



CRITICAL CARE & CLINICAL SUPPORT SERVICES

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Dr Mark Mattiussi
Executive Director
Critical Care and
Clinical Support Services

The RBWH Critical Care and Clinical Support Service team live and breathe research as an integral part of their clinical services. The 2019 report demonstrates commitment from the entire team to advancing healthcare in their services through research and the translation of that research into clinical practice.

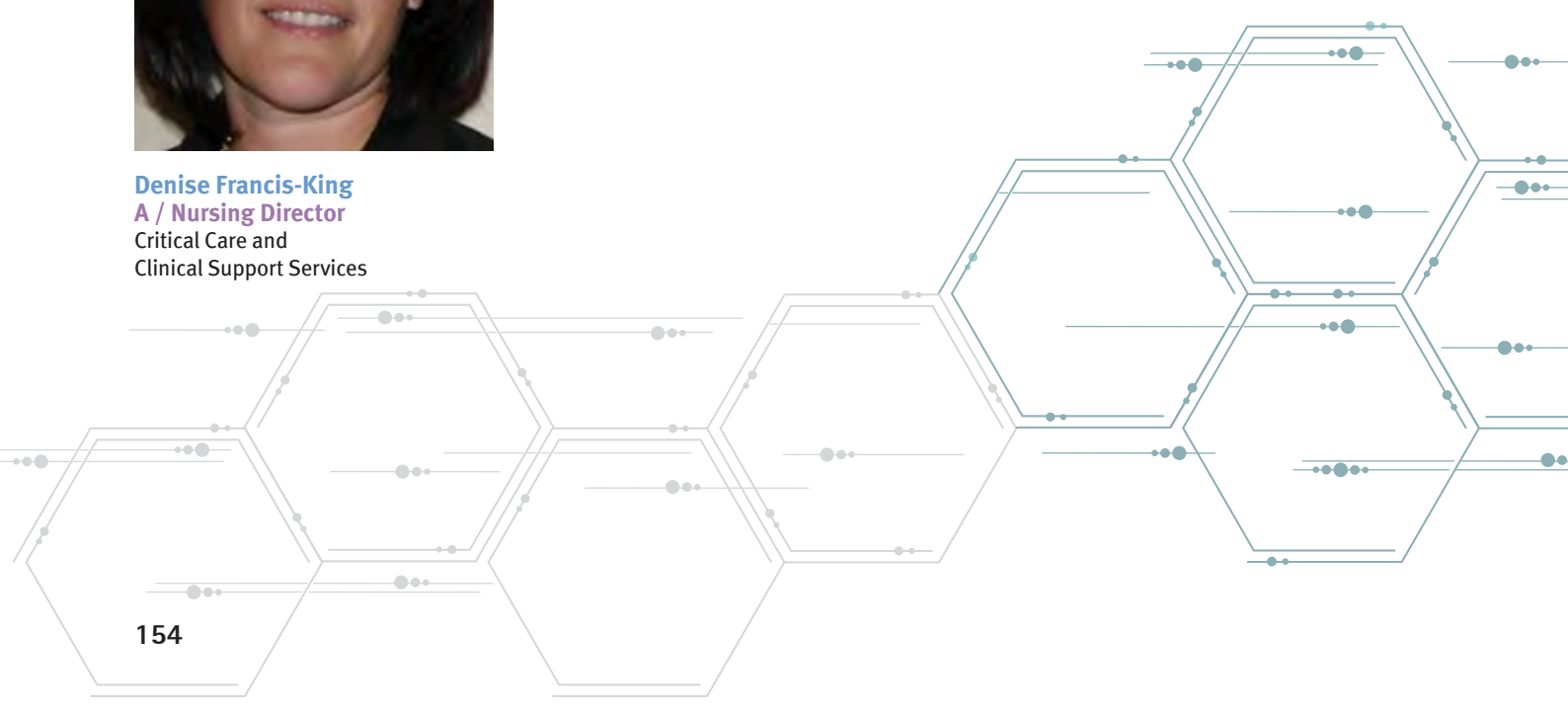
Our research team continue to be recognised for their work, by their peers and others within MNHHS, their partner organisation and by national expert panels and beyond. The research team's enthusiasm, heartfelt passion and their extraordinary efforts see them holding a place on the national and international research stage which they justifiably deserve.

The Critical Care and Clinical Support Services researchers hold pride of place amongst the world's most highly cited research and scientific thought leaders. Our researcher's work, trials and publications have, and continue to, influence the way clinical medicine is practiced nationally and across the world in emergency, trauma, critical and intensive care.

Our researchers place great emphasis and focus on partnering and collaboration as this dramatically increases the capacity and capability for research and each service describes their partnerships within the 2019 report. Our team of clinicians and researchers are well published in their specialty areas in peer reviewed journals, text books and beyond. This report highlights their work and achievements over 2019. The RBWH Critical Care and Clinical Support Service Researchers and their collaborating partners can be extremely proud of their achievements.



Denise Francis-King
A / Nursing Director
Critical Care and
Clinical Support Services



EMERGENCY & TRAUMA CENTRE

In 2019, our clinician researchers conducted new and ongoing medical and health services research projects on a broad range of themes related to emergency medicine, nursing and allied health, including pre-hospital care. We collaborated extensively with other RBWH departments as well as external organisations. A new collaboration with CSIRO and The University of Queensland was established to study the clinical applications of candidate biomarkers for traumatic brain injury, and our partnership with investigators in Far North Queensland has helped to secure funding to study cardiac health in Aboriginal and Torres Strait Islanders. We commenced a unique clinical trial of activity kits to help patients with dementia avoid becoming confused and disoriented while in our care.

We continued to grow our own research capacity with an increase in the number of clinical nurses engaging in research activities. Over the last year, our achievements have been reported in 25 academic papers, two invited talks and eight presentations at domestic and international conferences. We congratulate Louise Cullen and Jaimi Greenslade, together with Wil Parsonage from Cardiology, for their recent co-authored publication in The New England Journal of Medicine. We congratulate all our researchers who were the recipients of grant funding, and Jaimi Greenslade for receiving an Advance Queensland Research Fellowship.

Supervised Post-Graduate Research Students

Name <i>(RBWH staff in bold)</i>	Current Studies <i>(e.g. PhD, Masters etc.)</i> University <i>(duration)</i>	Research Project Title	Supervisors <i>(RBWH staff in bold)</i>
Brandon Allwood	MPhil, QUT (2018-2021)	Improving patient's pain through a standardised nurse-initiated medication regime	Fiona Coyer, James Hughes
Abdulmalik Almutairi	MNursing, QUT	Factors influencing the time to appropriate antibiotics in patients with bacteraemia presenting to the ED	James Hughes
Samuel Brookfield	PhD, UQ (2018-2021)	Critical Ethnography of Methamphetamine Recovery	Lisa Fitzgerald, Linda Selvey, Lisa Maher
Elizabeth Doran	MPhil, UQ (2018-2022)	ED pharmacists extended scope of practice	Louise Cullen
Laura Foran	MPhil, QUT (2017-2019)	Clinical presentation characteristics of Aboriginal and Torres Strait Islander patients presenting to an Emergency Department with suspected Acute Coronary Syndrome	Louise Cullen, Jaimi Greenslade
Byju Jacob	MAAdvancedNPrac <i>(Emergency Nursing)</i> , QUT	The Effectiveness of Triage Accuracy in an Emergency Department affecting patient flow: An integrative literature review	Martha Mansah, James Hughes
Daniel Lancini	PhD, UQ (2016-2020)	Atrial fibrillation in hospitalised patients	Louise Cullen , Paul Martin
Caitlin Lock	MPhil, QUT	Evaluation of clinical pharmacist medication review in ED and its impact on hospital length of stay for admitted older medical patients	Louise Cullen
Siegfried Perez	PhD, UQ (2016-2020)	Data Extraction from Electronic Health Records for a Chest Pain Clinical Data Registry	Louise Cullen, Jaimi Greenslade
Laura Scott	MPhil, UQ (2018-2020)	Long term outcomes for patients undergoing accelerated chest pain assessment strategies	Louise Cullen, Jaimi Greenslade

RBWH Research Staff with research roles, positions or appointments: e.g. Coordinators, Fellow, Adjunct and Honorary appointments

Name <i>(RBWH Staff in bold)</i>	Type of Position	FTE	Funding Source <i>(operational/ external/in-kind)</i>	Research Program	Affiliated University/ies
Venkat Acholi	Emergency Physiotherapist	0.05	In-kind	Physiotherapy defined scope of practice (prescribing)	
Di Atkinson	Research Nurse	0.05	In-kind	Therapeutic Activity Kits	
Daniel Bodnar	Senior Lecturer		In-kind	Pre-hospital and Emergency Care	The University of Queensland

RBWH Research Staff with research roles, positions or appointments e.g. Coordinators, etc (cont)

