356-63, 2017.
105	Original peer review	The Application of Whole Genome Sequencing Technology in the Investigation of Genetic Causes of Fetal, Perinatal and Early Infant Death. Armes, J.E., Williams, M., Price, G., Wallis, T., Gallagher, R., Matsika, A., Joy, C., Galea, M., Gardener, G., Leach, R., Swagemakers, S.M.A., Tearle, R., Stubbs, A., Harraway, J., van der Spek, P.J., Venter, D.J. <i>Pediatr Dev Pathol</i> 21: 5457, 2017.

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No.	Publication type	Reference/Citation
106	Review article	Urinary biomarkers in prostate cancer detection and monitoring progression. Wu D, Ni J, Beretov J, Cozzi P, Willcox M, Wasinger V, Walsh B, Graham P, Li Y. Crit Rev Oncol Hematology. 2017 Oct;118:15-26
107	Book chapter	Pathologic Assessment and Implications Following Focal Therapy of Prostate Cancer. Jimenez RE, Evans A, Kench JG, Montironi R, Amin MB. Imaging and Focal Therapy of Early Prostate Cancer pp 417-429.
108	Book chapter	Immunohistochemistry using Clone 22C3 on Dako Link 48 Platform. Chou TY, Cooper WA, Kerr K. IASLC PD-L1 Atlas. 2017.
109	Book chapter	Melanoma. Thompson J, Kefford RF, Stevens GN, Scolyer RA. Comprehensive Management 2017
110	Book chapter	What type of biopsy should be performed for a suspicious pigmented skin lesion? Kelly J, Beer T, Damian D, Ng J, Fishburn P, Scolyer RA, Soyer P. Cancer Council Australia Melanoma Guidelines 2017
111	Book chapter	Should all patients with a positive sentinel lymph node biopsy have a complete node dissection? Gyorki D, Barbour A, Mar V, Sandhu S, Hanikeri M, Scolyer RA. AJCC 8th Edition 2017
112	Book chapter	What clinical information should the clinician give the pathologist to aid diagnosis of melanoma? Scolyer RA, Kelly J, Soyer PH, Coventry B, James C, Fishburn P, Stretch JP, Lee S, McLean C. Cancer Council Australia Melanoma Guidelines 2017
113	Book chapter	Indications and outcomes from different biopsy methods for melanoma: Evidence review and recommendations from new Australian Melanoma Clinical Practice Guidelines. Kelly JW, de Menezes D, Scolyer RA, Beer TW, Fishburn P, Soyer P, Ng J, Damian D, Thompson JF. Cancer Council Australia Melanoma Guidelines 2017.
114	Book chapter	Should primary desmoplastic (and desmoplastic neurotropic) melanomas be treated differently? Scolyer RA. Cancer Council Australia Melanoma Guidelines 2017
115	Book chapter	Chapters 1,2,3,5 & 6. Scolyer R, Armstrong B, Berti E, Damian D, Elder DE, Massi D, Messina J. WHO Classification of Skin Tumours 4th Edition 2017
116	Book chapter	Uncommon Cutaneous Malignancies. Read RL, Scolyer RA, Thompson JF. Textbook of Complex General Surgical Oncology (First Edition) Ch 21 pp 213 2017
117	Book chapter	Basal Cell Carcinoma. Shashank A, Guminski AD, Alrub N, Scolyer RA, Damian D, Thompson JF. Textbook of Complex General Surgical Oncology (First Edition) Ch 22 pp 219 2017
118	Reports-guidelines	Identification of protein biomarkers and signaling pathways associated with prostate cancer radioresistance using label-free LC-MS/MS proteomic approach. Chang L, Ni J, Beretov J, Wasinger VC, Hao J, Bucci J, Malouf D, Gillatt D, Graham PH, Li Y. Scientific Reports 2.2.17 7:41834

chemistry

Chemical Pathology deals with the entire range of disease. It encompasses detecting changes in a wide range of substances in blood and body fluids (electrolytes, enzymes and proteins) in association with many diseases.

In addition, it involves detecting and measuring tumour (cancer) markers, hormones, poisons and both therapeutic and illicit drugs. Evaluation of new technology and the development of new tests is an ongoing process in this discipline.



Margaret Janu
Clinical Stream Lead

“ The Chemical Pathology Clinical Stream embraces the partnership between the clinical and research components of laboratory medicine and is always seeking new opportunities. We see research as pivotal in building knowledge and facilitating learning. The translational aspect of moving biomarker tests from developmental research beginnings into everyday practice enhances our service delivery and supports the health of our community. ”

publication in focus

Baseline Circulating FGF21 Concentrations and Increase after Fenofibrate Treatment Predict More Rapid Glycemic Progression in Type 2 Diabetes: Results from the FIELD Study.

Clinical Chemistry 2017;63(7):1261-1270

Authors

Ong KL, O'Connell R, Januszewski AS, Jenkins AJ, Xu A, **Sullivan DR**, Barter PJ, Scott RS, Taskinen MR, Waldman B, Colman PG, Best JD, Simes JR, Rye KA, Keech AC and FIELD study investigators.

Study outcomes

This study reports on Type 2 diabetes patients participating in the Fenofibrate Intervention and Event Lowering in Diabetes (FIELD) trial. Plasma FGF21 was quantified in 9697 study participants.

The study is the first describing the association of circulating FGF21 concentrations with glycemic progression in a clinical trial conducted in patients



with type 2 diabetes. Further study in other independent cohorts is needed to validate the potential clinical utility of FGF21 as a biomarker.

grants & scholarships

CHEMISTRY

Total funding
\$10,462 253



Health
Pathology

Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
Creating sustainable health care: ensuring new diagnostics avoid harms, improve outcomes and direct resources wisely	\$9,578,895; Program (2016-2019)	Paul Glasziou + others: Horvath AR + others	NHMRC
Delivering safe and effective test result communication, management and follow-up	\$883,358; Research (2016-2019)	Georgiou A; Westbrook JI, Greenfield D, Horvath R, Wakefield D, Li L, Hillman K SEA Lab Service, Aust Commission on Safety and Quality inn Health Care)	NHMRC

publications

No.	Publication type	Reference/Citation
1	Original peer review	Design of the Familial Hypercholesterolaemia Australasia Network Registry: creating opportunities for greater international collaboration. Bellgard, Matthew I Walker, Caroline E Napier, Kathryn R Lamont, Leanne Hunter, Adam A Render, Lee Radochonski, Maciej Pang, Jing Pedrotti, Annette Sullivan, David R. Journal of atherosclerosis and thrombosis. 24:1075-84.
2	Original peer review	Reducing cardiovascular disease risk in diabetes: a randomised controlled trial of a quality improvement initiative. Chalasani, Santhi Peiris, David P Usherwood, Tim Redfern, Julie Neal, Bruce C Sullivan, David R Colagiuri, Stephen Zwar, Nicholas A Li, Qiang Patel, Anushka The Medical Journal of Australia 206:436-41.
3	Original peer review	The effects of continuous positive airway pressure therapy on Troponin-T and N-terminal pro B-type natriuretic peptide in patients with obstructive sleep apnoea: a randomised controlled trial. Chang, Ya-Shu Yee, Brendon J Hoyos, Camilla M Wong, Keith K Sullivan, David R Grunstein, Ronald R Phillips, Craig L. Sleep Medicine 39:8-13.
4	Original peer review	Diabetes and metabolism epub. Fenofibrate decreases plasma ceramide in type 2 diabetes patients: A novel marker of CVD? Croyal, M Kaabia, Z León, L Ramin-Mangata, S Baty, T Fall, F Billon-Crossouard, S Aguesse, A Hollstein, T Sullivan, DR. Diabetes Metab. 2018 Mar;44(2):143-149.

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No.	Publication type	Reference/Citation
5	Original peer review	Long-term safety, tolerability, and efficacy of evolocumab in patients with heterozygous familial hypercholesterolemia. Hovingh, G, Kees Raal, Frederick J Dent, Ricardo Stefanutti, Claudia Descamps, Olivier Masana, Luis Lira, Armando Bridges, Ian Coll, Blai Sullivan, David. <i>Journal of clinical lipidology</i> 6:1448-57
6	Original peer review	Gender inequalities in cardiovascular risk factor assessment and management in primary healthcare. Hyun KK, Redfern J, Patel A, Peiris D, Brieger D, Sullivan D, Harris M, Usherwood T, MacMahon S, Lyford M, Woodward M. <i>Heart</i> . 2017 Apr;103(7):492-498.
7	Original peer review	Decreases in plasma phosphatidylinositol species partially explain the reduction in cardiovascular events after pravastatin therapy in secondary prevention. Meikle, Peter Barlow, Christopher Nestel, Paul Barnes, Elizabeth Kirby, Adrienne Thompson, Peter Sullivan, David Alshehry, Zahir Mellett, Natalie Huynh, Kevin. <i>Atherosclerosis</i> 263 ePub e239.
8	Original peer review	Plasma lipidomic profiles in two large independent cohorts improve upon conventional risk factors to predict cardiovascular events. Meikle, Peter Mundra, Piyushkumar Barlow, Christopher Nestel, Paul Barnes, Elizabeth Kirby, Adrienne Thompson, Peter Sullivan, David Alshehry, Zahir Mellett, Natalie. <i>Atherosclerosis</i> 263 ePub e4.
9	Original peer review	Cardiovascular Imaging. The COLchicine for PLaque STabilisation in ACS patients. Vaidya, K Martinez, G Ng, B McCormack, S Sullivan, D Celermajer, D Patel, S. <i>JACC Cardiovasc Imaging</i> , 2018 Feb;11(2 Pt 2):305-316. Epub 2017
10	Original peer review	American Liver Guidelines and Cutoffs for "Normal" ALT: A Potential for Overdiagnosis. Panteghini M, Adeli K, Ceriotti F, Sandberg S, Horvath AR. <i>Clinical Chemistry</i> 63(7) 1196-1198
11	Original peer review	Guidance for Modifying the Definition of Diseases: A Checklist. Doust J, Vandvik PO, Qaseem A, Mustafa RA, Horvath AR et al. <i>JAMA Int Medicine</i> 177(7):1020-1025
12	Original peer review	Decision making about healthcare-related tests and diagnostic test strategies. Paper 5: a qualitative study with experts suggests that test accuracy data alone is rarely sufficient for decision making. Mustafa RA, Wiercioch W, Ventresca M, Brodek J, Schunemann HJ, Bell H, Bettman M, Bossuyt P, Browman G, Buhler D, Chou R, Don-Wauchope A, Elwyn G, Garf AX, Ghera D, Gion M, Glasziou, Horvath AR et al. <i>J Clin Epidemiol</i> 92:47-57
13	Original peer review	Moynihan R, Horvath AR. <i>The Conversation</i> 2017
14	Original peer review	Colchicine Therapy and Plaque Stabilization in Patients With Acute Coronary Syndrome. Vaidya K, Arnott C, Martínez GJ, Ng B, McCormack S, Sullivan DR, Celermajer DS, Patel S. <i>JACC Cardiovasc Imaging</i> . 2018 Feb;11(2 Pt 2):305-316. Epub 2017

publications

No.	Publication type	Reference/Citation
15	Original peer review	Utility of the succinate: Fumarate ratio for assessing SDH dysfunction in different tumor types. Kim E, Wright MJ, Sioson L, Novos T, Gill AJ, Benn DE, White C, Dwight T, Clifton-Bligh RJ. Mol Genet Metab Rep. 2016 Dec 30;10:45-49.
16	Original peer review	Baseline Circulating FGF-21 Levels and Increase after Fenofibrate Treatment Predict More Rapid Glycemic Progression in Type 2 Diabetes: Results from the FIELD Study. Ong KL1,, O'Connell R, Januszewski AS, Jenkins AJ, Xu A, Sullivan DR, Barter PJ, Scott RS, Taskinen MR, Waldman B, Colman PG, Best JD, Simes JR, Rye KA, Keech AC; FIELD study investigators. Clin Chem. 2017 Jul;63(7):1261-1270
17	Original peer review	Making sense of a haemolysis monitoring and reporting system: a nationwide longitudinal multimethod study of 68 Australian laboratory participant organisations. Li L, Vecellio E, Gay S, Lake R, MacKay M, Burnett L, Chesher D, Braye S, Badrick T, Westbrook JI, Georgiou A. Clinical Chemistry & Lab Medicine Mar 28;56(4):565-573
18	Original peer review	Bone turnover is suppressed in insulin resistance, independent of adiposity. Tonks, K. T., White, C. P., Center, J. R., Samocha-Bonet, D., & Greenfield, J. R. Journal of Clinical Endocrinology and Metabolism, 102(4), 1112-1121
19	Review article	HDL as a target for glycemic control. Waldman, Boris J Jenkins, Alicia Sullivan, David KC Ng, Martin C Keech, Anthony. Current drug targets 6:651-73.
20	Review article	Reducing Unnecessary Imaging and Pathology Tests: A Systematic Review. Hiscock H, Neely RJ, Warren H, Soon J, Georgiou A. Pediatrics E2017-862
21	Review article	How to rein in the widening disease definitions that label more healthy people as sick. Moynihan R, Horvath R. The Conversation. 2017; May 16
22	Book chapter	Rifai N, Horvath AR. Tietz Textbook of Clinical Chemistry & Molecular Diagnostics 6th Ed :2-9
23	Book chapter	Bossuyt PMM, Glasziou P, Horvath AR. Tietz Textbook of Clinical Chemistry & Molecular Diagnostics 6th Ed :195
24	Reports-guidelines	N-of-1 Trials for Myalgia in People Taking a Statin. Kok, C Li, N Rogers, A Sullivan, D Chow, C. Heart, Lung and Circulation 26:S2
25	Reports-guidelines	Recommendations for Use of Point-of-Care (POC) Troponin Assays in Assessment of Acute Coronary Syndrome. Tirimacco R, Tate J, Simpson P, Horvath AR, Cullen L, San Gil F, Marin C, Koerbin G, Tideman P. https://www.aacb.asn.au/resources/recommendations-for-use-of-troponin-poc

haematology

Haematology is a rapidly developing discipline which deals with many aspects of those diseases which affect the blood such as anaemia, leukemia, lymphoma, and clotting or bleeding disorders.