Name <i>(RBWH Staff in bold)</i>	Type of Position	FTE	Funding Source <i>(operational/ external/in-kind)</i>	Research Program	Affiliated University/ies
Anthony Brown	Professor of Emergency Medicine / Adjunct Professor	0.30	External, In-kind	Emergency Medicine	The University of Queensland / Queensland University of Technology
Nathan Brown	Senior Lecturer	1.00	Operational	Emergency Care	The University of Queensland
Emily Brownlee	Research Nurse	0.30	External	Chest pain	
Julia Brownlie	Nurse Practitioner	0.05	In-kind	Emergency nurse practitioner in early pregnancy, Anti-D	
John Burke	Adjunct Associate Professor	0.10	In-kind	ED models of care	Queensland University of Technology
Kevin Chu	Director of Emergency Research	0.20	In-kind	Emergency Medicine, Headache	The University of Queensland / Queensland University of Technology
Louise Cullen	Professor	0.40	In-kind	Chest pain, biomarkers	Queensland University of Technology / The University of Queensland
Laura Foran	Research Nurse	0.80	External	Chest pain	Queensland University of Technology
Nikesh Gopal Kumar	Project Officer	0.10	In-kind	Health Services	
Jaimi Greenslade	Associate Professor/ Principal Research Fellow	1.0	External	Chest pain pathways	Queensland University of Technology / The University of Queensland
Tracy Hawkins	Research Nurse	0.2	External	Chest pain/Syncope	
Janelle Heine	Emergency Physiotherapist	0.05	In-kind	Physiotherapy defined scope of practice (prescribing)	
Leonie Higgs	Research Nurse	0.05	In-kind	Therapeutic Activity Kits	
Angela Hills	Research Nurse	0.3	External	Blood Cultures	
James Hughes	Conjoint Senior Nursing Research Fellow	1.00	Operational (0.2), External (0.8)	Emergency Nursing, Pain	Queensland University of Technology
Catherine Hurn	Senior Lecturer	0.05	In-kind	Trauma	The University of Queensland
David Kramer	Clinician Researcher	0.05	In-kind	Physiotherapy defined scope of practice (prescribing)	
Trent Lipp	Senior Lecturer	0.05	In-kind	Trauma	The University of Queensland
Bill Lukin	Senior Lecturer	0.05	In-kind	Emergency care of frail and elderly, ED palliative care	The University of Queensland
Anna-Lisa Lyrstedt	Research Nurse	0.4	External	Brain injury biomarkers	
Jacqueline Marks	Clinician Researcher		In-kind	Domestic violence	
Alexandra Markwell	Senior Lecturer		In-kind	Domestic violence	The University of Queensland
Ellyse McCormick	Research Nurse	0.70	External	Chest pain	
Clancy McDonald	Clinician Researcher	0.05	In-kind	Integrated care for vulnerable patients	
Gary Mitchell	Senior Lecturer	0.10	In-kind	Brain injury biomarkers	The University of Queensland
Jacob O'Gorman	Clinician Researcher	0.05	In-kind	Intubation practices in EDs	
Mercedes Ray	Research Nurse	0.30	External	Blood Cultures	
David Rosengren	Senior Lecturer	0.05	In-kind	Alcohol-related presentations	The University of Queensland
Sean Rothwell	Senior Lecturer	0.05	In-kind	Emergency medicine	The University of Queensland
Rina Savage	Senior Lecturer	0.05	In-kind	ED opioid prescribing	The University of Queensland
Matilda Schmidt	Adjunct Lecturer	0.05	In-kind	Emergency nurse practitioner in early pregnancy, Anti-D	Queensland University of Technology
Emma Staines	Research Nurse	0.30	External	Brain injury biomarkers	
Frances Williamson	Senior Lecturer	0.05	In-kind	Trauma	The University of Queensland

Honorary Positions: e.g. Non-RBWH staff with research appointments at RBWH

Name	Position	Research Program	Affiliated University/ies
Jacque Chui	Summer Research Scholar	Pain	The University of Queensland
Joseph Potter	Medical Student Volunteer	Patient reported outcome measures of pain in the ED	The University of Queensland
Jacob Serena	Medical Student Volunteer	Pre-hospital retrievals	The University of Queensland
Euiyeong Son	Vacation Research Experience Student	Pre-hospital pain care	Queensland University of Technology
Alixandra Wong	Summer Research Scholar	Patient reported outcome measures of pain in the ED	The University of Queensland

Current RBWH Research Group / Department Led Research Activity

RBWH Research Group / Department Led Researchers <i>(RBWH staff in bold)</i>	Collaborative Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
Daniel Bodnar	Emma Bosley (QAS), Stephen Rashford (QAS), Mark Shirran (GCUH), Catherine Hurn (ETC) , Matthew Meister, Glenn Ryan (PAH)	Queensland pre-hospital study identifying which trauma patients are at risk of bleeding to death
Daniel Bodnar	Zoe Stevens (UQ), Stephen Rashford (QAS), Michael Handy (Trauma Service) , Sue Williams (RBWH Blood Bank)	A retrospective, observational study examining the coagulation, full blood count and blood gas profiles for trauma patients receiving pre-hospital packed red blood cell transfusions
Daniel Bodnar	Nathan Brown (ETC) , Stephen Rashford (QAS), Jacob Serena (UQ)	A retrospective study of the effect of pre-notification of Retrieval Services Queensland by the Queensland Ambulance Service on pre-hospital transfer times of patients with ST elevation myocardial infarctions to percutaneous coronary intervention centres
Julia Brownlie	Jaimi Greenslade (ETC) , Louise Cullen (ETC) , James Hughes (ETC)	Emergency nurse practitioner in early pregnancy
John Burke	Gerald Fitzgerald (QUT)	Four-hour rule project – validation and impact of the four-hour rule in the ED: a large data linkage study
Kevin Chu	Judith Bellapart (DICM) , Craig Winter (Neurosurgery) , Rosalind Jeffree (Neurosurgery) , Jeffrey Lipman , Jacobus Ungerer (Pathology Qld), Anita Pelecanos (QIMR Berghofer), Anthony Brown (ETC) , Nathan Brown (ETC)	Timing of lumbar puncture for the detection of xanthochromia in suspected subarachnoid haemorrhage
Kevin Chu	Nathan Brown (ETC) , James Hughes (ETC)	The incidence and characteristics of missed subarachnoid haemorrhage diagnosis in Queensland from 2009 to 2018
Kevin Chu	Anthony Nguyen (Australian eHealth Research Centre, CSIRO)	Preventing missed diagnoses through automated reconciliation of ED medical records
Kevin Chu	Lyn Griffiths (QUT), James Hughes (ETC) , Robert Smith (QUT), Nathan Brown (ETC) , Larissa Haupt (QUT), Peter Donovan (Pharmacology)	A pilot genome-wide association study of response to second-line treatment for migraine
Louise Cullen	William Parsonage (Cardiology)	Basel Syncope Evaluation Study (Basel IX)
Louise Cullen	Jaimi Greenslade (ETC) , William Parsonage (Cardiology) , Adam Scott (Cardiology) , Jacobus Ungerer (Pathology Queensland), Tracey Hawkins (ETC) , Gerben Keijzers (GCUH), Julia Crilly (Griffith University), Nicholas Graves (QUT), Ariel Ho (UQ)	Examining translation of research into improved assessment for heart attack
Louise Cullen	John Fraser, Kiran Shekar, Liam Byrne, Obonyo Nchfatso, Connie Boon, Louise See Ho, Margaret Passmore, Kathryn Maitland	Too much of a good thing; does fluid resuscitation worsen septic shock?
Louise Cullen	Tracey Hawkins (ETC) , Jaimi Greenslade (ETC)	Cannulation rates in the Emergency Department intervention trial
Jaimi Greenslade	Louise Cullen (ETC) , William Parsonage (RBWH Cardiology) , Nicholas Graves (QUT), Siegfried Perez (Logan Hospital), Fran Kinnear (TPCH), Christian Hamilton-Craig (TPCH), Niranjana Gaikwad (TPCH), Tracey Hawkins (ETC)	Limit of detection in the emergency department (LEGEND) trial: a pre-post intervention trial of a clinical decision rule to rule out acute myocardial infarction

Current RBWH Research Group / Department Led Research Activity (cont)

RBWH Research Group / Department Led Researchers <i>(RBWH staff in bold)</i>	Collaborative Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
Debra Harcourt	Leonie Cartledge-Gaan (<i>Internal Medicine</i>), Clancy McDonald (<i>ETC</i>), John Burke (<i>ETC</i>), Anthony Nesbit (<i>Patient Flow Unit</i>), Amanda Dines (<i>Executive Services</i>)	Working together to connect care: emergency department frequent presenters response project
Leonie Higgs	Di Atkinson (<i>ETC</i>), Nathan Brown (<i>ETC</i>), Leanne Bennett (<i>ETC</i>), Dave Kramer (<i>ETC</i>), Greg Merlo (<i>UQ</i>), Linda Schnitker (<i>QUT</i>), James Hughes (<i>ETC</i>)	A pragmatic randomised controlled trial of the effects of therapeutic activity kits in emergency department patients with dementia and responsive behaviours
James Hughes	Brandon Allwood (<i>ETC</i>), Jacqui Chiu (<i>UQ</i>), Kevin Chu (<i>ETC</i>), Nathan Brown (<i>ETC</i>)	Exploring Current Pain Practices in the Emergency and Trauma Centre
James Hughes	Lee Jones (<i>QUT</i>), Nathan Brown (<i>ETC</i>), Kevin Chu (<i>ETC</i>)	Development and testing of patient-reported outcome measures of pain care in the emergency department
Gary Mitchell	Louise Cullen (<i>ETC</i>), Cliff Pollard (<i>MNHHS/JTI</i>), Nathan Brown (<i>ETC</i>), Warwick Locke (<i>CSIRO</i>), Jason Ross (<i>CSIRO</i>), Jack Taylor (<i>ETC</i>), Fatimah Nasrallah (<i>UQ</i>), Michael O'Sullivan (<i>Neurology</i>)	The characteristics of brain-origin circulating cell-free DNA in adult emergency department patients with suspected mild traumatic brain injury
Tina Moriarty	Kevin Chu (<i>ETC</i>), Daniel Bodnar (<i>ETC</i>)	Roll-overs in field triage (RIFT)
Mercedes Ray	Julian Williams (<i>ETC</i>), James Hughes (<i>ETC</i>), Melisa Dixon (<i>ETC</i>), Angela Hills (<i>ETC</i>), Jill Duncan (<i>ETC</i>), Dr Jacqui Harper (<i>Path Qld</i>)	Identification of blood culture quality and current practices in the emergency and trauma centre
Philip Richardson	Elizabeth Doran (<i>Pharmacy</i>), Kevin Chu (<i>ETC</i>), Jaimi Greenslade (<i>ETC</i>)	Medication & Fluid orders in the Emergency Department: Examining the incidence of error and adverse events
Matilda Schmidt (<i>ETC</i>)	James Hughes (<i>ETC</i>), Kim Lai (<i>ETC</i>), Julia Brownlie (<i>ETC</i>), Amy Arnold (<i>Women's and Newborn Services</i>)	Identifying the Usage and Appropriateness of Anti-D Immunoglobulin in the Pregnant Female Presenting to the Emergency Department
Julian Williams	David Paterson (<i>Infectious Diseases Unit</i>), Graeme Nimmo (<i>Microbiology</i>), Jaimi Greenslade (<i>ETC</i>), Katherine Doucet, Kevin Chu (<i>ETC</i>), Jeffrey Lipman , Anthony Brown (<i>ETC</i>)	Identifying risk factors for MRSA
Julian Williams	James Hughes (<i>ETC</i>), Melisa Dixon (<i>ETC</i>), Angela Hills (<i>ETC</i>), Jill Duncan (<i>ETC</i>), Dr Jacqui Harper, Dr Jaimi Greenslade (<i>ETC</i>)	A prospective intervention study to improve the quality of blood cultures in the Emergency and Trauma Centre – The Bugs in Bottles Project

Collaborative Research Activity involving RBWH Research Group / Department

Collaborative Led Researchers	RBWH Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
Anthony Bell (<i>The Wesley Hospital</i>)	John Burke (<i>ETC</i>)	State-wide Workforce and Activity-Based Funding Modelling for Queensland Emergency Departments (SWAMPED)
Caitlin Lock (<i>The Wesley Hospital</i>)	Ian Coombes (<i>Pharmacy</i>), Louise Cullen (<i>ETC</i>)	Evaluation of clinical pharmacist medication review in ED and its impact on hospital length of stay for admitted older medical patients
Doug Morel (<i>Redcliffe Hospital</i>)	Kevin Chu (<i>ETC</i>)	What influences the choice made by patients between emergency department and primary healthcare for acute illness?
Nam Nguyen (<i>Royal Adelaide Hospital</i>)	Anthony Brown (<i>ETC</i>)	The utility of the Glasgow-Blatchford score in predicting clinical outcome and stratifying the need for therapeutic intervention in hospitalised patients with upper gastrointestinal bleeding: a prospective validating study
Julia Crilly (<i>Griffith University and GCUH</i>)	David Rosengren (<i>ETC</i>), Sean Rothwell (<i>ETC</i>), Jill Duncan (<i>ETC</i>), Nathan Brown (<i>ETC</i>)	Evaluating the impact of alcohol on emergency department presentations (ETOH)
Shane George (<i>GCUH</i>)	Catherine Hurn (<i>ETC</i>), Anthony Holley (<i>DICM</i>)	Fibrinogen early in children with severe trauma study (FEISTY Junior)
Thomas Torpie (<i>GCUH</i>)	James Hughes (<i>ETC</i>), James Ready (<i>ETC</i>)	Domestic and family violence screening in the emergency department
Richard Skoien (<i>RBWH Gastroenterology</i>)	Anthony Brown (<i>ETC</i>)	Examination of health outcomes associated with paracentesis in patients admitted with decompensated cirrhosis

Collaborative Research Activity involving RBWH Research Group / Department (cont)

Collaborative Led Researchers	RBWH Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
Christopher Reid (<i>Curtin University of Technology, WA</i>)	Louise Cullen (ETC)	Centre for Research Excellence in Cardiovascular Outcomes Improvement
John Fraser (TPCH)	Louise Cullen (ETC)	Cardiovascular haemodynamics in an ovine model of brain stem death
Frances Kinnear (TPCH)	Kevin Chu (ETC)	A randomised controlled trial of interventional versus conservative treatment of primary spontaneous pneumothorax
Stephen Rashford (QAS)	Daniel Bodnar (ETC)	A prospective blinded evaluation of the sensitivity and specificity of pre-hospital Focussed Abdominal Sonogram for Trauma (FAST)
Mark Cruickshank (<i>RBWH Physiotherapy</i>)	Venkat Acholi (ETC), Janelle Heine (ETC), David Kramer (ETC)	Physiotherapy defined scope of practice (prescribing)
Julia Crilly (<i>Griffith University and GCUH</i>)	Jaimi Greenslade (ETC), James Hughes (ETC)	Morale, stress and coping strategies of staff working in the emergency department: A national and international comparison
Paul Haber (<i>RPAH, University of Sydney</i>)	Clancy McDonald (ETC)	Reconnecting after a suicide attempt (RAFT) – feasibility study
Mahender Samtani (<i>RBWH Physiotherapy</i>)	Jennifer Paratz (Physiotherapy), Shaun O’Leary (Physiotherapy), Venkat Acholi (ETC), Janelle Heine (ETC), David Kramer (ETC), Louise Cullen (ETC)	Comparison of two exercise approaches for the management of low back pain in the emergency department setting
Kirsten Vallmuur (QUT)	Nathan Brown (ETC)	Understanding serious quad bike-related injuries in Queensland and Northern Territory: Comparing circumstances, patterns, severity, costs and outcomes
Fran Kinnear (TPCH)	Clancy McDonald (ETC), James Hughes (ETC), Amanda Petrie (USC)	Impact of legislation changes to involuntary orders on emergency department presentations: a retrospective chart audit
Flavia Huygens (QUT)	James Hughes (ETC), Julian Williams (ETC), Graeme Nimo (Pathology Qld)	Testing of InfectID® using blood samples
Jane Nikles (UQ)	Rina Savage (ETC)	Extracting the musculoskeletal injury data from the results of an Emergency Department intervention to optimise discharge prescribing
Lucy Thomas (UQ)	Kevin Chu (ETC), Andrew Wong (Neurology), Ian Parker (Physiotherapy), Claire Muller (Neurology)	Validation of a diagnostic support tool for early recognition of cervical arterial dissection in people with acute neck pain and headache in primary care
Katrina Starmer (<i>Cairns Hospital</i>)	Louise Cullen (ETC), Laura Foran (ETC), Jaimi Greenslade (ETC), William Parsonage (Cardiology), Nathan Brown (ETC), Louise McCormack (Cardiology)	Prevalence of coronary artery disease in Aboriginal and Torres Strait Islander people presenting to the Emergency Department with suspected acute coronary syndrome

Research Awards and Achievements

Recipient <i>(RBWH staff in bold)</i>	Award	Event
Jaimi Greenslade	Advance Queensland Research Fellowship	

Research Grants

Investigators <i>(RBWH staff in bold)</i>	RBWH Research Groups /Departments	Project Title	Granting Body	Total of funds awarded	Years
Starmer K, Cullen L , Starmer G, Foran L , Greenslade J , Parsonage W , Brown NJ , McCormack L	Emergency and Trauma Centre	Prevalence of coronary artery disease in Aboriginal and Torres Strait Islander people presenting to the Emergency Department with suspected acute coronary syndrome	Emergency Medicine Foundation	\$115,000	2020-2022
Schnitker L, Beattie E, Arends G, Hughes J		Implementing the DARE-ED into Practice: Can it Work?	Queensland University of Technology. QUT HADPC Seed Funding	\$10,000	2019-2020

Research Grants (cont)

Investigators <i>(RBWH staff in bold)</i>	RBWH Research Groups /Departments	Project Title	Granting Body	Total of funds awarded	Years
Hughes J, Higgs L, Atkinson D, Brown NJ, Kramer D, Schnitker L, Merlo G	Emergency and Trauma Centre	A pragmatic randomised controlled trial of the effects of therapeutic activity kits on emergency department patients with dementia and responsive behaviours –The TACK Study	Rosemary Bryant Foundation Seeding Grant	\$9,357.00	2019-2020
Greenslade J, Cullen L, Parsonage W, Perez S, Kinnear F, Hamilton-Craig C, Gaikwad N, Brain D	Emergency and Trauma Centre	The Limit of Detection in the Emergency Department (LEGEND) trial: A stepped-wedge intervention trial of a clinical decision rule to rule out acute myocardial infarction	Emergency Medicine Foundation Leading Edge Grant	\$93,240	2020-2021
Greenslade J, Cullen L, Parsonage W, Perez S, Graves N		The Limit of Detection in the Emergency Department Trial (LEGEND)	Medical Research Future Fund (MRFF) Rapid Applied Research Translation Program	\$194,682	2019-2020
Louise Cullen, William Parsonage, Louise McCormack, Raibhan Yadav, Luke Lawton, Sarah Ashover, Tanya Milburn, Laura Foran		Validation of an accelerated diagnostic protocol for Aboriginal and Torres Strait Islander patients presenting to an emergency department (ED) with suspected Acute Coronary Syndrome	Medical Research Future Fund (MRFF) Rapid Applied Research Translation Program	\$235,254	2019-2020