Elizabeth Tegg
Clinical Stream Lead

“ Research is fundamental to haematology and our stream wishes to promote translational research into improving diagnostic services for all NSW patients. We want to provide an opportunity for ideas to become a reality. ”

publication in focus

Rivaroxaban or Aspirin for Extended Treatment of Venous Thromboembolism.

New England Journal of Medicine 2017;376:1211-1222.

Authors

Jeffrey I. Weitz, Anthonie W.A. Lensing, Martin H. Prins, Rupert Bauersachs, Jan Beyer-Westendorf, Henri Bounameaux, **Timothy A. Brighton**, Alexander T. Cohen, Bruce L. Davidson, Hervé Decousus, Maria C.S. Freitas, Gerlind Holberg, Ajay K. Kakkar, Lloyd Haskell, Bonno van Bellen, Akos F. Pap, Scott D. Berkowitz, Peter Verhamme, Philip S. Wells, and Paolo Prandoni, EINSTEIN CHOICE Investigators.

Collaborators

Bianchi A, Brighton T, Carroll P, Chong B, Chunilal S, Coughlin P, Curnow J, Jackson D, Tran H, Ward C, Brodmann M, Kyrle P, Marschang P, Petkov V, Hainaut P, Jordens P, Vandekerckhof J, Verhamme P, Wautrecht J-C, Annichino-Bizzacchi J, van Bellen B, Correa J, Cukier A, Freire A, Pereira A, Porto C, Sacilotto R, Vasconcelos Costa A, Della Siega A, Dolan S, Le Gal G, Gross P, Kahn S, Kassis J, Kovacs M, Pesant Y, Ritchie B, Schulman S, Shivakumar S, Solymoss S, Chang S, Chen R, Chen Z, Chen H, Dai X, Fang B, Fu W, Gao X, Huang J, Lai Y, Li L, Li X, Li Y, Liu J, Liu S, Ma W, Ni S, Qin Z, Shi G, Tian H, Wang S, Wang L, Xiao W, Ying K, Yu G, Yuan Y, Zhang J, Zhang J, Zhang X, Zhang L, Zhu L, Chlumský J, Chochola J, Dunaj M, Kovarova K, Lang P, Matoška P, Podpera I, Spacek R, Stehlikova O, Brønnum-

Schou J, Egstrup K, Gislason G, Jeppesen J, May O, Nielsen H, Wiggers H, Achkar A, Aquilanti S, Benhamou Y, Brisot D, Bura-Riviere A, Castella N, Elias A, Falvo N, Ferrari E, Lacroix P, Mahe I, Meneveau N, Messas E, Mismetti P, Montclair K, Mottier D, Moumneh T, Paleiron N, Parent F, Pernod G, Sanchez O, Schmidt J, Simoneau G, Stephan D, Amann B, Bauersachs R, Beyer-Westendorf J, Blessing E, Czihal M, Espinola-Klein C, Kahrman G, Licka M, Neumeister A, Schellong S, Boda Z, Farkas K, Gurzo M, Katona A, Riba M, Sipos G, Tóth K, Braester A, Elias M, Gafter-Gvili A, Gavish D, Hussein O, Lishner M, Schiff E, Spectre G, Tzoran-Rozenthal I, Zimlichman R, Ageno W, Agnelli G, Bova C, Garbelotto R, Ghirarduzzi A, Imberti D, Pesavento R, Porreca E, Visonà A, Flota Cervera L, Llamas Esperón G, Rodriguez-Gonzalez D, Solis Morales L, Boersma W, ten Cate H, Erdkamp F, Grifioen-Keijzer A, Marwijk Kooy M, Meijer K, Middeldorp S, Swart-Heikens J, Ten Wolde M, Westerweel P, Braithwaite I, Harper P, Merriman E, Ockelford P, Royle G, Smith M, Ghanima W, Sandset PM, Abola M, Chęciński P, Grzelakowski P, Lewczuk J, Sobkowicz B, Tomkowski W, Abramov I, Chechulov P, Karpenko A, Katelnitskiy I, Kazakov A, Makarova O, Panchenko E, Sergeeva E, Subbotin Y, Suchkov I, Zeltser M, Adler D, Breedt J, Fourie N, Isaacs R, Jacobson B, Siebert H, van Zyl L, Choi J-H, Kang S-M, Kim K-H, Kim H-S, Kim D-I, Min S-K, Park KH, García-Bragado Dalmau F, Gómez Cerezo J, Mirete JCF, Riera A, Del Toro J, Eriksson H, Torstensson I, Banyai M, Baumgartner I, Mazzolai L, Periard D, Righini M, Staub D, Chiang C-E, Chiu K-M, Pai P-Y, Angchaisuksiri P, Chansung K, Öngen G, Tuncay E, Alikhan R, Chetter I, Kesteven P, Nokes T, Bauer K, Comerota A, Elias D, Garcia D, Gibson K, Ginsberg D, Jenkins J, Kingsley E, Lambert R, Lyons R, Pullman J, Shah V, Smith SW, Stein R, Tapson V, Walsh J, Wang T-F, Do Loi D, Do Quang H, Pham N.

Citations: 208

Page views: 209,592

Media coverage: 38

Social media:

Ranks 246th

*Citation count from journal's website.

Study outcomes

Although many patients with venous thromboembolism require extended treatment, it is uncertain whether it is PAGES full- or lower-intensity anticoagulation therapy or aspirin.

In this randomized, double-blind, phase 3 study, we assigned 3396 patients with venous thromboembolism to receive either once-daily rivaroxaban (at doses of 20 mg or 10 mg) or 100 mg of aspirin.

Among patients with venous thromboembolism in equipoise for continued anticoagulation, the risk of a recurrent event was significantly lower with rivaroxaban at either a treatment dose (20 mg) or a prophylactic dose (10 mg) than with aspirin, without a significant increase in bleeding rates.

grants & scholarships

Haematology

Total funding

\$1,138,797

Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
Enabling near real-time clinical data capture for biobanks using electronic medical records	\$115,000; Research (2017)	Pimanda J; Lindeman R, Scott R, Spring K, Marsh D, DeFazio A, Meagher N, Jonnagaddala J, Goode S, Liauw W, Proietto T, Georgiou A, Mitchell R, Speir L, Collard P, Coiera E, Tsafnat G, Attia J	Cancer Institute NSW
Investigating the transcriptional circuitry of normal and leukemic stem cells	\$698,797; Research (2016-2018)	Pimanda J; Gottgens B, Wong J, Igoshin O, Larsson J	NHMRC
A flowcytometry based assay for detecting pre-treatment azacitidine resistance in MDS	\$75,000; Research (2017-2018)	Pimanda J	CINSW
Evaluation of procoagulant platelet subset in health and disease by a novel flow cytometry assay.	\$250,000; Research (2015-2018)	Pasalic L; Chong J, Iredell J, Shetty A (WSLHD, Westmead Institute)	ICPMR ROPP

publications

No.	Publication type	Reference/Citation
1	Original peer review	Improving transfusion practice in transfusion dependent thalassaemia patients. Wickremaarachchi C, McGill E, Bosco A, Kidson-Gerber G. <i>Thalassemia Reports</i> 2017; 7 (1):6821.
2	Original peer review	Idarubicin Dose Escalation During Consolidation Therapy for Adult Acute Myeloid Leukemia. Bradstock KF, Link E, Di Iulio J, Szer J, Marlton P, Wei AH, Enno A, Schwarer A, Lewis ID, D'Rozario J, Coyle L, Cull G, Campbell P, Leahy MF, Hahn U, Cannell P, Tiley C, Lowenthal RM, Moore J, Cartwright K, Cunningham I, Taper J, Grigg A, Roberts AW, Benson W, Hertzberg M, Deveridge S, Rowlings P, Mills AK, Gill D, Bardy P, Campbell L, Seymour JF. <i>Australasian Leukaemia & Lymphoma Group. J Clin Oncol.</i> 2017 May 20;35(15):1678-1685

publications

No.	Publication type	Reference/Citation
3	Original peer review	Title. Broughton S, Chen L, Kidson-Gerber G, Curtain C, Zaidi S, Henry A. J Pharmacy Practice & Research
4	Original peer review	Time dependent reduction in platelet aggregation using the multiplate analyser and hirudin blood due to platelet clumping. Chapman K, Favalaro EJ. Platelets. 2017 Dec 1:1-4.
5	Original peer review	Direct oral anticoagulants: analysis of worldwide use and popularity using Google Trends. Lippi G, Mattiuzzi C, Cervellin G, Favalaro EJ. Ann Transl Med. 2017 Aug;5(16):322.
6	Original peer review	Replacing warfarin therapy with the newer direct oral anticoagulants, or simply a growth in anticoagulation therapy? Implications for pathology testing. Favalaro EJ, Pasalic L, Lippi G. Pathology. 2017 Oct;49(6):639-643.
7	Original peer review	Potential misdiagnosis of von Willebrand disease and haemophilia caused by ineffective mixing of thawed plasma. Favalaro EJ, Oliver S, Mohammed S, Ahuja M, Grzechnik E, Azimulla S, McDonald J, Lima-Oliveira G, Lippi G. Haemophilia. 2017 Sep;23(5):e436
8	Original peer review	Evaluation of a new commercial von Willebrand factor multimer assay. Favalaro EJ, Oliver S. Haemophilia. 2017 Jul;23(4):e373-e377
9	Original peer review	Impact of experimental hypercalcemia on routine haemostasis testing. Lippi G, Salvagno GL, Brocco G, Gelati M, Danese E, Favalaro EJ. PLoS One. 2017 Mar 31;12(3):e0175094.
10	Original peer review	2B or not 2B? A prothrombotic tendency masquerading as a bleeding disorder. Brennan Y, Curnow J, Favalaro EJ. Am J Hematol. 2017 Jun;92(6):584-590.
11	Original peer review	Impact of salvage treatment modalities in patients with positive FDG-PET/CT after R-CHOP chemotherapy for aggressive B-cell non-Hodgkin lymphoma. Chin V, Fulham M, Hertzberg M, Jackson M, Lindeman R, Brighton T, Kidson-Gerber G, Wegner EA, Cheung C, MacCallum S, Williams J, Thompson SRJ. J Med Imaging Radiat Oncol. 2018 Jun;62(3):432-439.
12	Original peer review	Determinants of fatal bleeding during induction therapy for acute promyelocytic leukemia in the ATRA era. Mantha S, Goldman DA, Devlin SM, Lee J-W, Zannino D, Collins M, Douer D, Iland HJ, Litzow MR, Stein EM, Appelbaum FR, Larson RA, Stone RM, Powell BL, Geyer S, Laumann K, Rowe JM, Erba HP, Coutre S, Othus M, Park JH, Wiernik PH, Tallman MS. Blood 2017; 129(13):1763-1767.
13	Original peer review	Ginseng-derived panaxadiol saponins promote hematopoiesis recovery in cyclophosphamide-induced myelosuppressive mice: Potential novel treatment of chemotherapy-induced cytopenias. Sun X, Zhao YN, Qian S, Gao RL, Yin LM, Wang LP, Chong BH, Zhang SZ. J Integr Med. 2017; Apr 22.

publications

No.	Publication type	Reference/Citation
14	Original peer review	Safety and efficacy of romiplostim in splenectomized and nonsplenectomized patients with primary immune thrombocytopenia. Cines DB, Wasser J, Rodeghiero F, Chong BH, Steurer M, Provan D, Lyons R, Garcia-Chavez J, Carpenter N, Wang X, Eisen M. Haematologica. 2017 Apr 14.
15	Original peer review	Megakaryocyte Differentiation and Platelet Formation from Human Cord Blood-derived CD34+ Cells. Perdomo J, Yan F, Leung HHL, Chong BH. J Vis Exp. 2017 Dec 27;(130).
16	Original peer review	Drug-induced immune thrombocytopenia: Mapping of the drug binding site to the membrane- proximal region of platelet GPIX. Ahmadi Z, Perdomo J, Wong R, Chong BH. Platelets. 2019;30(2):251-255.
17	Original peer review	Ginseng-Derived Panaxadiol Saponins Promote Hematopoiesis Recovery in Cyclophosphamide-Induced Myelosuppressive Mice: Potential Novel Treatment of Chemotherapy-Induced Cytopenias. Sun X, Zhao YN, Qian S, Gao RL, Yin LM, Wang LP, Chong BH, Zhang SZ. Chin J Integr Med. 2018 Mar;24(3):200-206.
18	Original peer review	Nutritional issues and body weight in long term survivors of allogeneic haemopoietic stem cell transplantation (HSCT) in NSW Australia. Jennifer Smith, Christine Poon, Nicole Gilroy, Masura Kabir, Lisa Brice, Gemma Dyer, Stephen R Larsen, Matt Greenwood, Mark Hertzberg, John Moore, John Kwan, Louise Brown, Megan Hogg, Gillian Huang, Jeff Tan, and Ian Kerridge. Support Car Cancer 2017; 25(1):137-144.
19	Original peer review	Haematopoietic stem cell transplantation survivorship and quality of life: is it a small world after all? Jennifer Smith, Christine Poon, Nicole Gilroy, Masura Kabir, Lisa Brice, Gemma Dyer, Stephen R Larsen, Matt Greenwood, Mark Hertzberg, John Moore, John Kwan, Louise Brown, Megan Hogg, Gillian Huang, Jeff Tan, and Ian Kerridge. Support Care Cancer. 2017; 25(2); 421-427.
20	Original peer review	Early Treatment Intensification with R-ICE and 90Y-ibritumomab tiuxetan (Zevalin)-BEAM Stem Cell Transplantation in Patients with High Risk Diffuse Large B-cell Lymphoma Patients and Positive Interim PET After 4 Cycles of R-CHOP-14. Hertzberg M, Gandhi MK, Trotman J, Butcher B, Taper J, Johnston A, Gill D, Ho S-J, Cull G, Fay K, Chong G, Grigg A, Lewis ID, Milliken S, Renwick W, Hahn U, Filshie R, Wirth A, Seymour JF, Hofman MS, and Hicks RJ on behalf of the Australasian Leukaemia Lymphoma Group (ALLG). Haematologica 2017; 102(2):356-363.
21	Original peer review	Prevalence of High Risk Health Behaviours in Long Term Survivors of Adult Allogeneic Blood and Bone Marrow Transplantation in Sydney, Australia. Stephen R Larsen, Gemma Dyer, Nicole Gilroy, Masura Kabir, Megan Hogg, Louisa Brown, Mark Hertzberg, Matt Greenwood, John Moore, David Gottlieb, Gillian Huang, Jeff Tan, Christopher Ward, and Ian Kerridge. Journal? 2017 Volume 18(2); 16-23.