2019 Research Publications

Journals

1. Toloo GS, Bahl N, Lim D, FitzGerald G, Wraith D, **Chu K**, et al. General practitioner-type patients in emergency departments in Metro North Brisbane, Queensland: A multisite study. *Emerg Med Australas*. 2019
2. Platz E, Jhund PS, Girerd N, Pivetta E, McMurray JJV, Peacock WF, Masip J, Martin-Sanchez FJ, Miro O, Price S, **Cullen L**, et al. Expert consensus document: Reporting checklist for quantification of pulmonary congestion by lung ultrasound in heart failure. *Eur J Heart Fail*. 2019;21(7):844-51
3. Obonyo NG, Byrne L, Tung J-P, Simonova G, Diab SD, Dunster KR, Passmore MR, Boon AC, See Hoe L, Engkilde-Pedersen S, Esguerra-Lallen A, Fauzi MH, Pimenta LP, Millar JE, Fanning JP, Van Haren F, Anstey, Chris M. **Cullen L**, et al. Pre-clinical study protocol: Blood transfusion in endotoxaemic shock. *MethodsX*. 2019;6:1124-32
4. Neumann JT, Twerenbold R, Ojeda F, Sörensen NA, Chapman AR, Shah ASV, Anand A, Boeddinghaus J, Nestelberger T, Badertscher P, Mokhtari A, Pickering JW, Troughton RW, **Greenslade J, Parsonage W,** Mueller-Hennessen M, Gori T, Jernberg T, Morris N, Liebetrau C, Hamm C, Katus HA, Münzel T, Landmesser U, Salomaa V, Iacoviello L, Ferrario MM, Giampaoli S, Kee F, Thorand B, Peters A, Borchini R, Jørgensen T, Söderberg S, Sans S, Tunstall-Pedoe H, Kuulasmaa K, Renné T, Lackner KJ, Worster A, Body R, Ekelund U, Kavsak PA, Keller T, Lindahl B, Wild P, Giannitsis E, Than M, **Cullen LA**, et al. Application of High-Sensitivity Troponin in Suspected Myocardial Infarction. *New England Journal of Medicine*. 2019;380(26):2529-40
5. Nestelberger T, Boeddinghaus J, **Greenslade J, Parsonage WA,** Than M, Wussler D, Lopez-Ayala P, Zimmermann T, Meier M, Troester V, Badertscher P, Koechlin L, Wildi K, Anwar M, Freese M, Keller DI, Reichlin T, Twerenbold R, **Cullen L**, Mueller C, Apace Adapt Investigators. Two-Hour Algorithm for Rapid Triage of Suspected Acute Myocardial Infarction Using a High-Sensitivity Cardiac Troponin I Assay. *Clin Chem*. 2019;65(11):1437-47
6. **Lukin B, Greenslade J,** Kearney AM, Douglas C, **Howell T,** Barras M, et al. Conversion of other opioids to methadone: a retrospective comparison of two methods. *BMJ Support Palliat Care*. 2019
7. Kline TV, **Savage RL, Greenslade JH, Lock CL, Pattullo C,** Bell AJ. Affecting emergency department oxycodone discharge prescribing: an educational intervention. *Emerg Med Australas*. 2019;31(4):580-86
8. Keijzers G, Macdonald SP, Udy AA, Arendts G, Bailey M, Bellomo R, Blecher GE, Burcham J, Delaney A, Coggins AR, Fatovich DM, Fraser JF, Harley A, Jones P, Kinnear F, May K, Peake S, Taylor DM, **Williams J,** Williams P. The Australasian Resuscitation In Sepsis Evaluation: FLUID or vasopressors In Emergency Department Sepsis, a multicentre observational study (ARISE FLUIDS observational study): Rationale, methods and analysis plan. *Emerg Med Australas*. 2019;31(1):90-6
9. Judge C, Eley RM, Miyakawa-Liu M, **Brown NJ,** McCosker L, Livesay G, **Hughes JA,** Vallmuur K. The characteristics of accidental injuries from power tools treated at two emergency departments in Queensland. *Emerg Med Australas*. 2019;31(3):436-43
10. **Greenslade JH,** Wallis MC, Johnston A, Carlström E, Wilhelms D, Thom O, et al. Development of a revised Jalowiec Coping Scale for use by emergency clinicians: a cross-sectional scale development study. *BMJ Open*. 2019;9(12):e033053
11. **Greenslade JH,** Wallis M, Johnston ANB, Carlström E, Wilhelms DB, Crilly J. Key occupational stressors in the ED: an international comparison. *Emerg Med J*. 2019(In press)
12. Forbes M, Byrom L, van der Steenstraten I, **Markwell A,** Bretherton H, Kay M. Resilience on the Run – an evaluation of a wellbeing program for medical interns. *Intern Med J*. 2019(In press)

Journals (cont)

13. Elder E, Johnston ANB, Wallis M, **Greenslade JH**, Crilly J. Emergency clinician perceptions of occupational stressors and coping strategies: A multi-site study. *Int Emerg Nurs*. 2019;45:17-24
14. **Duncan J, Brown NJ, Lock C, Trudgett S, Rothwell S, Rosengren D, Hughes JA**. Increasing the rate of documentation of security interventions in the emergency department: big orange security sticker (BOSS) project. *J Nurs Care Qual*. 2019(In Press)
15. **Duncan J, Brown NJ, Hughes JA, Trudgett S, Crilly J, Rothwell S, Rosengren D**. Security interventions are frequently undocumented in emergency department clinical notes. *Emerg Med Australas*. 2019;31(5):797-804
16. du Fay de Lavallaz J, Badertscher P, Nestelberger T, Zimmermann T, Miro O, Salgado E, Christ M, Geigy N, **Cullen L**, et al. B-Type Natriuretic Peptides and Cardiac Troponins for Diagnosis and Risk-Stratification of Syncope. *Circulation*. 2019;139(21):2403-18
17. du Fay de Lavallaz J, Badertscher P, Nestelberger T, Flores D, Miro O, Salgado E, Christ M, Geigy N, **Cullen L**, et al. Circadian, weekly, seasonal, and temperature-dependent patterns of syncope aetiology in patients at increased risk of cardiac syncope. *Europace: European pacing, arrhythmias, and cardiac electrophysiology : journal of the working groups on cardiac pacing, arrhythmias, and cardiac cellular electrophysiology of the European Society of Cardiology*. 2019;21(3):511-21
18. Crilly J, **Greenslade JH**, Johnston A, Carlström E, Thom O, Abraham L, et al. Staff perceptions of the emergency department working environment: An international cross-sectional survey. *Emerg Med Australas*. 2019;31(6):1082-91
19. **Chu K**, Windsor C, Fox J, **Howell T**, Keijzers G, Eley R, Kinnear F, Fury J, Thom O, **Brown NJ, Brown AFT**. Factors influencing variation in investigations after a negative CT brain scan in suspected subarachnoid haemorrhage: a qualitative study. *Emerg Med J*. 2019;36:72-7
20. Bell KJL, Doust J, Glasziou P, **Cullen L**, Harris IA, Smith L, et al. Recognizing the Potential for Overdiagnosis: Are High-Sensitivity Cardiac troponin Assays an Example? *Ann Intern Med*. 2019;170:259-61
21. Badertscher P, du Fay de Lavallaz J, Hammerer-Lercher A, Nestelberger T, Zimmermann T, Geiger M, Imahorn O, Miro O, Salgado E, Christ M, **Cullen L**, et al. Prevalence of Pulmonary Embolism in Patients With Syncope. *J Am Coll Cardiol*. 2019;74(6):744
22. Xu H, Johnston ANB, Greenslade JH, Wallis M, Crilly J. Stressors and coping strategies of emergency department nurses and doctors: A cross-sectional study. *Australasian Emergency Care*. 2019; 22:180-186
23. Nestelberger T, **Cullen L**, Lindahl B, Reichlin T, **Greenslade JH**, Giannitsis E, Christ M, Morawiec B, Miro O, Martín-Sánchez FJ, Wussler DN, ... Mueller C. Diagnosis of acute myocardial infarction in the presence of left bundle-branch block. *Heart*. 2019; 105: 1559-1567
24. Derek P Chew, Kristina Lambrakis, Andrew Blyth, Anil Seshadri, Michael JR Edmonds, Tom Briffa, **Louise A Cullen**, Stephen Quinn, Jonathan Karon, Anthony Chuang, Adam J Nelson, Deborah Wright, Matthew Horsfall, Erin Morton, John K French, Cynthia Papendick. "A Randomized Trial of a 1-Hour Troponin T Protocol in Suspected Acute Coronary Syndromes: The Rapid Assessment of Possible ACS In the Emergency Department with High Sensitivity Troponin T (RAPID-TnT) Study." *Circulation*. 2019;140(19):1543-56
25. Martin P Than, John W Pickering, Yader Sandoval, Anoop SV Shah, Athanasios Tsanas, Fred S Apple, Stefan Blankenberg, **Louise Cullen**, Christian Mueller, Johannes T Neumann, Raphael Twerenbold, Dirk Westermann, Agim Beshiri, Nicholas L Mills, M13 Collaborative. "Machine Learning to Predict the Likelihood of Acute Myocardial Infarction." *Circulation*. 2019;140 (11): 899-909.

2019 Conference Presentations – Invited Speaker, Oral and Poster

Invited Speakers

1. **Hughes J**. Falls in the Emergency Department. Princess Alexandra Hospital Health Symposium; Brisbane, Australia. July 2019
2. **Cullen L**. Cardiac troponin: More than RI and RO acute myocardial infarction (Session Chair: Acute Cardiac Emergencies). European Society of Cardiology Congress; Paris, France. August 2019.

Oral Presentations

1. Vu T, Nguyen A, **Brown N, Hughes J**. Identifying patients with pain in emergency departments using conventional machine learning and deep learning. 17th Annual Workshop of the Australian Language Technology Association; Sydney, Australia. 4-6 December, 2019
2. **Hughes J, Brown N**, Chiu J, **Chu K**. The Contribution of Time To First Analgesic Medication In Emergency Department Length Of Stay. International Conference for Emergency Nursing; Adelaide, Australia. October, 2019
3. **Hills A, Ray M, Hughes JA, Dixon M, Greenslade J, Harper J**, et al. Turning up the volume on suboptimal blood culture collection practices. International Conference for Emergency Nursing; Adelaide, Australia. October, 2019
4. **Hills A, Ray M, Hughes JA, Dixon M, Duncan J, Greenslade J**, et al. Patient factors influencing the quality of blood culture collection in the adult emergency department. International Conference for Emergency Nursing; Adelaide, Australia. October, 2019
5. **Chu K**. Drug treatment of primary headache in an Australian emergency department. 18th International Conference on Emergency Medicine; Seoul, Republic of Korea. 12-15th June, 2019

Poster Presentations

1. Moriarty S, **Brown N**, Waller M, **Chu K**. Vehicle rollover is not an independent predictor of trauma injury severity. Australasian College for Emergency Medicine 36th Annual Scientific Meeting; Hobart. 17-21 November, 2019
2. **Hughes J**, Chiu J, **Brown N, Allwood B, Chu K**. The Contribution of Time To First Analgesic Medication In Emergency Department Length Of Stay. Herston Healthcare Symposium; Brisbane, Australia. September, 2019
3. Chen M, **Chu K**. Outcomes of patients presenting with abdominal pain in the emergency department. Royal Australasian College of Surgeons (RACS) 88th Annual Scientific Congress; Bangkok, Thailand. 6-10th May, 2019

GENETIC HEALTH QUEENSLAND

Genetic Health Queensland (GHQ) is a state-wide service which provides clinical genetics services for all age groups. In addition to frequent participation in educational sessions at RBWH, the Queensland Children's Hospital (QCH) and regional centres, GHQ's contribution to national and international research studies continues to grow.

In 2019, GHQ continued its close involvement in the Australian Genomic Health Alliance (AGHA) (a \$25 million 5-year grant from the NHMRC to preparing Australia for the Genomics Revolution in Healthcare) and have made a significant contribution to the development and success of a number of the Australian Genomics clinical and infrastructure projects. To date, GHQ is participating in most AGHA rare disease and cancer flagships, including but not limited to, ICCOn hereditary cancer (Dr Helen MarFan), Cardiovascular Genetic Disorders (Co-lead: Prof Julie McGaughan), HIDDEN renal (Dr Chirag Patel), KidGen (Dr Chirag Patel) and Acute Care (Dr Chirag Patel). In addition, Prof Julie McGaughan is the state lead for the AGHA National Diagnostic and Research Network and an active member in the subprojects: clinical variant reclassification, National clinical consent (chair), and MSAC application pipeline. Highlights of our AGHA accomplishments for 2019 include: Recruitment of the first rapid WGS trio in Australia for the Acute Care flagship; As at January 2020 we have recruited over 119 participants for the ICCOn, Cardiac, HIDDEN, KIDGEN and Acute Care flagships, making GHQ RBWH one of the highest achieving recruitments sites in Australia; The Australian Genomics National Clinical Genomic Consent Form and accompanying materials were piloted in Queensland and Victoria from January to June this year. These are now available online and are adaptable; and GHQ is also working with PQ and MNHHS on a project to bring WGS to Queensland.

The Cardiovascular Genetics AGHA Flagship, led by GHQ Director Prof Julie McGaughan, started recruiting participants in April this year with the very first participant recruited to the flagship from GHQ, and to date, we have now recruited 48 participants from a target total of 150. Further, a sub-study of this flagship - Investigation of current models of care for genetic heart disease in Australia: A National Clinical Audit, which started at GHQ in late 2018, before being rolled out nationally in the first half of 2019, has now completed data collection. 553 diagnostic cardiac cases were included in the audit across 11 Australian public hospitals. Data analysis and manuscript preparation are now underway.

Prof McGaughan continues to be involved in the Clinical Committee and Disease and Gene Selection Committee of MacKenzie's Mission – A \$20 million research study of reproductive genetic carrier screening for approximately 500 debilitating genetic conditions. National recruitment is being rolled out from January 2020 with recruitment of QLD participants beginning early 2021.

Several other research projects have commenced at Genetic Health Queensland this year including: Association between uterine serous carcinoma and BRCA mutation study, ICCOn Qualitative study, TTNtv penetrance study, Evaluation of Mismatch Repair genetic testing undertaken at Genetic health QLD, a review of the first 11 years of the Cardiac Genetics services at GHQ and ANGELS – Applying Novel Genomic approaches to Early-onset and suspected Lynch Syndrome colorectal and endometrial cancers. Others have now concluded, such as Young people with LI Fraumeni Syndrome and ELSI survey (QGHA).

2019 was a huge year for research at GHQ. Our Clinicians' and Genetic Counsellors' involvement in research and education collaborations has resulted in 28 publications this year as well as presentations at a variety national and international conferences and other health professional groups and non-government organisations. A strong group of research personnel, based at GHQ, are ensuring we continue to build and expand the foundation for ongoing important research collaborations both within the RBWH and with an increasing number of external institutions.

RBWH Research Staff with research roles, positions or appointments: e.g. Coordinators, Fellow, Adjunct and Honorary appointments

Name <i>(RBWH Staff in bold)</i>	Type of Position	FTE	Funding Source <i>(operational/ external/in-kind)</i>	Research Program	Affiliated University/ies
Prof Julie McGaughran	Professor		In-Kind	Australian Genomics Health Alliance (AGHA)	
	Cardiovascular Genetic Disorders Flagship Co-Lead			Mackenzie's Mission (Australian, Reproductive Carrier Screening Project)	
	Committee Member			Better Indigenous Genetic Health (BIG) Project	
	Site PI		In-Kind		UQ
Dr Michael Quinn	Queensland State Project Officer for Australian Genomics	1	External	AGHA	
Dr Lindsay Fowles	Genetic Counsellor for Australian Genomics (Renal flagship)	1	External	AGHA (0.2FTE), KidGen (0.8FTE)	UQ
Ms Rachel Austin	Research Genetic Counsellor, Flagship Coordinator	0.6	External/operational	AGHA – ICConand Cardiac flagship, RBWH Research Foundation, ANGELS, CaPP3, BIG project, ICCon Qual study	
Dr Helen Marfan	Co-Investigator		In-Kind	AGHA, ICCon, ANGELS, CaPP3, USC and BRCA	
Dr Rachel Susman	Co-Investigator		In-Kind	AGHA, ICCon, Genetics of Sebaceous skin lesions	
Dr Chirag Patel	Co-Lead QLD Renal Genetic Program		In-Kind	KidGen Collaborative, AGHA Renal Genetics and HIDDEN Flagships	
	Acute Care Flagship state-Lead		In-Kind	AGHA Acute Care Flagship	
	Project PI		External	QGHA Cardiac Flagship	
Ms Linda Wornham	AGHA Cardiac Genetic counsellor	0.3	External	AGHA Cardiac flagship	
A/Prof Andrew Mallett	Clinical Fellow, Co-Lead QLD Renal Genetics Program, National Director AGHA			KidGen Collaborative, AGHA Renal Genetics and HIDDEN Flagships	UQ
Ms Jan Wakeling	Research Genetic Counsellor		In-kind	AGHA ICCon flagship, ANGELS	
Dr Megan Higgins	Principle Investigator		In-kind	Evaluation of Mismatch Repair (MMR) genetic testing undertaken at Genetic Health Queensland	
Dr Jonathan Rodgers	Principle Investigator		In-kind	A review of the first 11 years of the Cardiac Genetics service at Genetic Health Queensland	
Dr Mohammad Al-Shinnag	Co-Investigator		In-Kind	Association between uterine serous carcinoma and BRCA mutation (USC and BRCA)	
Ms Julie White	Genetic counsellor Research	0.4	Operational	USC & BRCA, AGHA ICCon, ANGELS, BIG project	
Dr Karin Van Spaendonck-Zwarts	Co-investigator		In-Kind	AGHA Cardiac Flagship, TTNtv penetrance study	
Ms Melanie Tom	Genetic counsellor	0.2	External	AGHA Mitochondrial and Brain Malformation flagships (ended 30 June 2019)	

Current RBWH Research Group / Department Led Research Activity

RBWH Research Group / Department Led Researchers <i>(RBWH staff in bold)</i>	Collaborative Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
Prof Julie McGaughan	Prof Chris Semsarian (<i>Co lead</i>), AGHA Flagship, Linda Wornham (<i>GC</i>), Rachel Austin (<i>Coord</i>), Dr Michael Quinn (<i>PO</i>), Dr Karin Van Spaendonck-Zwarts	Cardiovascular Genetic Disorders Flagship (AGHA)
A/Prof Andrew Mallett	Prof Julie McGaughan , Dr Chirag Patel , AGHA Renal Flagship	Applying genomics to inherited tubulointerstitial and cystic kidney diseases in Australia (RBWH Foundation research grant)
A/Prof Andrew Mallett	Andrew Mallett , Mohammad Al-Shinnag , Helen Mar Fan , Rachel Susman	Clinical audit of BHD, HLRCC and VHL at RBWH
A/Prof Andrew Mallett	AGHA Renal Flagship, Dr Chirag Patel (<i>CI</i>), Prof Julie McGaughan (<i>PI</i>), Dr Lindsay Fowles (<i>GC</i>)	KidGen—renal genetics flagship (HIDDEN)
Dr Megan Higgins	Helen Mar Fan	Evaluation of Mismatch Repair (MMR) genetic testing undertaken at Genetic Health Queensland
Dr Mohammad Al-Shinnag , Dr Helen MarFan	Dr Jonas Bjorkman, Dr Shu Fen Lee	Association between uterine serous carcinoma and BRCA mutation (USC and BRCA)
Dr Jonathan Rodgers	Prof. Julie McGaughan	A review of the first 11 years of the Cardiac Genetics service at Genetic Health Queensland

Collaborative Research Activity involving RBWH Research Group / Department

Collaborative Led Researchers	RBWH Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
Prof Kathryn North	Prof Julie McGaughan	Australia Genomics Health Alliance (AGHA)
AGHA ICon Cancer Flagship	Prof Julie McGaughan , Dr Helen Marfan , Rachel Austin , Dr Rachel Susman , Jan Wakeling (<i>GC</i>), Julie White (<i>GC</i>)	AGHA: Preparing Australia for genomic medicine
A/Prof Zornitza Stark, Dr Sebastian Lunke	Dr Chirag Patel , Prof Julie McGaughan , Dr Michael Quinn	AGHA Acute Care flagship
Prof Ingrid Winship (<i>Led</i>)	Dr Rachel Susman	Genetics of Sebaceous Skin Lesions Study
BIG project team – Prof Margaret Kelaher (<i>Led</i>)	Julie McGaughan (<i>PI</i>), Julie White , Rachel Austin (<i>CRA</i>)	Better Indigenous Genetic (BIG) Health Services
ICon Partnership (<i>Led by Paul James and Gillian Mitchell</i>)	Prof Julie McGaughan , Dr Rachel Susman , Rachel Austin	<ol style="list-style-type: none"> 1. The Inherited Cancer Connect (ICon) database: a national database of carriers of germline mutations in cancer predisposition genes predisposing to hereditary cancer syndromes. 2. Evaluation of the eviQ genetic testing guidelines and risk-management for people with hereditary cancer syndromes: Audit of Familial Cancer Clinics (eviQ project)
IMRC (<i>Led by Jeanette Reece</i>)	Rachel Susman , Rachel Austin	A worldwide study of cancer risk for Lynch syndrome, as part of the International Mismatch Repair Consortium (IMRC)
IMPACT (<i>Led by Geoffrey Lindeman</i>)	Rachel Susman	Identification of Men with a genetic predisposition to Prostate Cancer: Targeted screening in men at higher genetic risk and controls (IMPACT)
kConFab (<i>Led by Stephen Fox</i>)	Julie McGaughan	The Kathleen Cunningham National Research Consortium For Research on Familial Breast Cancer
QIMR-Berghofer (<i>Led by Barbara Leggett</i>)	Helen Mar Fan	Identification of the Gene Causing Hereditary Flat Adenoma Syndrome (RBWH Research Foundation grant)
Prof Finlay Macrae (<i>Led</i>)	Dr Helen Marfan (<i>PI</i>), Rachel Austin (<i>CRA</i>)	A randomised double-blind dose noninferiority. Trial of aspirin in Lynch syndrome. CaPP3
QGHA ELSI working group, Dr Miranda Vidgen (<i>Led</i>)	Prof Julie McGaughan (<i>PI</i>)	The use of genomic data from medical records in research: Patient opinion survey (ELSI sub study)
A/Prof Dan Buchanan	Dr Rachel Susman , Dr Helen Marfan , Jan Wakeling , Rachel Austin , Julie White	ANGELS: Applying Novel Genomic approaches to Early-onset and suspected Lynch Syndrome colorectal and endometrial Cancer
Prof Bettina Meiser	Dr Rachel Susman , Rachel Austin	A qualitative study to explore patient attitudes and system enablers to establishing a national genomics registry of inherited cancer predisposition
Prof Diane Fatkin	Dr Karin van Spaendonck-Zwarts	Molecular Mechanisms of Inherited Cardiomyopathies and Arrhythmias (TTNtv Penetrance study)