publications

No.	Publication type	Reference/Citation
22	Original peer review	Idarubicin Dose Escalation During Consolidation Therapy for Adult Acute Myeloid Leukemia. . Kenneth F Bradstock, Emma Link, Julian Di Iulio, Jeff Szer, Paula Marlton, Andrew Wei, Arno Enno, Anthony Schwarer, Ian D Lewis, James D'Rozario, Luke Coyle, Gavin Cull, Phillip Campbell, Michael Leahy, Uwe Hahn, Paul Cannell, Campbell Tiley, Ray Lowenthal, John Moore, Kimberley Cartwright, Ilona Cunningham, John Taper, Andrew Grigg, Andrew Roberts, Warwick Benson, Mark Hertzberg, Sandra Deveridge, Phillip Rowlings, Anthony Mills, Devinder Gill, Peter Bardy, Lynda Campbell and John F Seymour on behalf of the Australasian Leukaemia Lymphoma Study Group. J Clin Oncol. 2017 35(15):1678-1685.
23	Original peer review	Results of a phase II study of thalidomide and azacitidine in patients with clinically advanced myelodysplastic syndromes (MDS), chronic myelomonocytic leukaemia (CMML), and low blast count acute myeloid leukaemia (AML). Kenealy M, Patton N, Filshie R, Nicol, A, Ho Shir-Jing, Hertzberg M, Mills A, Prosser I, Link E, Cowan L, Zanino D, and Seymour JFS. Leuk Lymphoma. 2017 Feb;58(2):298-307
24	Original peer review	Report of the 6th international workshop on PET scan in lymphoma and myeloma. Cristina Nanni, Anne Ségolène Cottereau, Egesta Lopci, Caroline Bodet-Milin, Monica Coronado, Barbara Pro, Wong Seog Kim, Judith Trotman, Sally Barrington, Ulrich Duhrsen, Thierry Vander Borght, Elena Zamagni, FrançoiseKraeber-Bodéré, Christina Messiou, Alain Rahmouni, Irène Buvat, Marc Andre, Mark Hertzberg, Wim Oyen, Olivier Casasnovas, Stefano Luminari, Laurent Garderet, Françoise Montravers, CarstenKobe, Régine Kluge Annibale Versari, Emanuele Zucca, Philippe Moreau, Bruce Cheson, Corinne Haioun, Andrea Gallamini and Michel Meignan. Leuk Lymphoma 2017; 58(10): 2298-2303.
25	Original peer review	An Individualized Risk-Adapted Protocol of Pre- and Post-Transplant Zoledronic Acid Prevents Bone Loss After Allogeneic Stem Cell Transplantation: Results of a Phase II Prospective Trial. Grigg A, Butcher B, Khodr B, Bajel A, Hertzberg M, Patil S, D'Souza AB, Ganly P, Ebeling P, and Wong E. Bone Marrow Transplant. 2017 52(9):1288-1293.
26	Original peer review	Acute myeloid leukaemia relapsing after allogeneic haematopoietic stem cell transplantation: prognostic factors and impact of initial therapy of relapse. Lim ABM, Curley C, Fong CY, Bilmon I, Beligaswatte A, Purtill D, Getta B, Johnston AM, Armytage T, Collins M, Mason K, Fielding K, Greenwood M, Gibson J, Hertzberg M, Wright M, Lewis I, Moore J, Curtis D, Szer J, Kennedy G, Ritchie D. Internal Medicine Journal 2018 Mar;48(3):276-285
27	Original peer review	Long-term risk of recurrence after discontinuing anticoagulants for a first unprovoked venous thromboembolism: protocol for a systematic review and meta-analysis. Faizan Khan, Alvi Rahman, Marc Carrier, Clive Kearon, Sam Schulman, Francis Couturaud, Paolo Prandoni, Sabine Eichinger, Cecilia Becattini, Giancarlo Agnelli, Harry R Büller, Timothy A Brighton, Gualtiero Palareti, Laurent Pinede, Elham Sabri, Brian Hutton, George A Wells, Marc A Rodger. BMJ Open. 2017; 7(9): e016950

publications

No.	Publication type	Reference/Citation
28	Original peer review	Rivaroxaban or Aspirin for Extended Treatment of Venous Thromboembolism. Jeffrey I. Weitz, Anthonie W.A. Lensing, Martin H. Prins, Rupert Bauersachs, Jan Beyer-Westendorf, Henri Bounameaux, Timothy A. Brighton, Alexander T. Cohen, Bruce L. Davidson, Hervé Decousus, Maria C.S. Freitas, Gerlind Holberg, Ajay K. Kakkar, Lloyd Haskell, Bonno van Bellen, Akos F. Pap, Scott D. Berkowitz, Peter Verhamme, Philip S. Wells, and Paolo Prandoni, EINSTEIN CHOICE Investigators. <i>N Engl J Med</i> 2017; 376:1211-1222
29	Original peer review	Thrombocytopenia and CD34 expression is decoupled from α -granule deficiency with mutation of the first growth factor-independent 1B zinc finger. Rabbolini DJ, Morel-Kopp MC, Chen Q, Gabrielli S, Dunlop LC, Chew LP, Blair N, Brighton TA, Singh N, Ng AP, Ward CM, Stevenson WS. <i>J Thromb Haemost.</i> 2017 Nov;15 (11):2245-2258
30	Original peer review	Drug-induced Thrombocytopenia: Pathogenesis, Diagnosis and Management. In <i>Platelets in Thrombotic and Non-Thrombotic Disorders</i> . P Gresle, J Lopex, N Kleiman, C Page. Chong BH, Chong JJH. Springer
31	Original peer review	Serum Concentration of Growth Differentiation Factor-15 Is Independently Associated with Global Platelet Function and Higher Fibrinogen Values in Adult Healthy Subjects. Lippi G, Salvagno GL, Danese E, Brocco G, Gelati M, Montagnana M, Sanchis-Gomar F and Favaloro EJ. <i>Semin Thromb Hemost.</i> 2017 Sep;43(6):621-628.
32	Review article	Preanalytical issues that may cause misdiagnosis in haemophilia and von Willebrand disease. Favaloro EJ, Lippi G. <i>Haemophilia.</i> 2018 Mar;24(2):198-210.
33	Review article	Gender related issues in thrombosis and hemostasis. Hvas AM, Favaloro EJ. <i>Expert Rev Hematol.</i> 2017 Nov;10(11):941-949.
34	Review article	Therapeutic monitoring of unfractionated heparin - trials and tribulations. Baluwala I, Favaloro EJ, Pasalic L. <i>Expert Rev Hematol.</i> 2017 Jul;10(7):595-605.
35	Review article	Novel (Oral) Anticoagulant Challenges in Surgery. Blennerhassett R, Favaloro EJ, Pasalic L. <i>Semin Thromb Hemost.</i> 2017 Oct;43(7):706-715.
36	Review article	Clinical and laboratory diagnosis of heparin induced thrombocytopenia: an update. Favaloro EJ, McCaughan G, Pasalic L. <i>Pathology.</i> 2017 Jun;49(4):346-355.
37	Review article	Laboratory Monitoring or Measurement of Direct Oral Anticoagulants (DOACs): Advantages, Limitations and Future Challenges. Favaloro EJ, Pasalic L, Curnow J, Lippi G. <i>Curr Drug Metab.</i> 2017;18(7):598-608.
38	Review article	Assessment of Platelet Function in Whole Blood by Flow Cytometry. Leonardo Pasalic. <i>Methods in Molecular Biology</i> (2017) 1646: 349-367.
39	Review article	Flow Cytometry Protocols for Assessment of Platelet Function in Whole Blood. Pasalic, L., Pennings, G. J., Connor, D., Campbell, H., Kritharides, L., Chen, V. M. <i>Methods in Molecular Biology</i> (2017) 1646: 369-389.

No.	Publication type	Reference/Citation
40	Editorials-commentary	Interference of direct oral anticoagulants in haemostasis assays: high potential for diagnostic false positives and false negatives. Favalaro EJ, Lippi G. Blood Transfus. 2017 Oct;15(6):491-494.
41	Book chapter	Post-analytical Issues in Hemostasis and Thrombosis Testing. Favalaro EJ, Lippi G. Methods Mol Biol. 2017;1646:545-559.
42	Book chapter	Oliver S, Lau KKE, Chapman K, Favalaro EJ. Laboratory Testing for Von Willebrand Factor Multimers. Methods Mol Biol. 2017;1646:495-511. doi: 10.1007/978-1-4939-7196-1_36. PubMed PMID: 28804850.
43	Book chapter	Ristocetin-Induced Platelet Aggregation (RIPA) and RIPA Mixing Studies. Frontrouth JP, Favalaro EJ. Methods Mol Biol. 2017;1646:473-494.
44	Book chapter	Laboratory Testing for von Willebrand Factor: Factor VIII Binding (for 2N VWD). Mohammed S, Favalaro EJ. Methods Mol Biol. 2017;1646:461-472.
45	Book chapter	Laboratory Testing for von Willebrand Factor Activity by Glycoprotein Ib Binding Assays (VWF:GPIb). Patzke J, Favalaro EJ. Methods Mol Biol. 2017;1646:453-460.
46	Book chapter	Laboratory Testing for von Willebrand Factor Ristocetin Cofactor (VWF:RCo). Mohammed S, Favalaro EJ. Methods Mol Biol. 2017;1646:435-451.
47	Book chapter	Laboratory Testing for von Willebrand Factor Collagen Binding (VWF:CB). Favalaro EJ, Mohammed S. Methods Mol Biol. 2017;1646:417-433.
48	Book chapter	Laboratory Testing for von Willebrand Factor Antigen (VWF:Ag). Favalaro EJ, Mohammed S, Patzke J. Methods Mol Biol. 2017;1646:403-416.
49	Book chapter	Diagnosis or Exclusion of von Willebrand Disease Using Laboratory Testing. Favalaro EJ. Methods Mol Biol. 2017;1646:391-402.
50	Book chapter	Platelet Function Analyzed by Light Transmission Aggregometry. Hvas AM, Favalaro EJ. Methods Mol Biol. 2017;1646:321-331.
51	Book chapter	Laboratory Testing Protocols for Heparin-Induced Thrombocytopenia (HIT) Testing. Lau KKE, Mohammed S, Pasalic L, Favalaro EJ. Methods Mol Biol. 2017;1646:227-243.
52	Book chapter	Laboratory Testing for Activated Protein C Resistance (APCR). Mohammed S, Favalaro EJ. Methods Mol Biol. 2017;1646:137-143.
53	Book chapter	D-Dimer Testing: Laboratory Aspects and Current Issues. Thachil J, Lippi G, Favalaro EJ. Methods Mol Biol. 2017;1646:91-104.
54	Book chapter	Optimizing the Verification of Mean Normal Prothrombin Time (MNPT) and International Sensitivity Index (ISI) for Accurate Conversion of Prothrombin Time (PT) to International Normalized Ratio (INR). Favalaro EJ. Methods Mol Biol. 2017;1646:59-74.
55	Book chapter	Preanalytical Issues in Hemostasis and Thrombosis Testing. Lippi G, Favalaro EJ. Methods Mol Biol. 2017;1646:29-42.
56	Book chapter	Overview of Hemostasis and Thrombosis and Contribution of Laboratory Testing to Diagnosis and Management of Hemostasis and Thrombosis Disorders. Bonar RA, Lippi G, Favalaro EJ. Methods Mol Biol. 2017;1646:3-27.

immunology

Immunology is a specialty which often involves both laboratory medicine (the testing of specimens collected from patients) and clinical practice (interviewing, examining and advising patients about clinical problems).

In the laboratory, immunologists are involved in the design, performance and supervision of tests of the immune system.



Theo de Malmanche
Clinical Stream Lead

“ Finding and sharing discoveries is the only way to move science fiction into fact, and to make things better. Every member of our team wants to help sick people, and research shows us the best way to do this. ”

publication in focus

Brain antibodies in the cortex and blood of people with schizophrenia and controls.

Translational Psychiatry 2017;7(8):e1192

Authors

Glass LJ, Sinclair D, Boerrigter D, Naude K, Fung SJ, **Brown DA**, Catts VS, Tooney P, O'Donnell M, Lenroot R, Galletly C, Liu D, Weickert TW, Shannon Weickert CS.

Study outcomes

In this study, evidence is presented for IgGs in the adult human cortex, particularly in diffuse patterns surrounding blood vessels but extending into brain parenchyma in both controls and people with schizophrenia.

To our knowledge, we are the first to find evidence of, and to quantify, IgG within the normal human brain.

In support of the human brain's capacity for IgG movement across the blood brain barrier (BBB), we detected the IgG transporter (FcGRT), in brain at both the mRNA and protein levels.

Contrary to our expectations, we failed to detect differences in the abundance of IgGs, FcGRT protein or FcGRT mRNA in the brains of people with schizophrenia compared with healthy controls.

This suggests that IgG is normally present in, and actively effluxed from, the brain.

Overall, we found that all individuals had IgG in the brain, with equivalent abundance in schizophrenia cases and controls, even when taking elevated proinflammatory cytokines into account.

Citations

Article accesses: 689

Web of science: 3

CrossRef: 3

Altmetric score: 4*

Tweets: 6

Facebook mentions: 1

Mendeley readers: 32

* This score means the article is in the 64th percentile of the 265,987 tracked articles of a similar age in all journals; and the 32nd percentile of the 79 tracked articles of a similar age in Translational Psychiatry.

**Citation count from journal's website.

grants & scholarships

Immunology

Total funding

\$548,402

Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
Mapping the dynamics of corneal stem cell during aging and after wounding and transplantation	\$548,402; Research (2016-2018)	Wakefield D	NHMRC

publications

No.	Publication type	Reference/Citation
1	Original peer review	Keratin-14-Positive Precursor Cells Spawn a Population of Migratory Corneal Epithelia that Maintain Tissue Mass throughout Life. Richardson A1, Lobo EP, Delic NC, Myerscough MR, Lyons JG, Wakefield D, Di Girolamo N. Stem Cell Reports. 2017 Oct 10;9(4)
2	Original peer review	Scleritis. Wakefield D. Essentials in Ophthalmology 1-7
3	Original peer review	Native and synthetic scaffolds for limbal epithelial stem cell transplantation. Nguyen KN1, Bobba S2, Richardson A1, Park M1, Watson SL3, Wakefield D1, Di Girolamo N4. Acta Biomater. 2018 Jan;65:21-35. Epub 2017
4	Original peer review	Unmet Needs and Future Directions in Inflammatory Eye Disease. Wakefield D, McCluskey P, Wildner G, Thurau S. Ocul Immunol Inflamm. 2017 Feb;25(1):122-133
5	Original peer review	Brain antibodies in the cortex and blood of people with schizophrenia and controls. Glass LJ, Sinclair D, Boerrigter D, Naude K, Fung SJ, Brown DA, Catts VS, Tooney P, O'Donnell M, Lenroot R, Galletly C, Liu D, Weickert TW, Shannon Weickert C. Transl Psychiatry. 2017 Aug 8;7(8):e1192.
6	Original peer review	Macrophage inhibitory cytokine-1/growth differentiation factor-15 as a predictor of colonic neoplasia. Danta M, Barber DA, Zhang HP, Lee-Ng M, Baumgart SWL, Tsai VWW, Husaini Y, Saxena M, Marquis CP, Errington W, Kerr S, Breit SN, Brown DA. Aliment Pharmacol Ther. 2017 Aug;46(3):347-354.
7	Original peer review	First Behavioural Characterisation of a Knockout Mouse Model for the Transforming Growth Factor (TGF)- Superfamily Cytokine, MIC-1/GDF15. Low JK, Ambikairajah A, Shang K, Brown DA, Tsai VW, Breit SN, Karl T. PLoS One. 2017 Jan 12;12(1).

publications

No.	Publication type	Reference/Citation
8	Review article	Inflammatory eye disease: Pre-treatment assessment of patients prior to commencing immunosuppressive and biologic therapy: Recommendations from an expert committee. Wakefield D, McCluskey P, Wildner G, Thureau S, Carr G, Chee SP, Forrester J, Dick A, Hudson B, Lightman S, Smith J, Tugal-Tutkun I; pre-treatment assessment Review panel. <i>Autoimmun Rev.</i> 2017 Mar;16(3):213-222.
9	Review article	Consensus statements on therapeutic drug monitoring of anti-tumour necrosis factor therapy in inflammatory bowel diseases. Mitrev N, Vande Casteele N, Seow CH, Andrews JM, Connor SJ, Moore GT, Barclay M, Begun J, Bryant R, Chan W, Corte C, Ghaly S, Lemberg DA, Kariyawasam V, Lewindon P, Martin J, Mountifield R, Radford-Smith G, Slobodian P, Sparrow M, Toong C, van Langenberg D, Ward MG, Leong RW; IBD Sydney Organisation and the Australian Inflammatory Bowel Diseases Consensus Working Group. <i>Aliment Pharmacol Ther.</i> 2017 Dec;46(11-12)
10	Review article	Targeting Obesity and Cachexia: Identification of the GFRAL Receptor-MIC-1/GDF15 Pathway. Breit SN, Tsai VW, Brown DA. <i>Trends Mol Med.</i> 2017 Dec;23(12):1065-1067.

microbiology

Microbiology deals with diseases caused by infectious agents such as bacteria, viruses, fungi and parasites.

Advances in technology and molecular medicine in the last few years means we can diagnose both new and “old” diseases quicker. Clinical aspects involve control of outbreaks of infectious disease and dealing with the problems of infections caused by antibiotic-resistant bacteria.



Sharon Chen
Clinical Stream Lead

“The changing landscape and technological advances in microbiology lend themselves to essential synergies between research and translation of such into routine diagnostics. Research is pivotal in providing best practice service delivery to our people.”

publication in focus

Congenital cytomegalovirus infection in pregnancy and the neonate: consensus recommendations for prevention, diagnosis and therapy.

Lancet Infectious Disease 2017;17(6):e177-188.

Authors

Rawlinson WD, Boppana SB, Fowler KB, Kimberlin DW, Lazzarotto T, Alain S, Daly K, Doutré S, Gibson L, Giles ML9, Greenlee J, **Hamilton ST**, Harrison GJ, Hui L, Jones CA, Palasanthiran P, Schleiss MR, Shand AW and **van Zuylen WJ**.

Study outcomes

Congenital cytomegalovirus is the most frequent, yet under-recognised, infectious cause of newborn malformation in developed countries.

Despite its clinical and public health importance, questions remain regarding the best diagnostic methods for identifying maternal and neonatal infection, and regarding optimal prevention and therapeutic strategies for infected mothers and



neonates. The absence of guidelines impairs global efforts to decrease the effect of congenital cytomegalovirus.

An informal International Congenital Cytomegalovirus Recommendations Group was

convened in 2015 to address these questions and to provide recommendations for prevention, diagnosis, and treatment.

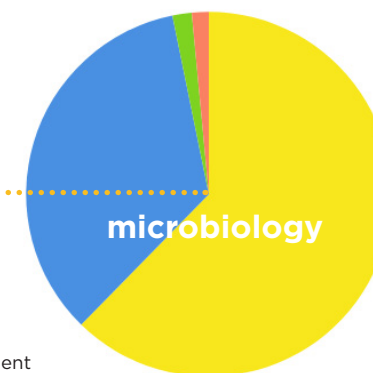
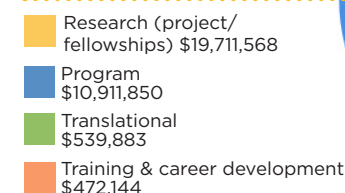
On the basis of consensus discussions and a review of the literature, we do not support universal screening of mothers and the routine use of cytomegalovirus immunoglobulin for prophylaxis or treatment of infected mothers.

However, treatment guidelines for infected neonates were recommended. Consideration must be given to universal neonatal screening for cytomegalovirus to facilitate early detection and intervention for sensorineural hearing loss and developmental delay, where appropriate.

The group agreed that education and prevention strategies for mothers were beneficial, and that recommendations will need continual updating as further data become available.

grants & scholarships

Total funding
\$31,635,445



No.	Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
1	Inaugural Triple	\$75,000; Research (2017)	Kim KW	SPHERE Seed Grant
2	CRE for the Protection of Pancreatic Beta Cells	\$2,000; Training & Career Development (2017)	Kim KW	CRE
3	Rebecca L Cooper Medical Research Foundation Grant	\$25,000; Research (2017)	Kim DW	Rebecca L Cooper Medical Research Foundation
4	Using new point-of-care tests to improve outbreak response to epidemic and emerging pandemic influenza	\$10,000; Research (2017)	Stelzer-Braid S; Tai Kim, Eckstein RP, La M, Roper (ISER)	ISER Seed Funding
5	Characterising the population of viruses that trigger islet autoimmunity and type 1 diabetes using virome capture sequencing	\$500,000; Research (2017-2019)	Rawlinson W; Craig M, Kim KW, Wilkins MR, Briese T, Luciani F, Bull RA, Cooper J	JDRF
6	Detection of viruses that promote islet autoimmunity and type 1 diabetes in Australian children using virome capture sequencing and high-density peptide arrays	\$75,000; Research (2017)	Craig M; Rawlinson WD, Kim KW, Wilkins MR, Briese T, Pang CNI, Luciani F, Bull RA, Isaacs SR, Horton JL, Jain K	Triple 1 Seed GRANT
7	Cytomegalovirus infection during pregnancy and transplantation: viral regulators that reprogram cellular signaling pathways	\$177,000; Research (2017-2018)	Hamilton S; Marschall (Group of Eight Australia/German Joint Research Coop Scheme)	NHMRC
8	Characterising the population of viruses that trigger islet autoimmunity and type 1 diabetes using virome capture sequencing	\$60,000; Research (2017-2020)	Craig M; Rawlinson WD, Kim KW, Luciani F, Bull RA, Isaacs SR	DART

grants & scholarships

No.	Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
9	The Pathogenesis and Prevention of Congenital Cytomegalovirus Disease	\$17,700; Research (2017-2020)	Hamilton S	NHMRC
10	ISER	\$169,000; Research (2016-2019)	Rawlinson W; Rawlinson, (MacIntyre) Clements, DeBarro	NHMRC/ECF
11	Centre for IMproving cAnCer Outcomes Through Enhanced Infection Services (CRE-IMPACT)	\$2,500,000; Research (2017-2021)	Slavin MA; Chen SCA, Grigg A, Worth L, Thursky K, Pellegrini M, Krishnasamy M, Dalziel K, Hall L, Spelman T (Peter MacCallum Centre Centre, Austin Health, Alfred Health, Melbourne Diagnostic Unit, University of Melbourne)	NHMRC CRE
12	Centre for Infectious Diseases and Microbiology - Public Health.	\$2,000,000; Research (2017-2019)	Sintchenko V; Dwyer D, Chen S, Webb C, O'Sullivan M, Kok J, Sorrell T, Gilbert L, Iredell J, Douglas M, Meyer W, Lewis D (NSW Ministry of Health, WSLHD, University of Sydney)	NSW Health Prevention Research Support Program (PRSP)
13	Translating pathogen genomics into improved public health outcomes: Prospective evaluation of the effectiveness of genome sequencing-guided investigation of outbreaks.	\$550,000; Research (2016-2018)	Sintchenko V; Iredell J, Dwyer D, Chen S, Sheppard V, Hope K, Lowbridge C, Spokes P, Sorrell T, Hill-Cawthorne G NSWHP-ICPMR, University of Sydney, NSW Ministry of Health, Marie Bashir Institute for Emerging Infections and Biosecurity, University of NSW, WSLHD	NSW Health Translational Research Grants Scheme (TRGS)
14	Protecting the public from emerging infectious diseases (CREID)	\$2,500,000; Program (2016-2020)	Sorrell TC; Sintchenko V, Webb C, Deyer D, O'Sullivan M, Cheng A, Gilbert L, Holmes E, Howden B, Smith D, Coiera E, Iredell J, Jones C, Imrie A, Marais B, Degeling C, Norris J, Kirk M, Effler P, Seemann T (Marie Bashir Institute for Emerging Infections and Biosecurity, University of Sydney, CIDM - Public Health, Medical Diagnostic Unit, Doherty Institute, Vic., PathWest, WA, Alfred Hospital and Monash University, Vic.)	NHMRC Centres for Research Excellence (CRE)

grants & scholarships

No.	Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
15	Phylogenetics of human enteroviruses: Informing vaccine effectiveness and outbreak preparedness (APP1099618)	\$564,867; Research (2016-2018)	Holmes E; Dwyer DE, Jones C (University of Sydney, Children's Hospital Westmead, NSWHP-ICPMR, Marie Bashir Institute for Emerging Infections and Biosecurity)	NHMRC Project Grant
16	Closing the gap in early diagnostic capabilities for mycoses - DNA barcoding tools	\$753,447; Research (2017-2019)	Meyer W; Chen SCA, Sorrell T, Herbert P, Robert V (University of Sydney, Centraalbureau fur Schimmelkultures, the Netherlands)	NHMRC Project Grant
17	Co-infection and metabolomics laboratory studies for INSIGHT FLU003 influenza study	\$800,000; Research (2017-2018)	Dwyer D; Kok J, Multiple International (INSIGHT Network, International)	NCI AND NIH (USA)
18	Hajj Study: Cluster-randomised controlled trial to test the effectiveness of facemasks in preventing respiratory virus infection among Hajj pilgrims	\$894,183; Research (2013-2018)	Alkhal A; Dwyer D, Booy R, Holmes E, Rashid H, Heron L, Haworth E, Ridda I, Van-Tam J, Brousseau LM, Barasheed O (NSWHP-ICPMR, NCIRS, Children's Hospital Westmead, Multiple International)	Qatar National Research Fund
19	Novel mechanism, molecular targets and therapies in cardiovascular diseases	\$8,360,700; Program (2016-2020)	Kachigian L; Chong BH, Stocker R, Parish C	NHMRC
20	Heparin-induced thrombocytopenia (HIT): Further characterization of disease mechanism	\$456,484; Research (2016-2018)	Chong BH	NHMRC
21	Role of microbiota dysbiosis in immune thrombocytopenia and thrombosis	\$155,000; Research (2017-2018)	Chong BH	St George & Sutherland Medical Research Foundation
22	Blockade of platelet-neutrophil interactions for T1D prevention and treatment. Submission No: 201304225	\$1,500,000; Research (2017-2020)	Simeonovic C; Chong BH	JDRF/ARC Type 1 Diabetes Clinical Trial Research Network Innovative Award

grants & scholarships

No.	Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
23	Informatics guided control of communicable diseases	\$470,144; Training & Career Development (2017-2020)	Sintchenko V (WSLHD, University of Sydney)	NHMRC
24	Genomic dissection and prevention of bacterial transmission events	\$892,289; Research (2016-2018)	Sintchenko V; O'Sullivan M, Lan R, Holmes E, Golubchik T, Gilbert GL (WSLHD, MBI University of Sydney, University of NSW)	NHMRC
25	Mosquito Risk Assessment Georges River Council Stormwater Harvesting Project Gannons Park Reserve (Phase 1)	\$3,650; Research (2017-2018)	Webb C (Westmead Hospital)	Georges River Council
26	Development of strategic response plan for exotic mosquito risk	\$29,000; Research (2017-2018)	Webb C (Tweed Shire Council; NSW Health; North Coast Public Health Unit; Ballin Shire Council; Byron Shire Council; Kyolge Council, Richmond Valley Council; Clarence Valley Council)	NSW Government
27	Assessment of exotic mosquito surveillance strategies	\$3,000; Research (2017-2018)	Webb C (Department of Medical Entomology, NSWHP-ICPMR, Westmead Hospital, Westmead, Australia; Tweed Shire Council; University of Sydney; Adapt NSW)	NSW Government
28	Clinical Trials Unit in Virology, Microbiology and Infectious Diseases	\$120,000; Research (2017-2018)	Kok J; Dwyer D, O'Sullivan M, Iredell J, Chen SCA, Watts M, Gilroy N (Westmead Hospital, Industry, NHMRC, NIH (USA))	ICPMR-ROPP
29	Assessment of Victorian arbovirus surveillance and mosquito control program	\$43,100; Translational (2017)	Webb C; Doggett S (NSWHP-ICPMR, Westmead Hospital)	DHHS Victorian Government
30	Ballina Heights Mosquito Risk Assessment and Urban Development Advice, Ballina, NSW	\$800; Research (2017)	Webb C (Westmead Hospital)	Planners North