Research Grants

Investigators <i>(RBWH staff in bold)</i>	RBWH Research Groups / Departments	Project Title	Granting Body	Total of funds awarded	Funds used in 2019	Years
Andrew Mallett, Chirag Patel, Julie McGaughran	Renal department, GHQ	Applying genomics to inherited tubulointerstitial and cystic kidney diseases in Australia	RBWH Foundation	\$40,000	\$40,000	2019
Julie McGaughran (CI)	GHQ	AGHA: Preparing Australia for Genomic Medicine	NHMRC	Nationally \$5 million annually for 5 years	Difficult to calculate at this stage	2016-2021
Dr Jonas Borkman, Dr Helen Marfan , Dr Shu Fen Lee	GHQ, Pathology Queensland	Association between uterine serous carcinoma and BRCA mutation	SERC	\$21,600	Approx. \$5400	2019-2020
Dr Rachel Susmant	GHQ	A qualitative study to explore patient attitudes and system enablers to establishing a national genomics registry of inherited cancer predisposition (ICCon partnership)	Cancer Council NSW	\$33,632.50	0	2019-2020
Dr Chirag Patel	GHQ	Clinical whole genome sequencing in the diagnosis of paediatric genetic disorders	QGHA	\$975,600	0	2019-2021

2019 Research Publications

Journal Articles

- Akinrinade, O., Heliö, T., Lekan Deprez, R. H., Jongbloed, J. D. H., Boven, L. G., van den Berg, M. P., . . . **Spaendonck-Zwarts, K. Y. v.** . . . Koskenvuo, J. (2019). Relevance of Titin Missense and Non-Frameshifting Insertions/Deletions Variants in Dilated Cardiomyopathy. *Scientific Reports*, 9(1), 4093
- Assia Batzir, N., Kishor Bhagwat, P., Larson, A., Coban Akdemir, Z., Baglaj, M., Bofferding, L., **Fan, H. M.** . . . Wangler, M. F. Recurrent Arginine Substitutions in the ACTG2 Gene are the Primary Driver of Disease Burden and Severity in Visceral Myopathy. *Human Mutation*
- Beal, B., Hayes, I., **McGaughran, J.**, Amor, D. J., Miteff, C., Jackson, V., . . . Goel, H. (2019). Expansion of phenotype of DDX3X syndrome: six new cases. *Clinical Dysmorphology*, 28(4), 169-174
- Borowsky, J., Setia, N., Rosty, C., Conrad, R., **Susman, R.**, Misdraji, J., . . . Brown, I. S. (2019). Spectrum of gastrointestinal tract pathology in a multicenter cohort of 43 Cowden syndrome patients. *Modern Pathology*, 32(12), 1814-1822. doi:10.1038/s41379-019-0316-7
- Bredrup, C., Stokowy, T., **McGaughran, J.**, Lee, S., Sapkota, D., Cristea, I., . . . Houge, G. (2019). A tyrosine kinase-activating variant Asn666Ser in PDGFRB causes a progeria-like condition in the severe end of Penttinen syndrome. *European Journal of Human Genetics*, 27(4), 574-581
- Chan, S., **Patel, C.**, & Mallett, A. J. (2019). Pilot clinical and validation study of the PROPCKD score in clinical practice amongst patients with Autosomal Dominant Polycystic Kidney Disease. *Nephrology*
- Cogné, B., Ehresmann, S., Beaugard-Lacroix, E., Rousseau, J., Besnard, T., Garcia, T., . . . **McGaughran, J.** . . . Campeau, P. M. (2019). Missense Variants in the Histone Acetyltransferase Complex Component Gene TRRAP Cause Autism and Syndromic Intellectual Disability. *The American Journal of Human Genetics*, 104(3), 530-541
- Cowan, J., **Spaendonck-Zwarts, K. Y. v.**, & Hershberger, R. E. (2019). Dilated Cardiomyopathy. In *Clinical Cardiogenetics* (3rd ed.)
- Gabbett, M. T., Laporte, J., Sekar, R., Nandini, A., **McGrath, P.**, Sapkota, Y., . . . Fisk, N. M. (2019). Molecular Support for Heterogonesis Resulting in Sesquizygotic Twinning. *The New England Journal of Medicine*, 380(9), 842-849
- Giudice-Naim, P., Downs, J., Wong, K., Wilson, D., Ta, D., **Gattas, M.**, . . . Leonard, H. (2019). The incidence, prevalence and clinical features of MECP2 duplication syndrome in Australian children. *Journal of Paediatrics And Child Health*, 55(11), 1315-1322
- Gröbner, R., Kapferer-Seebacher, I., Amberger, A., Redolfi, R., Dalonneau, F., Björck, E., . . . **Milnes, D.** . . . Zschocke, J. (2019). C1R Mutations Trigger Constitutive Complement 1 Activation in Periodontal Ehlers-Danlos Syndrome. *Frontiers in Immunology*, 10(2537)
- Haas, M. A., Boughtwood, T. F., **Quinn, M. C.**, & Genomics, A. (2019). The ethics approval process for multisite research studies in Australia: changes sought by the Australian Genomics initiative. *The Medical Journal of Australia*, 211(10), 440-444.e441
- Higgins, M., Fan, H. M., & McGaughran, J.** (2019). NF1, How to Treat. *Australian Doctor*
- Jansen, M., Baas, A. F., **Spaendonck-Zwarts, K. Y. v.**, Ummels, A. S., Wijngaard, A. v. d., Jongbloed, J. D. H., . . . Dooijes, D. (2019). Mortality Risk Associated With Truncating Founder Mutations in Titin. *Circulation: Genomic and Precision Medicine*, 12(5)
- Jansweijer, J. A., **van Spaendonck-Zwarts, K. Y.**, Tanck, M. W. T., van Tintelen, J. P., Christiaans, I., van der Smagt, J., . . . Pinto, Y. M. (2019). Heritability in genetic heart disease: the role of genetic background. *Open Heart*, 6(1)

Journal Articles (cont)

16. Jayasinghe, K., Stark, Z., **Patel, C.**, Mallawaarachchi, A., McCarthy, H., Faull, R., . . . Mallett, A. J. (2019). Comprehensive evaluation of a prospective Australian patient cohort with suspected genetic kidney disease undergoing clinical genomic testing: a study protocol. *BMJ Open*, 9(8)
17. Jayasinghe K, Quinlan C, Stark Z, Patel C, Mallawaarachchi A, Wardrop L, Kerr PG, Trnka P, Mallett AJ; KidGen Collaborative. Renal Genetics in Australia: Kidney Medicine in the Genomic Age. *Nephrology (Carlton)* (2019) 24:279-286
18. Kanca, O., Andrews, J. C., Lee, P.-T., **Patel, C.**, Braddock, S. R., Slavotinek, A. M., . . . Malicdan, M. C. V. (2019). De Novo Variants in WDR37 Are Associated with Epilepsy, Colobomas, Dysmorphism, Developmental Delay, Intellectual Disability, and Cerebellar Hypoplasia. *The American Journal of Human Genetics*, 105(2), 413-424
19. Karolak, J. A., Szafranski, P., Kilner, D., **Patel, C.**, Scurry, B., Kinning, E., . . . Stankiewicz, P. (2019). Heterozygous CTNNB1 and TBX4 variants in a patient with abnormal lung growth, pulmonary hypertension, microcephaly, and spasticity. *Clinical Genetics*, 96(4), 366-370
20. Kennedy J, Goudie D, Blair E... **Patel C**, et al. KAT6A Syndrome: genotype-phenotype correlation in 76 patients with pathogenic KAT6A variants. *Genet Med* (2019) 21:850-860
21. Mallett, A. J., Quinlan, C., **Patel, C.**, Fowles, L., Crawford, J., **Gattas, M.**, . . . Simons, C. (2019). Precision Medicine Diagnostics for Rare Kidney Disease: Twitter as a Tool in Clinical Genomic Translation. *Kidney Medicine*, 1(5), 315-31
22. Page, E. C., Bancroft, E. K., Brook, M. N., Assel, M., Hassan Al Battat, M., Thomas, S., . . . **Susman, R.**, Eeles, R. A. (2019). Interim Results from the IMPACT Study: Evidence for Prostate-specific Antigen Screening in BRCA2 Mutation Carriers. *European Urology*, 76(6), 831-842
23. Parsons, M. T., Tudini, E., Li, H., Hahnen, E., Wappenschmidt, B., Feliubadaló, L., **Austin, R.**... **Susman, R.**... Spurdle, A. B. (2019). Large scale multifactorial likelihood quantitative analysis of BRCA1 and BRCA2 variants: An ENIGMA resource to support clinical variant classification. *Human Mutation*, 40(9), 1557-1578
24. Pennings, M., Schouten, M. I., van Gaalen, J., Meijer, R. P. P., de Bot, S. T., Kriek, M., . . . **van Spaendonck-Zwarts, K.**... Kamsteeg, E.-J. (2020). KIF1A variants are a frequent cause of autosomal dominant hereditary spastic paraplegia. *European Journal of Human Genetics*, 28(1), 40-49
25. Sekiguchi, F., Tsurusaki, Y., Okamoto, N., Teik, K. W., Mizuno, S., Suzumura, H., . . . **Patel, C.**, Matsumoto, N. (2019). Genetic abnormalities in a large cohort of Coffin–Siris syndrome patients. *Journal of Human Genetics*, 64(12), 1173-1186
26. Škorić-Milosavljević, D., Tjong, F. V. Y., Barc, J., Backx, A. P. C. M., Clur, S.-A. B., **van Spaendonck-Zwarts, K.**, . . . Postma, A. V. (2019). GATA6 mutations: Characterization of two novel patients and a comprehensive overview of the GATA6 genotypic and phenotypic spectrum. *American Journal of Medical Genetics. Part A*, 179(9), 1836-1845
27. Stark, Z., Nisselle, A., McClaren, B., Lynch, F., Best, S., Long, J. C., . . . **Patel, C.**... Gaff, C. L. (2019). Attitudes of Australian health professionals towards rapid genomic testing in neonatal and paediatric intensive care. *European Journal of Human Genetics*, 27(10), 1493-1501
28. van Gaalen, J., Maas, R. P. P. W. M., Ippel, E. F., Elting, M. W., **van Spaendonck-Zwarts, K. Y.**, Vermeer, S., . . . van de Warrenburg, B. P. (2019). Abnormal eyeblink conditioning is an early marker of cerebellar dysfunction in preclinical SCA3 mutation carriers. *Experimental Brain Research*, 237(2), 427-433
29. Westra, D., Schouten, M. I., Stunnenberg, B. C., Kusters, B., Saris, C. G. J., Erasmus, C. E., . . . **van Spaendonck-Zwarts, K. Y.** Voermans, N. C. (2019). Panel-Based Exome Sequencing for Neuromuscular Disorders as a Diagnostic Service. *Journal of neuromuscular diseases*, 6(2), 241-258.