grants & scholarships

No.	Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
31	Mosquito Risk Assessment and mosquito management plan development, Surf Coast Shire, Victoria	\$12,980; Research (2017)	Webb C (Westmead Hospital)	Surf Coast Council; DHHS Victoria
32	Management of mosquitoes associated with urban estuarine and freshwater wetlands at Sydney Olympic Park	\$51,150; Program (2017-2018)	Webb C (Westmead Hospital)	NSW Government
33	Assessment of novel mosquito repellent formulations	\$1,800; Research (2017)	Webb C (Westmead Hospital)	Evergreen International; Competitive Advantage
34	Assessment of head lice treatments	\$800; Research (2017)	Webb C (Westmead Hospital)	University of Canberra
35	Mosquito Risk Assessment, Ballina Heights, NSW	\$418; Research (2017)	Webb C (Westmead Hospital)	Ardill Payne & Partners
36	A state-wide typing network for rapid detection of outbreaks of healthcare associated infection.	\$496,783; Translational (2017-2019)	O'Sullivan M; Sintchenko V, Bendall J, Kesson A, McKew G, Schlub T, Harris J, Sadsad R, Ferguson P, van Hal S, McLaws M (Children's Hospital at Westmead, Concord Hospital, University of Sydney, Wollongong Hospital, CIDM-PH, Westmead Hospital - WSLHD, Royal Prince Alfred Hospital, University of NSW, Clinical Excellence Commission)	NSW Health
37	CAMERA: Combination antibiotic treatment for Methicillin Resistant Staphylococcus aureus Bacteraemia - a Randomised Controlled Trial.	\$1,113,530; Research (2015-2019)	Davis JS; O'Sullivan M, Tong S, Paterson D, Fowler V, Howden B, Cheng A, Chatfield M, Lipman J, van Hal S (Menzies School of Health Research, University of Sydney, University of Queensland, Royal Prince Alfred Hospital, MDU - Doherty Institute, Australian Infectious Diseases Research Centre)	NHMRC

grants & scholarships

No.	Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
38	The true burden of nosocomial staphylococcal disease: Genomic markers of transmission of methicillin-sensitive and -resistant Staphylococcus aureus.	\$804,620; Research (2014-2017)	O'Sullivan M; Sintchenko V, Gilbert GL, Holmes N, van Hal S (WSLHD, University of Sydney, Royal Prince Alfred Hospital)	NHMRC
39	Integrated System for Epidemic Response	\$1,470,000; Research (2017-2020)	MacIntyre; Clements, Komesaroff, Heslop, Wang, Sakar, Rawlinson, De Barro, Baker	NHMRC/CRE
40	Understanding how virus infection accelerates type 1 diabetes development	\$408,000; Research (2017-2018)	Coulson (U Melb); Craig	NHMRC
41	De novo mutations and the pathogenesis of childhood-onset autoimmune disease. APP1108800. NHMRC Project Grant 2016-2020	\$160,000; Research (2017-2020)	Goodnow (Garvan); Craig, Roscioli, Andrews, Gunton, Deenick, Wong, Gray, Teo	NHMRC
42	Centre of Research Excellence for the Protection	\$3,861,000; Research (2017-2019)	Craig; Harrison, Mohrahan, Colman, Wentworth, Papenfuss, Rawlinson, Dodd, Giles	NHMRC/CRE

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No.	Publication type	Reference/Citation
1	Original peer review	A pilot study on improving the appropriateness of urine specimen collection among catheterised patients in acute aged care. Jan Graltona, Belinda Boston, Christine Cook, Kerrie Thomas, Peter Taylor, Alice Kizny Gordon, Peter Smerdely, Gwen Hughes, Margaret Louey, Paul Curtis. <i>Infection, Disease & Health</i> ; 22 (1): 28-35
2	Original peer review	A novel method to enable PCR testing of bacterial isolates in the BacT/ALERT Microbial Detection System. McIver CJ, Er N, Stevens R, Taylor PC. <i>Pathology</i> 49(6):656-658
3	Original peer review	A novel quantitative PCR assay for testing bacteria directly from plate cultures using SYBR Green technology. McIver CJ, Er N, Stevens R, Taylor PC. <i>Pathology</i> 49(6):658-660
4	Original peer review	Multiresistant E. coli urine infections in children: a case-control study. Raman G, McMullan B, Taylor P, Mallitt KA, Kennedy SE. <i>Arch Dis Child</i> . 2017 Sep 12.
5	Original peer review	Congenital cytomegalovirus infection in pregnancy and the neonate: consensus recommendations for prevention, diagnosis, and therapy. Rawlinson WD, Boppana SB, Fowler KB, Kimberlin DW, Lazzarotto T, Alain S, Daly K, Doutré S, Gibson L, Giles ML9, Greenlee J, Hamilton ST, Harrison GJ, Hui L, Jones CA, Palasanthiran P, Schleiss MR, Shand AW, van Zuylen WJ. <i>Lancet Infect Dis</i> . 2017 Jun;17(6):e177-e188.
6	Original peer review	Prevalence of cytomegalovirus carriage among childcare staff. van Zuylen WJ, Zheng QY, Hamilton ST, Egilmezer EE, Craig ME, Gralton J, Rawlinson WD. <i>J Paediatr Child Health</i> . 2017 Jul;53(7):724
7	Original peer review	Association of rhinovirus with exacerbations in young children affected by cystic fibrosis: Preliminary data. Stelzer-Braid S, Liu N, Doumit M, D'Cunha R, Belessis Y, Jaffe A, Rawlinson WD. <i>J of Medical Virology</i> ; 89(8): 1494-1497.
8	Original peer review	The presence of vaginal Lactobacillus species does not contribute to a measureable difference in amniotic fluid lactate levels collected from the vaginal tract of laboring women. Hall B, Wong D, Healy C, Tracy MB, Tracy SK, Rawlinson WD. <i>Acta Obstetricia et Gynecologica Scandinavica</i> 96(4):487-495
9	Original peer review	Association between respiratory syncytial viral disease and the subsequent risk of the first episode of severe asthma in different subgroups of high-risk Australian children: a whole-of-population-based cohort study. Homaira N, Briggs N, Pardy C, Hanly M, Oei JL, Hilder L, Bajuk B, Lui K, Rawlinson WD, Snelling T, Jaffe A. <i>BMJ Open</i> . 2017 Nov 8;7(11):e017936
10	Original peer review	Herpes simplex virus-2 transmission following solid organ transplantation: Donor-derived infection and transplantation from prior organ recipients. Macesic N, Abbott IJ, Kaye M, Druce J, Glanville R, Gow PJ, Hughes PD, Korman TM, Mulley R, O'Connell PJ, Opdam H, Paraskeva M, Pitman MC, Rawlinson WD, Johnson PDR. <i>Transpl Infect Dis</i> . 2017 Oct;19(5).

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11	Original peer review	Type 1 diabetes: a disease of developmental origins. Phillips JE, Couper JJ, Penno MAS, Harrison LC; ENDIA Study Group. <i>Pediatr Diabetes</i> . 2017 Sep;18(6):417-421.
12	Original peer review	Cytomegalovirus (CMV) infection and pregnancy-potential for improvements in Australasian maternity health providers' knowledge. Shand AW, Luk W, Nassar N, Hui L, Dyer K, Rawlinson WD. <i>J Matern Fetal Neonatal Med</i> . 2017 Jul 11:1-6
13	Original peer review	Biological and Behavioral Factors Associated With Positive Chlamydia Retests. Smith, KS, Guy R, Danielewski J, Tabrizi SN, Fairley CK, McNulty AM, Rawlinson WD, Saville M, Garland SM, Donovan B, Kaldor JM, Hocking JS. <i>Sexually Transmitted Diseases</i> 44(7):417-422
14	Original peer review	Congenital CMV international guidelines are needed to guide diagnosis, prevention and management. Rawlinson WD. <i>Acta Paediatrica</i> . 106(9):1389-1390
15	Original peer review	Cooperative Recognition of Internationally Disseminated Ceftriaxone-Resistant <i>Neisseria gonorrhoeae</i> Strain. Lahra MM, Martin I, Demczuk W, Jennison AV, Lee KI, Nakayama SI, Lefebvre B, Longtin J, Ward A, Mulvey MR, Wi T, Ohnishi M, Whiley D. <i>Emerg Infect Dis</i> 24(4). 2018 Apr;24(4).
16	Original peer review	Use of whole genome sequencing to investigate an increase in <i>Neisseria gonorrhoeae</i> infection among women in urban areas of Australia. Buckley C, Forde BM, Trembizki E, Lahra MM, Beatson SA, Whiley DM. <i>Sci Rep</i> . 24;8(1):1503
17	Original peer review	Epidemiology of invasive meningococcal B disease in Australia, 1999-2015: priority populations for vaccination. Archer BN, Chiu CK, Jayasinghe SH, Richmond PC, McVernon J, Lahra MM, Andrews RM, McIntyre PB. <i>Med J Aust</i> 6;207(9):382-387
18	Original peer review	Molecular Antimicrobial Resistance Surveillance for <i>Neisseria gonorrhoeae</i> , Northern Territory, Australia. Whiley DM, Trembizki E, Buckley C, Freeman K, Baird RW, Beaman M, Chen M, Donovan B, Kundu RL, Fairley CK, Guy R, Hogan T, Kaldor JM, Karimi M, Limnios A, Regan DG, Ryder N, Su JY, Ward J, Lahra MM. <i>Emerg Infect Dis</i> 23(9):1478-1485
19	Original peer review	Multidrug-resistant gonorrhea: A research and development roadmap to discover new medicines. Alirol E, Wi TE, Bala M, Bazzo ML, Chen XS, Deal C, Dillon JR, Kularatne R, Heim J, Hooft van Huijsdijnen R, Hook EW, Lahra MM, Lewis DA, Ndowa F, Shafer WM, Tayler L, Workowski K, Unemo M, Balasegaram M. <i>PLoS Med</i> ; 14(7)
20	Original peer review	Changes in the rates of <i>Neisseria gonorrhoeae</i> antimicrobial resistance are primarily driven by dynamic fluctuations in common gonococcal genotypes. Lahra MM, Trembizki E, Buckley C, Donovan B, Chen M, Guy R, Kundu RL, Regan DG, Whiley DM. <i>J Antimicrob Chemother</i> ; 72(3):705-711

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21	Original peer review	Antimicrobial resistance in <i>Neisseria gonorrhoeae</i> : Global surveillance and a call for international collaborative action. Wi T, Lahra MM, Ndowa F, Bala M, Dillon JR, Ramon-Pardo P, Eremin SR, Bolan G, Unemo M. PLoS Med; 14(7)
22	Original peer review	Identifying factors that lead to the persistence of imported gonorrhoeae strains: a modelling study. Hui BB, Whiley DM, Donovan B, Law MG, Regan DG. Sex Transm Infect; 93(3):221-225
23	Original peer review	Treatment guidelines after an outbreak of azithromycin-resistant <i>Neisseria gonorrhoeae</i> in South Australia. Lahra MM, Ward A, Trembizki E, Hermanson J, Clements E, Lawrence A, Whiley D. Lancet Infect Dis 17(2):133-134
24	Original peer review	Epidemiology of Late and Very Late Onset Group B Streptococcal Disease: Fifteen-Year Experience From Two Australian Tertiary Pediatric Facilities. Bartlett AW, Smith B, George CR, McMullan B, Kesson A, Lahra MM, Palasanthiran P. Pediatr Infect Dis J; 36(1):20-24
25	Original peer review	Mixed gonococcal infections in a high-risk population, Sydney, Australia 2015: implications for antimicrobial resistance surveillance? Goire N, Kundu R, Trembizki E, Buckley C, Hogan TR, Lewis DA, Branley JM, Whiley DM, Lahra MM. J Antimicrob Chemother; 72(2):407-409
26	Original peer review	Further evidence to support the individualised treatment of gonorrhoea with ciprofloxacin. Trembizki E, Guy R, Donovan B, Kaldor JM, Lahra MM, Whiley DM. Lancet Infect Dis 16(9):1005-1006
27	Original peer review	Managing the risks of CMV transmission in transplant and other patients. Rawlinson WD. HAA 2017 Annual Scientific Meeting October 2017 Sydney
28	Original peer review	Association of rhinovirus with exacerbations in young children affected by cystic fibrosis: Preliminary data. Stelzer-Braid S., Liu N., Doumit M., D'Cunha R., Belessis Y., Jaffe A., Rawlinson W.D. Journal of Medical Virology, 89(8): 1494-1497
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30	Original peer review	Prevalence of cytomegalovirus carriage among childcare staff. Van Zuylen WJ, Zheng J, Hamilton ST, Egilmezer E, Craig M, Gralton J, Rawlinson WD. Journal of Paediatrics and Child Health; 53(7):724
31	Original peer review	Immune activation in amniotic fluid from zika virus associated microcephaly. Ornelas AMM, Pezzuto P, Silveira PP, Melo FO, Ferreira TA, Oliveira-Szejnfeld PS, Leal JI, Amorim MM, Hamilton ST, Rawlinson WD, Cardoso CC, Nixon, DF, Tanuri A, Melo AS, Aguiar RS. Ann Neurol; 81(1):152-156