Book Chapters / Letters

1. Jason R. Cowan, **Karin Y. van Spaendonck-Zwarts** and Ray E. Hershberger. (2019) Dilated Cardiomyopathy. Clinical Cardiogenetics, 3rd edition.

Conference Presentations – Invited Speaker, Oral and Poster

Invited Speakers

1. **McGrath, P.** Screening and Diagnosis in Pregnancy. Metro North GP Alignment Programme, 2019
2. **McGrath, P.** Genetic Carrier Screening. Department of Obstetric Medicine, 2019
3. **Fowles, L.** Genetic conditions: Introduction to family histories and inheritance patterns. Orthoptics Australia Queensland Branch Education Day, 2019
4. **Marfan, H.** Opportunities and challenges of practicing cancer genetics in the digital age. QLD Health Cancer Forum 2019: transforming care in the digital age, 2019
5. **Higgins, M.** TSC – genetics, features, management and how to access genetic services. Tuberous Sclerosis support day presentation, 2019
6. **Sane, V.** Neuroendocrine tumours and genetic testing. Unicorn Foundation meeting, 2019
7. **Marfan, H.** Update from the GHQ Cancer Genetics Service: Endocrinology. SEQ Adult Endocrinology education meeting, 2019
8. **Ryan, Bree.** Genetic counselling. Robina Health Precinct, 2019
9. **Patel, Chirag.** Genetic Kidney Disease (+Genetic Testing). ANZSN Trainee Course, 2019
10. **Higgins, M.** Genetic Health Queensland referral pathway. Indigenous Genomics Health Literacy Project, 2019
11. **Patel, C.** Growth disorders and genomics. Paediatric endocrine education meeting, 2019
12. **Fowles, L.** Clinical Genetics: How to access? What to expect? Ethnic Communities Council of Queensland, 2019.

Invited Speakers (cont)

13. **Higgins, M.** Impact of genomics on clinical care. Pathology Queensland Genomics workshop, 2019
14. **Milnes, D.** Ethical issues in preconception carrier screening. Fertility Society of Australia conference (international), 2019
15. **Sane, V.** Cancer genetics. Cancer Care Workshop, The Prince Charles Hospital, 2019
16. **Fowles, L.** Role of genetic counselling in ADPKD. Australian and New Zealand Scientific Meeting on Polycystic Kidney Disease (ANZ-PKD), 2019
17. **Marfan, H.** Mainstreaming of genetic testing for breast cancer patients. PAH Breast Surgical Dept, 2019
18. **Berkman, J.** Decision-making in predictive testing for neurodegenerative disorders. HGSA Qld branch meeting, 2019
19. **McGaughran, J.** Introduction to ethics of genetic testing in Australia (vs USA). RCPA Introductory short course in genetics and molecular pathology, 2019
20. **McGaughran, J** and Ingles, J. Constitutional Cardiomyopathy. RCPA Introductory short course in genetics and molecular pathology, 2019.

Oral Presentations

1. **McGaughran, J., Austin, R.** Current models of care for genetic heart disease: A national clinical audit. Cardiovascular flagship F2F meeting 2019. Melbourne
2. **Patel, C.** Personalised medicine: every bodies' business? World Science festival Brisbane 2019. Brisbane
3. **Susman, R.** Genetics and GI Tract cancer predisposition syndromes. Gastroenterological Nurses College of Australia National Conference 2019, Melbourne
4. **Milnes, D.** Incorporating preconception carrier screening into your practice – implementation of the revised RANZCOG statement for prenatal screening. RANZCOG Bush to Beach conference 2019. Gold Coast
5. **Fowles, L.** Workshop: Urgent genetic counselling in intensive care: An interactive workshop of cases from Australian Genomics Acute Care project. Presenters: Dr Michelle de Silva, A/Prof Zornitza Stark, Dr Lindsay Fowles, Ms Tenielle Davis, Ms Gemma Brett, 2019 Melbourne
6. **MarFan, H.** Familial Leukemia and Variants of Uncertain Significance (chair). Familial Aspects of Cancer Research and Practice Family Cancer Clinic Day 2019. Kingscliff
7. **McGaughran, J., Samsarian, C.** Cardiovascular Genetic Disorders Mega Flagship. Genomics in Australian Healthcare: Foundations To Future 2019. Melbourne
8. **Patel, C.** Clinical genome sequencing in paediatric genetic disorders. Herston Healthcare symposium 2019. Brisbane
9. **Fowles, L.** Genetic testing consent and counselling: Considerations when personalising diagnosis and management. Herston State of the Art Healthcare Symposium 2019. Brisbane
10. **MarFan, H.** Breast cancer MDT session (panellist). RBWH GP Symposium 2019. Brisbane
11. **MarFan, H.** Genetics and reconstruction: Controversial indications for risk reducing mastectomy. Australian Society for Breast Disease; 12th Scientific meeting - Precision, Innovation and the Future 2019. Gold Coast.

Poster Presentations

1. Tundini, E...**MarFan, H.** Implementing Gene Curation for Hereditary Cancer Susceptibility in Australia: Achieving Consensus on Genes with Clinical Utility. ACMG April 2019. Seattle, USA
2. **Sane, V., Mar Fan, H.** Overview of ASAP Clinic: New management approach to action urgent oncology referrals at Genetic Health Queensland. BDHP cancer seminar 28 May 2019. And kConFab 1 August 2019
3. **Rodgers, J., McGaughran, J.** 12 years of the Queensland Cardiac Genetics Clinic. ESHG, 15-18 June 2019, Gothenburg
4. U. Dressel, A. Davidson, N.Waddell, J. Pearson, Emma Tadini, A.B Spurdle, **H. Mar Fan**, P.A. James, G. Mitchell, ICon and Ward R.L. The Australian Genomics Hereditary Cancer Flagship: Where we are and where we are going. August 2019, Kingcliffe
5. **Higgins, M., MarFan, H.** Does universal immunohistochemistry for mismatch repair proteins increase the yield of pathogenic variants detected in Lynch Syndrome? HGSA, 3 August 2019, Wellington, NZ
6. Kaur, S...**Milnes, D.** Kinesinopathies: Emerging role in mutation negative Rett and Rett-like patients. ASHG Annual Meeting, 15-19 October 2019. Houston, USA
7. Davidson, A., Dressel, U., **Marfan, H., et al.** The Australian Genomics and Hereditary Cancer Connect Hereditary Cancer Syndrome Project. Biomed Link RHD Symposium November 2019. Melbourne.

HYPERBARIC MEDICINE

Highlights included collaboration with international researchers to design a global outcome registry and collaboration with University of Tasmania and Royal Hobart Hospital to further develop a national data registry of outcomes. Both the steering committees are being developed in tandem to ensure the data dictionaries are common to both. The National registry is at beta testing stage and featured at our National Scientific Conference in Sydney.

Additionally, we have designed a multicentre randomised controlled trial which is a collaboration between four State units looking into the use of Hyperbaric Oxygen treatment in Idiopathic Sudden Sensorineural Hearing Loss. This is a collaborative effort with ENT and Hyperbaric Physicians across Australia.