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34	Original peer review	Effect of immediate initiation of antiretroviral therapy on risk of severe bacterial infections in HIV-positive people with CD4 cell counts of more than 500 cells per L: secondary outcome results from a randomised controlled trial. O'Connor J, Vjecha MJ, Phillips AN, Angus B, Cooper D, Grinsztejn B, Lopardo G, Das S, Wood R, Wilkin A, Klinker H, Kantipong P, Klingman KL, Jilich D, Herieka E, Denning E, Abubakar I, Gordin F, Lundgren JD, for the INSIGHT START study group (includes Dwyer DE). Lancet HIV. 2017 Mar;4(3):e105-e112
35	Original peer review	Evolution of HIV-1 surveillance drug resistance mutations over ten years in New South Wales, Australia. Pinto A, Carrera A, Salem H, Thapa K, Shaik A, Petoumenos K, Cunningham P, Garsia R, Dwyer D, Cooper DA, Kelleher AD. AIDS Res Hum Retroviruses. 2017 May 5
36	Original peer review	Oseltamivir, amantadine, and ribavirin combination antiviral therapy versus oseltamivir monotherapy for the treatment of influenza: a multicentre, double-blind, randomised phase 2 trial. Beigel JH, Bao Y, Beeler J, Manosuthi W, Slandzicki A, Dar SM, Panuto J, Beasley RL, Perez-Patrigeon S, Suwanpimolkul G, Losso MH, McClure N, Bozzolo DR, Myers C, Holley HP Jr, Hoopes J, Lane HC, Hughes MD, Davey RT, on behalf of the IRC003 Study Team (includes Dwyer DE). Lancet Infectious Diseases 2017; 17:1255-1265.
37	Original peer review	Comparison of the outcomes of individuals with medically-attended influenza A and B virus infections enrolled in two international cohort studies over a six-year period: 2009-2015. Dwyer DE, Lynfield R, Losso MH, Davey RT, Cozzi-Lepri A, Wentworth D, Uyeki TM, Gordin F, Angus B, Qvist T, Emery S, Lundgren J, Neaton JD, for the INSIGHT Influenza Study Group. Open Forum Infectious Diseases 2017; Oct 7;4(4):ofx212.
38	Original peer review	Increased indoleamine-2,3-dioxygenase activity is associated with poor clinical outcome in adults hospitalised with influenza in the INSIGHT FLU003Plus Study. Pett SL, Kunisaki KM, Wentworth D, Griffin TJ, Kalomenidis I, Nahra R, Montejano Sanchez R, Hodgson SW, Ruxrungtham K, Dwyer D, Davey RT, Wendt CH, on behalf of the INSIGHT Influenza Study Group. Open Forum Infectious Diseases 2017 Oct 25;5(1)
39	Original peer review	Multiple sources of genetic diversity of influenza A viruses during the Hajj. Cobbin JCA, Alfelali M, Barasheed O, Taylor J, Dwyer DE, Kok J, Booy R, Holmes EC, Rashid H. J Virol. 2017 May 12;91(11).

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41	Original peer review	Transcriptome and network analyses in <i>Saccharomyces cerevisiae</i> reveal that amphotericin B and lactoferrin synergy disrupt metal homeostasis and stress response. Pang CNI, Lai Y, Campbell L, Chen SC-A, Carter DA, Wilkins MR. Sci Rep. 2017 Jan 12;7:40232.
42	Original peer review	<i>Verruconis gallopava</i> cardiac and endovascular infection with dissemination after renal transplantation: case report and lessons learned. Jennings Z, Kable K, Halliday C, Nankivell BJ, Kok J, Wong G, Chen SC-A. Med Mycol Case Rep. 2016 Dec 13;15:5-8.
43	Original peer review	Identification and antifungal susceptibility profiles of <i>Candida nivariensis</i> and <i>Candida bracarensis</i> in a multicenter Chinese collection of yeasts. Hou X, Xiao M, Chen SC-A, Wang He Yu S, Fan X, Kong FR, Xu YC. Frontiers Microbiol 2017 8: 5.
44	Original peer review	Successful treatment of <i>Listeria monocytogenes</i> prosthetic valve endocarditis using rifampicin and benzylpenicillin in combination with valve replacement. Hasan T, Chik W, Chen S, Kok J. J Med Microbiol Case Rep; 2017 4(20): e005085.
45	Original peer review	Changing epidemiology of candidaemia in Australia. Chapman B, Slavin M, Marriott D, Halliday C, Kidd S, Arthur I, Bak N, Heath CH, Kennedy K, Morrissey CO, Sorrell TC, van Hal S, Keighley C, Goeman E, Underwood N, Hajkovicz K, Hofmeyr A, Leung M, Macesic N, Botes J, Blyth C, Cooley L, George CR, Kalukottege P, Kesson A, McMullan B, Baird R, Robson J, Korman TM, Pendle S, Weeks K, Liu E, Cheong E, Chen S. J Antimicrob Chemother 2017; 72:1103-1108.
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49	Original peer review	Rapid detection of Group B <i>Streptococcus</i> directly from vaginal-rectal specimens using liquid swabs and the BD Max GBS assay. Ellem JA, Kovacevic D, Olma T, Chen SC. Clin Microbiol Infect 2017 23 (12): 845-951.

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66	Original peer review	Mosquito assemblages associated with urban water bodies; implications for pest and public health threats. Crocker, W., Maute, K., Webb, C. and French, K. Landscape and Urban Planning 162: 115-125.
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69	Original peer review	Insecticide resistance and resistance mechanisms in bed bugs (Cimicidae: Cimex spp.): a review. Dang K., Doggett S.L., Genasan, V.S.K. and Lee C-Y. Parasit Vectors. 2017 Jun 29;10(1):318.
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74	Original peer review	Influenza epidemiology in patients admitted to sentinel Australian hospitals in 2016: the Influenza Complications Alert Network. Cheng AC, Holmes M, Dwyer DE, Irving L, Korman T, Senenayake S, Macartney K, Blyth C, Brown S, Waterer G, Cooley L, Friedman ND, Wark P, Simpson G, Upham J, Bowler S, Brady S, Kotsimbos T, Kelly P. Communicable Diseases Intelligence 2017; 41:E337-E347.
75	Original peer review	Evaluating Google Flu Trends in Latin America: Important Lessons for the Next Phase of Digital Disease Detection. Pollett S, Boscardin WJ, Azziz-Baumgartner E, Tinoco YO, Soto G, Romero C, Kok J, Biggerstaff M, Viboud C, Rutherford GW. Clin Infect Dis. 2017 Jan 1;64(1):34-41.
76	Original peer review	Shigella species epidemiology and antimicrobial susceptibility: the implications of emerging azithromycin resistance for guiding treatment, guidelines and breakpoints. Brown JD, Willcox SJ, Franklin N, Hazelton B, Howard P, Reinten T, Sheppard V, O'Sullivan M. J Antimicrob Chemother. 2017 Nov 1;72(11):3181-3186.
77	Original peer review	Beyond hand hygiene: a qualitative study of the everyday work of preventing cross-contamination on hospital wards. Hor SY, Hooker C, Iedema R, Wyer M, Gilbert GL, Jorm C, O'Sullivan MVN. BMJ Qual Saf. 2017 Jul;26(7):552-558
78	Original peer review	Ebola virus disease: An update on current prevention and management strategies. Trad MA, Naughton W, Yeung A, Mazlin L, O'Sullivan M, Gilroy N, Fisher DA, Stuart RL. J Clin Virol. 2017 Jan;86:5-13.
79	Review article	Zika virus: What, where from and where to? Basile K, Kok J, Dwyer DE. Pathology 2017; 49:698-706.
80	Review article	BK polyomavirus: a review of the virology, pathogenesis, clinical and laboratory features, and treatment. Trang VD, Rockett R, Jeffreys N, Trung NV, Hai An HP, Kok J, Dwyer DE. Future Virology 2017; 12
81	Review article	Laboratory approach to the diagnosis of culture-negative infective endocarditis. Subedi S, Jennings J, Chen SCA. Heart Lung Circ. 2017 Aug;26(8):763-771
82	Review article	Online databases for the taxonomy and identification of pathogenic fungi and proposal for a cloud-based dynamic data network platform. Meyer W, Prakash P, Irinyi L, Halliday C, Chen SC, Robert V. J Clin Microbiol 2017; 55: 1011-1024.

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No.	Publication type	Reference/Citation
83	Review article	PCR-based tests for the early diagnosis of sepsis. Where do we stand? Ginn AN, Halliday CL, Douglas AP, Chen SC. <i>Curr Opin Infect Dis</i> 2017; 30: 565-572
84	Review article	Candida and invasive mould diseases in non-neutropenic critically ill patients. Colombo AL, De Almeida Junior JN, Slavin M, Chen SC-A, Sorrell TC. <i>Lancet Infect Dis</i> 2017; 17(11); e344-e356.
85	Review article	Studies on insecticide resistance in Australian bed bugs, <i>Cimex</i> spp. (Hemiptera: Cimicidae). Lilly D., Dang, K., Doggett S.L. and Webb C. Proceedings of the 9th International Conference on Urban Pests, 9-12th July, Birmingham, Pureprint Group, UK.
86	Editorial-commentary	Batteiger BE (Editorial on Smith et al 2017), Rawlinson W. <i>Sexually Transmitted Diseases</i> ; 44(7)
87	Editorial-commentary	Editorial. Kurtböke I, Macreadie I, Barnard R, Barton M, Blackall L, Burke C, Fegan N, Lum G, Manna S, Merlino J, Meyer W, Owens C, Rawlinson WD, Robins-Browne R, Selleck P, Shanahan E, Smith D, Smith H, Wang J. <i>Microbiology Australia</i> , September 2017.
88	Editorial-commentary	Explainer: what's cytomegalovirus and why do pregnant women need to know about it? van Zuijlen W. <i>The Conversation</i> 2017
89	Editorial-commentary	Bed bug insecticides, do they do what it says on the tin? Doggett, Stephen. <i>Pest</i> . Aug/Sep. 29-31.
90	Editorial-commentary	New efficacy guidelines for bed bug product testing. Doggett, S.L. <i>Professional Pest Manager</i> , Aug/Sep.
91	Editorial-commentary	Severe allergic reactions to bed bug bites. Doggett, S.L. <i>Professional Pest Manager</i> , Aug/Sep: 40-41.
92	Editorial-commentary	NSW Arbovirus Surveillance Program, 2016-17 Update. Doggett, S.L. <i>Mosquito Bites</i> , 12(1): 27-30, 32.
93	Editorial-commentary	Insecticide-resistant bed bugs: are they all the same? Lilly D.G. <i>Professional Pest Manager</i> , Aug/Sep: 34-35.
94	Editorial-commentary	Are mosquito coils good or bad for our health? Webb C.E. <i>The Conversation</i> , 19 December 2017 [https://theconversation.com/are-mosquito-coils-good-or-bad-for-our-health-88548]
95	Editorial-commentary	Five reasons not to spray the bugs in your garden this summer. Lowe, L, Webb C.E. and Umbera, K. <i>The Conversation</i> , 6 November 2017
96	Editorial-commentary	How we kept disease-spreading Asian Tiger mozzies away from the Australian mainland. Webb C.E., van den Hurk A. and Ritchie S. <i>The Conversation</i> , 21 February 2017
97	Editorial-commentary	Ross River virus in Melbourne, how did that happen? Webb C.E. <i>The Conversation</i> , 10 February 2017 [https://cameronwebb.wordpress.com/2017/02/10/ross-river-virus-in-melbourne-how-did-that-happen/]

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No.	Publication type	Reference/Citation
98	Editorial-commentary	Concern regarding the alleged spread of hypervirulent lymphogranuloma venereum Chlamydia trachomatis strain in Europe. Seth-Smith HM, Galán JC, Goldenberger D, Lewis DA, Peuchant O, Bébéar C, de Barbeyrac B, Bénard A, Carter I, Kok J, Bruisten SM, Versteeg B, Morré SA, Thomson NR, Egli A, de Vries HJ. Euro Surveill. 2017 Apr 13;22(15).
99	Book chapter	Do You Have Bed Bugs? A help guide for the identification of Bed Bugs. (Norwegian translation), Norway. 48pp Doggett S.L.
100	Reports-guidelines	Australian Meningococcal Surveillance Programme, 1 January to 31 March 2017. Lahra MM. Comm Dis Intell Q Rep 41(2):E201
101	Reports-guidelines	Australian Gonococcal Surveillance Programme, 1 July to 30 September 2016. Lahra MM, Enriquez RP. Commun Dis Intell Q Rep; 41(1):E109-110
102	Reports-guidelines	Australian Meningococcal Surveillance Programme, 1 January to 31 March 2016. Lahra MM, Enriquez RP. Commun Dis Intell Q Rep; 40(3):E446
103	Reports-guidelines	Australian Meningococcal Surveillance Programme, 1 July to 30 September 2016. Lahra MM, Enriquez RP. Commun Dis Intell Q Rep; 40(4):E560
104	Reports-guidelines	Australian Gonococcal Surveillance Programme, 1 April to 30 June 2016. Lahra MM, Enriquez RP. Commun Dis Intell Q Rep. 2016 Dec 24; 40(4):E557-E559
105	Reports-guidelines	Australian Gonococcal Surveillance Programme, 1 January to 31 March 2016. Lahra MM, Enriquez RP. Commun Dis Intell Q Rep. 2016 Dec 24; 40(4):E554-E556
106	Reports-guidelines	Australian Meningococcal Surveillance Programme annual report, 2015. Lahra MM, Enriquez RP. Commun Dis Intell Q Rep. 2016 Dec 24; 40(4):E503-E511
107	Reports-guidelines	Transplant Infections - Diagnosis and Evaluation of Blood Borne and Reactivating Viruses. Rawlinson WD. 34th Annual NRL Workshop on Infectious Disease October Hob
108	Reports-guidelines	The NSW Arbovirus Surveillance and Mosquito Monitoring Program. Doggett S, Haniotis J, Clancy J, Webb C, Toi C, Hueston L, McIntyre L, Lim H, Dwyer DE. 2016-2017 Annual Report.
109	Reports-guidelines	Biting insects. Doggett S.L. WA Health Mosquito Training Course, Mandurah.
110	Reports-guidelines	Bed Bugs: Public Health Importance and Control. Doggett S.L. WA Health Mosquito Training Course, Mandurah.

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No.	Publication type	Reference/Citation
111	Reports-guidelines	Sydney International Airport mosquito larval survey, 20th June 2017. Clancy, J., Haniotis J. and Doggett S.L. Report for the NSW Ministry of Health.
112	Reports-guidelines	Weekly Update. NSW Arbovirus Surveillance & Mosquito Monitoring Program 2016-2017. Doggett S.L.
113	Reports-guidelines	Weekly Update. NSW Arbovirus Surveillance & Mosquito Monitoring Program 2017-2018. Doggett S.L.
114	Reports-guidelines	Mosquito survey of the QANTAS freight terminal, Sydney International Airport, 2017. Doggett S.L., Webb C., Clancy J. and Haniotis J. Report for the NSW Ministry of Health.
115	Reports-guidelines	Victorian Arbovirus Disease Control Program Review. Webb C.E. and Doggett S.L. Report prepared for the Victorian Government Department of Human Health Services, June 2017.
116	Reports-guidelines	Mosquito Repellent Testing: DEET, Oil of Lemon Eucalyptus and IR3535 based formulations against Aedes aegypti. Webb C.E. Report prepared for Reed Pacific, 15 February 2017.
117	Reports-guidelines	Mosquito Repellent Testing: "Ouch! Repellent" (Herbal Insect Repellent) assessment against Aedes aegypti. Webb C.E. Report prepared for Ouch! Repellents, 12 February 2017
118	Reports-guidelines	Assessment of mosquito risk associated with the proposed constructed wetlands at George Kendall Riverside Park. Webb C.E. Report prepared for City of Parramatta, 8 February 2017
119	Reports-guidelines	2017 Annual Summary Report, Westmead Hospital, WHO Collaborating Centre for Reference and Research on Influenza VIDRL. Subbarao K, Barr I.

transfusion

Transfusion medicine is the branch of medicine concerned with transfusion of blood and blood components.

Understandably, a lot of laboratory testing is involved in this discipline.



Clinical Stream Lead

“Transfusion medicine continues to benefit from active interdisciplinary research. Areas of study include establishing new surveillance systems that record data and transfusion outcomes to better understand and manage the risks associated with transfusion; limiting transfusions based on careful assessment of need, and ultimately improving patient care; technologies that will more precisely identify blood components to increase patient safety and simplify blood inventory; improved automation to increase efficiency and decrease error.”

grants & scholarships

Transfusion
Total funding
\$16,700

Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
Enhancing the effectiveness, appropriateness and sustainability of blood product management - a data analytics approach	\$16,700; Research (2017-2018)	Georgiou A; Cobain T, Li L, Vecellio E	Australia & New Zealand Society for Blood Transfusion





for all of
focus

statewide clinical services



Dr Stephen Braye
Chief Medical Information Officer
Executive Director of Clinical Services

NSW Health Pathology has four statewide clinical services.

The Clinical Services were established to provide leadership, develop innovative models of care, set best practice, and provide clinical advice. In some cases, the clinical service also provides operational oversight.

They work closely with clinical streams, operations groups and local health district partners to develop effective services for patients and NSWHP clients.

The Statewide Clinical Services also participate in service development and instrument design across national and international realms.

They are exploring relationships with tertiary institutions for scientific research, higher degree opportunities, as well as engaging with ICT faculties to develop artificial intelligence in clinical systems.

The Statewide Clinical Services are:

Point of Care Testing (PoCT):

- We have the world's largest managed PoCT network delivering diagnostic services to NSW, with more than 680 devices and over 26,000 users.

Genomics:

- We have three streams consisting of pathogen genomics, cancer genomics, and rare disease genomics.
- We are developing a genomics cloud reporting framework through the Privacy and Security Accreditation Framework of eHealth.

Public Health Pathology:

- We are actively participating in the establishment of the expanded pathogen genomics service
- We are undertaking a comprehensive review of testing for notifiable diseases in the NSWHP laboratory network, identifying what, where and how testing is undertaken for organisms of public health significance.

Perinatal Postmortem Service:

- We provide compassionate and dignified care, consulting with relevant healthcare professionals to help families find the answers they need
- We manage all non-coronial perinatal postmortem needs, providing timely, reliable results with expert examination using highest ethical standards of care.

genomics

NSW Health Pathology is creating a statewide genomics service which pools the expertise that exists across our laboratories into a coordinated service dedicated to delivering state-of-the-art diagnostics and care for patients. Our pathologists and scientists are developing faster, more efficient tests for an ever-expanding range of genes linked to hereditary conditions, including cancer, heart disease and developmental delay in children



Cliff Meldrum
Director of Genomics

“

Research is pivotal to the emerging discipline of genomics, particularly as an enabler of precision medicine, and as we translate genomics into clinical practice in the areas of rare childhood syndromes, targeted cancer treatments and the management of micro-organisms of concern to public health.

”

publication in focus

EGFR-Co-Mutated Advanced NSCLC and Response to EGFR Tyrosine Kinase Inhibitors.

Journal of Thoracic Oncology 2017;12(3):585-590.

Authors

Barnet MB, **O'Toole S**, Horvath LG, Selinger C, Yu B, Ng CC, Boyer M, **Cooper WA** and Kao S.

Study outcomes

The evolution of EGFR tyrosine kinase inhibitors (TKIs) has changed the landscape of disease for a subset of patients with non-NSCLC.

Most patients with an EGFR mutation respond to these drugs; however, a proportion show limited or no tumour response.

We explored the impact of co-mutation (double or multiple mutation), compared with a single mutation, of the EGFR gene on response to TKIs in a series of patients with metastatic NSCLC.



We retrospectively analyzed the mutation profiles of non-squamous NSCLC tested at Royal Prince Alfred Hospital between 2012 and 2015 by MassArray using the OncoCarta v1.0 panel.

A total of 62 patients were included, and of these, eight (12.9%) had a co-mutation.

Taking into account the small number of patients in this study, PFS in patients with EGFR co-mutation

appeared significantly shorter, and response rate significantly lower, than in patients with a single mutation.

Data from multipanel testing may identify subgroups of patients who are likely to respond poorly to standard treatment.

Clarification of these subgroups may improve patient care.

Genomics
Total funding
\$2,499,330

grants & scholarships

Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
Transformin the genomic diagnosis and management of severe neurocognitive disorders	\$2,499,330; Research (2016-2020)	Buckley MF; Roscioli T, Gecez J, Field M, Schofield D, North K, Dinger M, Christodoulou J, Amor D, Baynam G	NHMRC

publications

No.	Publication type	Reference/Citation
1	Original peer review	Polyclonal emergence of vanA vancomycin-resistant Enterococcus faecium in Australia. van Hal SJ, Espedido BA, Coombs GW, Howden BP, Korman TM, Nimmo GR, Gosbell IB, Jensen SO. J Antimicrob Chemother. 2017 Apr 1;72(4):998-1001.
2	Original peer review	MALDI-TOF MS meets WGS in a VRE outbreak investigation. Schlebusch S, Price GR, Gallagher RL, Horton-Szar V, Elbourne LD, Griffin P, Venter DJ, Jensen SO. Eur J Clin Microbiol Infect Dis. 2017 Mar;36(3):495-499
3	Original peer review	A De Novo Mutation in the Sodium-Activated Potassium Channel KCNT2 Alters Ion Selectivity and Causes Epileptic Encephalopathy. Gururaj S, Palmer EE, Sheehan GD, Kandula T, Macintosh R, Ying K, Morris P, Tao J, Dias KR, Zhu Y, Dinger ME, Cowley MJ, Kirk EP, Roscioli T, Sachdev R, Duffey ME, Bye A, Bhattacharjee A. Cell Reports 21(4):926-933.
4	Original peer review	Somatic mutations in salivary duct carcinoma and potential therapeutic targets. Khoo TK, Yu B,2, Smith JA, Clarke AJ, Luk PP, Selinger CI, Mahon KL, Kraitsek S, Palme C, Boyer MJ, Dinger ME, Cowley MJ, O'Toole SA, Clark JR, Gupta R, Jonathan Clark, Ruta Gupta R. Oncotarget. 2017 May 25;8(44):75893-75903.
5	Original peer review	Comprehensive analyses of somatic TP53 mutation in tumors with variable mutant allele frequency. Cole AJ, Zhu Y, Dwight T, Yu B, Dickson KA, Gard GB, Maidens J, Valmadre S, Gill AJ, Clifton-Bligh R, Marsh DJ. Sci Data. 2017 Sep 5;4:170120.
6	Original peer review	EGFR-Co-Mutated Advanced NSCLC and Response to EGFR Tyrosine Kinase Inhibitors. Barnet MB, O'Toole S, Horvath LG, Selinger C, Yu B, Ng CC, Boyer M, Cooper WA, Kao S. J Thorac Oncol. 2017 Mar;12(3):585-590

No.	Publication type	Reference/Citation
7	Original peer review	Gonadal mosaicism of a novel IQSEC2 variant causing female limited intellectual disability and epilepsy. Ewans LJ, Field M, Zhu Y, Turner G, Leffler M, Dinger ME, Cowley MJ, Buckley MF, Scheffer IE, Jackson MR, Roscioli T, Shoubridge C. Eur J Hum Genet 25(6):763-767
8	Original peer review	Late-Onset Non-HLH Presentations of Growth Arrest, Inflammatory Arachnoiditis, and Severe Infectious Mononucleosis, in Siblings with Hypomorphic Defects in UNC13D. Gray PE, Shadur B, Russell S, Mitchell R, Buckley M, Gallagher K, Andrews I, Thia K, Trapani JA, Kirk EP, Voskoboinik I. Frontiers in Immunology 8:944
9	Original peer review	A craniosynostosis massively parallel sequencing panel study in 309 Australian and New Zealand patients: findings and recommendations. Lee E, Le T, Zhu Y, Elakis G, Turner A, Lo W, Venselaar H, Verrenkamp CA, Snow N, Mowat D, Kirk EP, Sachdev R, Smith J, Brown NJ, Wallis M, Barnett C, McKenzie F, Freckmann ML, Collins F, Chopra M, Gregersen N, Hayes I, Rajagopalan S, Tan TY, Stark Z, Savarirayan R, Yeung A, Adès L, Gattas M, Gibson K, Gabbett M, Amor DJ, Lattanzi W, Boyd S, Haan E, Gianoutsos M, Cox TC, Buckley MF, Roscioli T. Genet Med. 2018 Sep;20(9):1061-1068
10	Original peer review	A craniosynostosis massively parallel sequencing panel study in 309 Australian and New Zealand patients: findings and recommendations. Lee E, Le T, Zhu Y, Elakis G, Turner A, Lo W, Venselaar H, Verrenkamp CA, Snow N, Mowat D, Kirk EP, Sachdev R, Smith J, Brown NJ, Wallis M, Barnett C, McKenzie F, Freckmann ML, Collins F, Chopra M, Gregersen N, Hayes I, Rajagopalan S, Tan TY, Stark Z, Savarirayan R, Yeung A, Adès L, Gattas M, Gibson K, Gabbett M, Amor DJ, Lattanzi W, Boyd S, Haan E, Gianoutsos M, Cox TC, Buckley MF, Roscioli T. Genet Med. 2018 Sep;20(9):1061-1068. Epub 2017.
11	Original peer review	The promises and challenges of exome sequencing in familial, non-syndromic congenital heart disease. Blue GM, Humphreys D, Szot J, Major J, Chapman G, Bosman A, Kirk EP, Sholler GF, Harvey RP, Dunwoodie SL, Winlaw DS. Int J Cardiol 230:155-163
12	Original peer review	Sensitive monitoring of acute promyelocytic leukemia by PML-RARA DNA Q-PCR. Kommers IO, Bartley PA, Budgen B, Latham S, Beligaswatte A, Supple SG, Catalano A, Iland HJ, Morley AAM, Ross DM. Leuk Lymphoma 2017; 58(7):1767-1769.
13	Review article	Reviewing the genetic alterations in high risk cutaneous squamous cell carcinoma: a search for prognostic markers and therapeutic targets. Ashford BG, Clark J, Gupta R, Iyer NG, Yu B, Ranson M. Head Neck. 2017 Jul;39(7):1462-1469
14	Review article	Advances in the Genetics of Congenital Heart Disease: A Clinician's Guide. Blue GM, Kirk EP, Giannoulatou E, Sholler GF, Dunwoodie SL, Harvey RP, Winlaw DS. J Am Coll Cardiol. 2017 Feb 21;69(7):859-870
15	Editorials-commentary	No authors added to Research Activity Register. Personalized Medicine and Infectious Disease Management.
16	Editorials-commentary	Four-Generation Family With Ebstein Anomaly Highlights Future Challenges in Congenital Heart Disease Genetics. Winlaw DS, Dunwoodie SL, Kirk EP. Circ Cardiovasc Genet. 2017 Dec;10(6).
17	Editorials-commentary	Genes, Environment, and the Heart: Putting the Pieces Together. Kirk EP. Circ Cardiovasc Genet. 2017 Dec;10(6).

public health pathology

Our Public Health statewide pathology service is a key part of the value we bring to the health system. This service has experts across a range of areas, including disease outbreaks, laboratory investigations for notifiable diseases, responses to emerging diseases, monitoring public health trends, public health research and education, and supporting emergency preparedness.



Dominic Dwyer

Local Pathology Director, Western
Sydney Local Health District

Director of Public Health Pathology

publication in focus

Key factors influencing the incidence of hemolysis: A critical appraisal of current evidence.

Critical Reviews in Clinical Laboratory Sciences 2017;54(1):59-72.

Authors

McCaughey EJ, **Vecellio E**, Lake R, Li L, **Burnett L**, **Chesher D**, **S Braye**, Mackay M, Gay S, Badrick T, Westbrook J and Georgiou A.

Study outcomes

The 40 studies included in this review provide excellent evidence that hemolysis rates are higher in Emergency Departments (EDs), for non-antecubital draws, for specimens drawn using an intravenous catheter compared to venipuncture and for samples transported by pneumatic tube compared to by hand.

There is also good evidence that hemolysis rates are higher when specimens are not collected by professional phlebotomists, larger volume specimen tubes are used, specimen tubes are filled less than



halfway and tourniquet time is greater than one minute.

The results of this review suggest that hospitals and clinical laboratories should consider deploying phlebotomists in EDs, drawing all blood through a

venipuncture, using the antecubital region as the optimum blood collection site and transporting specimens by laboratory assistant/other personnel, or if this is not practical, ensuring that pneumatic transport systems are validated, maintained and monitored.

Awareness of the factors that influence hemolysis rates, and adoption of strategies to mitigate these risk factors, is an important step towards creating quality practices to reduce hemolysis rates and improve the quality of patient care.

grants & scholarships



Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
Centre for Infectious Diseases and Microbiology - Public Health.	\$2,000,000; Research (2017-2019)	Sintchenko V; Dwyer D, Chen S, Webb C, O'Sullivan M, Kok J, Sorrell T, Gilbert L, Iredell J, Douglas M, Meyer W, Lewis D (NSW Ministry of Health, WSLHD, University of Sydney)	NSW Health Prevention Research Support Program (PRSP)

publications

No.	Publication type	Reference/Citation
1	Original peer review	Key factors influencing the incidence of hemolysis: a critical appraisal of current evidence. EJ McCaughey, E Vecellio, R Lake, L Li, L Burnett, D Chesher, S Braye. Critical reviews in clinical laboratory sciences; 54 (1): 59-72.

forensic & analytical science

Our Forensic & Analytical Science Service operates with a clear purpose – to create better health and justice systems.

This involves providing expertise to support the coronial justice system, protecting the health and safety of our communities and utilising world leading forensic analysis to help solve crimes.



Michael Symonds
Executive Director, Forensic &
Analytical Science Service

“

We're proud of our extensive breadth and depth of services and our ability to build knowledge and capacity in our staff and partners. We're also determined to deliver smarter services for better outcomes. ”

publication in focus

Investigation of DNA transfer onto clothing during regular daily activities.

international Journal of Legal Medicine 2017; 132(4):1035-1042.

Authors

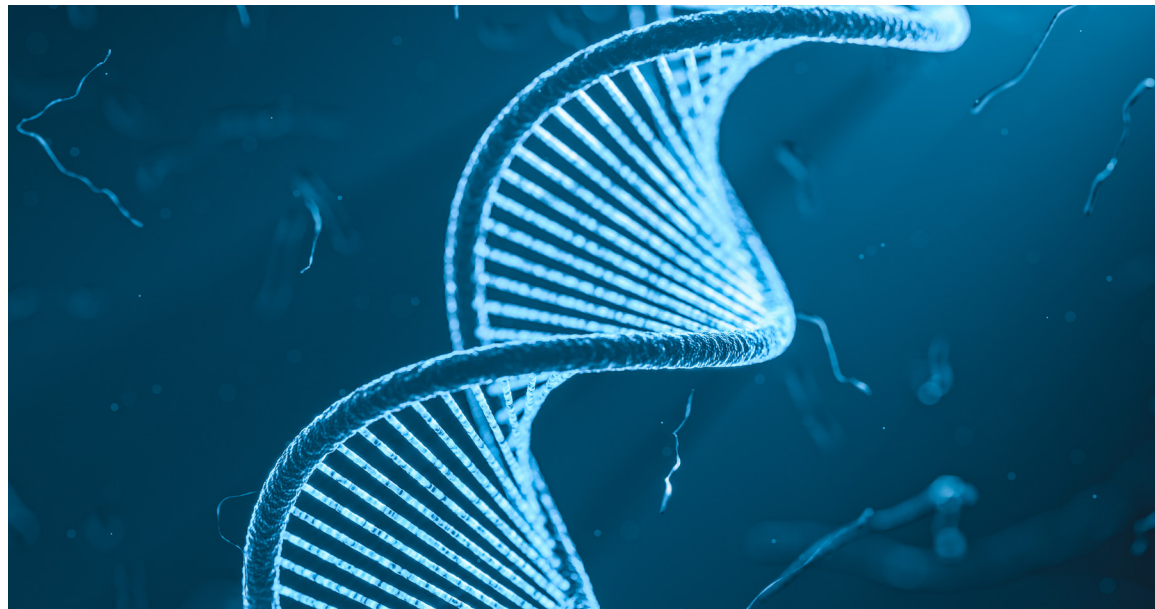
Ruan T, Barash M, Gunn P and **Bruce D.**

Study outcomes

Low levels of DNA from an unidentified human source, often referred to as trace DNA, are ubiquitous, can be transferred onto objects by either direct or indirect methods and have an unknown longevity in situ.

Clothing items from crime scenes are often submitted for trace DNA analysis, usually in attempt to identify a person of interest.

This study examined the transfer of DNA onto three 10×10 cm areas located on the front, back and shoulder of an individual's external clothing (n=300) during a regular day's activity. After wearing for a day, the DNA quantity on all three areas increased approximately 8-fold, which usually corresponded



with an increase in the endogenous DNA from the wearer on the front area of the shirt. However, the back area of the shirt was more likely to demonstrate mixtures of endogenous and extraneous DNA.

An additional study was also carried out to examine whether domestic laundering is a possible mechanism for the transfer of foreign DNA onto freshly laundered

items and revealed that 74% of UV-treated cotton swatch samples produced DNA profiles after laundry with household garments.

In summary, this study highlights the ease of DNA transfer onto an individual's external clothing during a regular day, and that extraneous DNA may be already on the clothing item prior to it being worn.

publications

No.	Publication type	Reference/Citation
1	Original peer review	Increased Epicardial Fat Thickness in Sudden Death From Stable Coronary Artery Atherosclerosis. Belinda Fuller, Jack Garland, Sravan Anne, Raymond Beh, Dennis McNevin, Rexson Tse. Am J Forensic Med Pathol. 2017 Jun;38(2):162-166
2	Original peer review	Detection of delta-9-tetrahydrocannabinol (THC) in oral fluid, blood and urine following oral consumption of low-contect THC hemp oil. Amie Hayley, Luke Downey, Glyn Hansen, Ashley Dowell, Dale Savins. Forensic Sci Int. 2018 Mar;284:101-106
3	Original peer review	Best practice recommendations for the establishment of a national DNA identification program for missing persons: A global perspective. Ward Jodie.
4	Original peer review	Characterization of hallucinogenic phenethylamines using high-resolution mass spectrometry for non-targeted screening purposes. Daniel Pasin, Shanlin Fu, Sergei Bidney. Drug Test Anal. 2017 Oct;9(10):1620-1629
5	Original peer review	Genome Sequencing Links Persistent Outbreak of Legionellosis in Sydney (New South Wales, Australia) to an Emerging Clone of Legionella pneumophila Sequence Type 211. Timms, VJ; Rockett, R; Bachmann, NL; Martinez, E; Wang, Q; Chen, SCA; Jeoffreys, N; Howard, PJ; Smith, A - FASS; Adamson, S; Gilmour, R; Sheppard, V; Sintchenko, V. Appl Environ Microbiol. 2018 Feb 14;84(5).
6	Original peer review	Investigation of DNA transfer onto clothing during regular daily activities. Travis Ruan, Mark Barash, Peter Gunn, David Bruce. Int J Legal Med. 2017 Nov 15.
7	Review article	Current applications of high-resolution mass spectrometry for the analysis of new psychoactive substances: a critical review. Pasin D, Cawley A, Bidny S, Fu S. Bioanal Chem. 2017 Oct;409(25):5821-5836

statewide biobank

The NSW Health Statewide Biobank is a vital new resource for medical research. In 2017, the NSW Government invested \$12 million to create the Biobank to support world-class health and medical research across the state.

Providing access to the largest collections of human samples in Australia, it helps researchers improve the way disease is detected, diagnosed and treated. Biobanks are vital to modern medical research and our evolving knowledge of health and disease.



Tom Karagiannis
Acting Chief Operating Officer

“The NSW Health Statewide Biobank will support research that will provide more treatment pathways for patients and help speed up the time it takes to translate discoveries into better patient care. From breakthroughs in cancer, diabetes, heart disease and rare genetic diseases, the facility will help revolutionise our research efforts across the state. ”

publication in focus

An Australian Biobank Certification Scheme: A Study of Economic Costs to Participating Biobanks.

Biopreservation and Biobanking 2018
(ePub2017);16(1):53-58..

Authors

Rod Ling, Amanda Rush, **Candace Carter, Jane Carpenter**, Peter H. Watson, Jennifer A. Byrne, and Andrew Searles.

Study outcomes

This study aimed to estimate the costs of gaining certification and maintaining certification (ie: committing extra resources to continue standards) for three cancer biobanks participating in a biobank certification program in New South Wales, Australia.

In extended interviews with staff, we gathered biobanks' expected costs in obtaining and annually maintaining certification.

The biobank with the highest staff level reported the lowest expected costs in gaining certification,



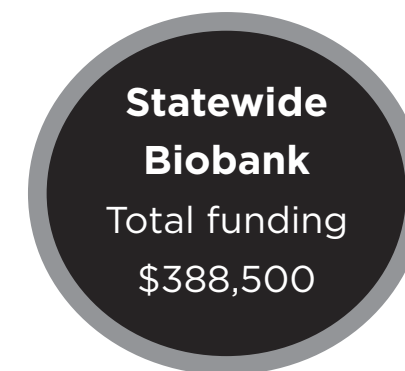
due to the strong prealignment of its present operations with certification requirements.

Overall, relative costs of gaining certification were between 2% and 6% of current total

annual wage costs.

To the authors' knowledge, this is the first such costing study of a biobank certification program.

grants & scholarships



Title	Funding amount & type (years)	Chief Investigator & Associate Investigator (collaborating institutions)	Funding agency
Streamlining biobank certification and research ethics and governance approval processes for the benefit of BSN biobanks.	\$388,500; Program (2017-2018)	Carpenter Jane, Wilson Roger (Kids Cancer Alliance, Hunter TCRC, Concert TCRC, Sydney West TCRC, University of Sydney, Canadian Tumour Repository Network)	Cancer Institute of NSW

publications

No.	Publication type	Reference/Citation
1	Original peer review	Is Your Biobank Up to Standards? A Review of the National Canadian Tissue Repository Network Required Operational Practice Standards and the Controlled Documents of a Certified Biobank. Victoria Hartman, Tania Castillo-Pelayo, Sindy Babinszky, Simon Dee, Jodi Leblanc, Lise Matzke, Sheila O'Donoghue, Jane Carpenter, Candace Carter, Amanda Rush, Jennifer Byrne, Rebecca Barnes, Anne-Marie Mes-Messons, and Peter Watson. Biopreserv Biobank. 2018 Feb;16(1):36-41. Epub 2017
2	Original peer review	An Australian Biobank Certification Scheme: A Study of Economic Costs to Participating Biobanks. Rod Ling, Amanda Rush, Candace Carter, Jane Carpenter, Peter H. Watson, Jennifer A. Byrne, and Andrew Searles. Biopreserv Biobank. 2018 Feb;16(1):53-58. Epub 2017
3	Original peer review	Research governance review of a negligible-risk research project: Too much of a good thing? Amanda Rush, Rod Ling, Jane Carpenter, Candace Carter, Andrew Searles and Jennifer Byrne. Research Ethics, November 2017
4	Original peer review	Adaptation of a biobank certification program for Australia. Jane Carpenter, Amanda Rush, Candace Carter Med J Aust. 2017 Apr 17;206(7):325-326.

contacts

Clinical positions		
Clinical Stream Leads	Name	Email
Anatomical Pathology	Paul McKenzie	paul.mckenzie@health.nsw.gov.au
Chemistry	Margaret Janu	margaret.janu@health.nsw.gov.au
Haematology	Elizabeth Tegg	elizabeth.tegg@health.nsw.gov.au
Immunology	Theo de Malmanche	theo.demalmanche@health.nsw.gov.au
Microbiology	Sharon Chen	sharon.chen@health.nsw.gov.au
Transfusion	Mark Dean	mark.dean@health.nsw.gov.au
Clinical Service Directors	Name	Email
Genomics	Cliff Meldrum	cliff.meldrum1@health.nsw.gov.au
Point of Care	Andrew Sargeant	andrew.sargeant@health.nsw.gov.au
Pre & Post Analytical	Judith Kempton-Webb	judith.kemptonwebb@health.nsw.gov.au
Public Health	Dominic Dwyer	dominic.dwyer@health.nsw.gov.au
Statewide Service Directors	Name	Email
FASS	Michael Symonds	michael.symonds@health.nsw.gov.au
NSW Health Statewide Biobank	Jennifer Byrne	jennifer.byrne@health.nsw.gov.au

contacts

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Name	Title	Email
Bente Talseth-Palmer	Research Support Project Officer	bente.talsethpalmer@health.nsw.gov.au
Amanda Koegelenberg	Research & Innovation Program Director	amanda.koegelenberg@health.nsw.gov.au
Shannon Ramadge	Communication Manager	shannon.ramadge@health.nsw.gov.au

Research & Innovation Team		
Position/Discipline	Name	Email
Chief Executive	Tracey McCosker PSM	tracey.mccosker@health.nsw.gov.au
Executive Director, Clinical Governance & Quality	Professor Roger Wilson	roger.wilson@health.nsw.gov.au
Research & Innovation Program Director	Amanda Koegelenberg	amanda.koegelenberg@health.nsw.gov.au
Research Support Project Officer	Bente Talseth-Palmer	bente.talsethpalmer@health.nsw.gov.au
Innovation Project Officer	Natasha Claxton	natasha.claxton@health.nsw.gov.au
Research Governance Officer	Andrew Harre	andrew.harre@health.nsw.gov.au
Research Activity Register	Bente Talseth-Palmer	nswpath-research@health.nsw.gov.au

disclaimer

The data presented in this report is taken from NSW Health Pathology's Research Activity Register for the year 2017. It may not present the complete picture of the research involvements of all NSWHP staff.

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Your ongoing involvement in leading and supporting research underpins our purpose to 'create a better health and justice systems' and is a true reflection of our vision to connect, pioneer and care for the people of NSW.

Leading through innovation and
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in service and outcomes.



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Level 5, 45 Watt Street

Newcastle, NSW 2300

T: 02 4920 4000

E: nswpath-research@health.nsw.gov.au