Supervised Post-Graduate Research Students

Name <i>(RBWH staff in bold)</i>	Current Studies <i>(e.g. PhD, Masters etc.)</i> University <i>(duration)</i>	Research Project Title	Supervisors <i>(RBWH staff in bold)</i>
Yena Huang	Diploma of Diving and Hyperbaric Medicine	HBOT in radiation induced cystitis at RBWH; a retrospective outcome analysis	Susannah Sherlock

RBWH Research Staff with research roles, positions or appointments: e.g. Coordinators, Fellow, Adjunct and Honorary appointments

Name <i>(RBWH Staff in bold)</i>	Type of Position	FTE	Funding Source <i>(operational/ external/in-kind)</i>	Research Program	Affiliated University/ies
Yena Hwang	Honorary			Teaching and Hyperbaric Med	University of Queensland
Dr Susannah Sherlock	Senior Clinical Lecturer	0.25	Operational	HBOT in Idiopathic Sudden Sensorineural Hearing Loss	University of Queensland

Current RBWH Research Group / Department Led Research Activity

RBWH Research Group / Department Led Researchers <i>(RBWH staff in bold)</i>	Collaborative Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
Dr Susannah Sherlock	Prof M Bennett (<i>POW, Sydney</i>), Dr Sharon Kelly (<i>RBWH ENT</i>), Dr N Banham (<i>FSH, Perth</i>), Dr David Kramer , Dr A Tabah, Dr D Cooper (<i>Tas</i>), Dr A Fock (<i>Alfred, Melb</i>), Dr C Jelliffe (<i>Townsville</i>) Ms Mandy Way, Ms Carla Rose	Steroids and Hyperbaric Oxygen for Sudden Sensorineural Hearing Loss (SHOOSH): a randomised controlled trial
Dr Susannah Sherlock	Prof M Bennett	Steroids and Hyperbaric Oxygen for Sudden Sensorineural Hearing Loss (SHOOSH): a pilot study to calculate sample size for RCT
Dr Susannah Sherlock	Robyn Verghese	Audit of referral patterns for use of Hyperbaric Oxygen Treatment (HBOT) for Idiopathic Sudden Sensorineural Hearing Loss (ISSHL) in Australia and New Zealand 2010-2015

Collaborative Research Activity involving RBWH Research Group / Department

Collaborative Led Researchers	RBWH Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
Dr Susannah Sherlock	Dr Sharon Kelly (<i>ENT surg</i>), Ms Carla Rose (<i>Audiology</i>), Ms Mandy Way (<i>QIMR Berghoffer</i>)	Steroids and Hyperbaric Oxygen for Sudden Sensorineural Hearing Loss (SHOOSH): a randomised controlled trial
Dr Susannah Sherlock	Ms Martha Zakrewski (<i>QIMR</i>)	Randomised controlled trial of effect of Hyperbaric Oxygen Treatment on saliva microbiome in patients with xerostomia after radiotherapy for head and neck cancer

Research Grants

Investigators <i>(RBWH staff in bold)</i>	RBWH Research Groups /Departments	Project Title	Granting Body	Total of funds awarded	Funds used in 2019	Years
Dr Susannah Sherlock	Hyperbaric Med	Randomised controlled trial of effect of Hyperbaric Oxygen Treatment on saliva microbiome in patients with xerostomia after radiotherapy for head and neck cancer	ANZCA	\$20,000	nil	2014-2019

2019 Conference Presentations – Invited Speaker, Oral and Poster

Poster Presentations

1. **S Sherlock**, Audit of Practice in Australasian hyperbaric units on the incidence of central nervous system oxygen toxicity. *HTNA conf Aug 2019 Sydney Australia*.

INTENSIVE CARE SERVICES

It was a highly successful year for research productivity and growth within the department. Professor Kevin Laupland was recruited from Canada to become the new Director of Research, Intensive Care Services, RBWH and QUT. Professor Laupland's research interests include the epidemiology and outcome of critical illness with a focus on severe infections especially bloodstream infections. The departmental research output was evidenced by more than 60 publications. These included two publications in the *New England Journal of Medicine* (SPICE III Prof Michael Reade and vena cava filters in trauma Dr Anthony Holley and Prof Jeffrey Lipman). Research funding awarded by department members exceeded 1 million dollars. Collaborative research involving multiple disciplines was evident locally, nationally, and internationally.

Local efforts were extensively supported by the RBWH Research Staff including the multi-centred BLING III study that is the largest clinical trial investigating antibiotic dosing in serious infections. The **CaBoOM** collaboration between **C**algary, **B**risbane, **H**ong Kong, **N**ew **O**rleans (Ochsner), and **N**imes-**M**ontpellier was established with the first study (Attire) initiated. Departmental members played a major role in the supervision of advanced research trainees. Notably RBWH intensivists Drs. Judith Bellapart and Jayesh Dhanani were awarded PhD degrees and have been successful at acquiring research funding to support their career advancement (MNHHS Fellowship Grant Dr. Jayesh Dhanani, MNHHS-QUT Project grants (Dr. Judith Bellapart). Professor Jason Roberts named Australia's leading researcher in both the Communicable Diseases and Critical Care categories in The Australian's 2019 Research magazine. Professor Jeffrey Lipman conferred title of Fellow of the International Society of Antimicrobial Chemotherapy.

Supervised Post-Graduate Research Students

Name <i>(RBWH staff in bold)</i>	Current Studies <i>(e.g. PhD, Masters etc.)</i> University <i>(duration)</i>	Research Project Title	Supervisors <i>(RBWH staff in bold)</i>
David Mackintosh	ICU SR	Febrile neutropenia in cancer patients admitted to ICU: an analysis of short and long term outcomes according to ventilation strategy	Jayesh Dhanani, Michael Reade
Meyrelle Fernandes	ICU SR	Safety and efficacy of a novel computerised insulin protocol in the ICU: a retrospective analysis CICM project	Jayesh Dhanani, David Liu
Elissa Milford	PhD, UQ, 6 years	Effects on the glycocalyx of resuscitation with immunomodulatory drugs and cryopreserved blood products in preclinical and clinical trauma	Michael Reade, Tung, Dean
Gabrielle Simonova	PhD, UQ, 3 years	Effect of storage conditions and duration on the clinical effect of platelet and red blood cell transfusion	Michael Reade, Dean, Tung
Paul Lee-Archer	PhD, UQ, 5 years	A randomised controlled trial of dexmedetomidine to lessen postoperative agitation in children undergoing elective surgery or radiology	Michael Reade, Long, Sternberg
Adam Mahoney	PhD, UQ, 6 years	Observational studies of critical care practice in the management of severe burns patients in Australia and New Zealand	Michael Reade, Vallmuur, Cameron
Anthony Holley	PhD, UQ, 6 years	Observational studies of critical care practice in the management of severe burns patients in Australia and New Zealand	Jeremy Lipman, J Cohen, Michael Reade, Vallmuur, Cameron
Andrew Flint	PhD, Monash, 6 years	Retrospective analysis of the effect of platelet transfusion on infection complications in critical illness	Michael Reade, Zoe McQuilten, Elizabeth Wood
Gavin Day	MPH, QUT, 2 years	Does a supervisor's leadership have an effect on burnout in Army clinicians? A multivariable analysis of two validated survey instruments	Michael Reade
Patrick Biggins	MD, UQ, 2 years	Does delay to neurosurgical intervention after trauma affect outcome? If so, what (if any) delay is acceptable? Analysis of Queensland Health data	Michael Reade, Vallmuur, Cameron
Jordan Wiebe	MD, UQ, 2 years	An audit of off-label medications in Australian critical care practice	Michael Reade, Jeffrey Lipman
Cody Frear	MD/PhD, UQ, 6 years	A bibliometric analysis of Australian intensive care medicine academic output, 2000-2018	Michael Reade
Terrance English	MBBS, Deakin	Predictors of platelet transfusions in cardiac surgical patients	Michael Reade, Zoe McQuilten

Current RBWH Research Group / Department Led Research Activity

RBWH Research Group / Department Led Researchers <i>(RBWH staff in bold)</i>	Collaborative Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
J Lipman, J Dulhunty, J Roberts, T Starr	O Cotta (UQ), Associate Professor Joshua Davis (John Hunter Hospital, NSW), Professor Jan De Waele (Ghent University), Professor Simon Finfer, Dr Parisa Glass, Professor John Myburgh, Ms Dorrilyn Rajbhandari, Dr Colman Taylor (The George Institute) Dr Shay McGuinness (Auckland City Hospital), Professor Sandra Peake (The Queen Elizabeth Hospital), Dr Andrew Rhodes (St George's Healthcare NHS Trust), Dr Charudatt Shirwadkar (Blacktown Hospital, NSW)	BLING III Study A phase III randomised controlled trial of continuous beta-lactam infusion compared with intermittent beta-lactam dosing in critically ill patients
J Lipman, J Roberts	O Cotta (UQ)	Optimising ceftriaxone dosing for critically ill patients with severe pneumonia
J Lipman, J Roberts		An Observational Pharmacokinetic study of Ceftolozane-Tazobactam in Intensive Care Unit in patients with and without continuous renal replacement therapy.
J Lipman, J Roberts	N Kumta (Q Health)	"A prospective observational pharmacokinetic evaluation of the plasma and cerebrospinal fluid concentrations of a single dose ceftolozane/tazobactam in infected critically ill patients with an indwelling external ventricular drain"
G Pang, J Pincus	S O'Donoghue, R Roach (Q Health)	An Observational Study to assess aspiration risk using gastric ultrasound in ventilated ICU patients prior to extubation
J Lipman	S Parker, S Wallis (UQ)	Validation of microsampling versus traditional blood sampling for antibiotic pharmacokinetics
J Cohen, D Lui, A Livermore, M Reade J Roberts	A Humbert (UQ), N Reza (TPCH), A Udy (The Alfred)	Pharmacokinetics of Transdermal Nicotine replacement therapy patches in the ICU: A prospective observational pharmacokinetic study of nicotine/cotinine concentrations in critically ill smokers receiving transdermal NRT patches
N Kumta, J Lipman, J Roberts		The Pharmacokinetics of Ceftriaxone, Meropenem, Piperacillin-Tazobactam and Vancomycin in the Cerebrospinal Fluid of Critically Ill Patients with Uninflamed Meninges
J Cohen, G Nethathe		A Comparison of the Total and Free Cortisol Response to a Standard Short Synacthen Test in Patients with Traumatic Brain Injury
J Cohen	A/Prof Antje Blumenthal (UQ), Prof Bala Venkatesh, Dr James Walsham (Qld Health)	HREC/18/QRBW/290: Examining the WNT pathway in sepsis Winter
D Lui, ICS Research Coordination team, M Reade, J Pincus, E Hallt, L Dalgleish, K Herbst	A Humbert (UQ)	Project ID: 44026 A randomised, double-blind, single-centre, placebo-controlled trial of low-dose clonidine infusion to improve sleep in postoperative patients in the High Dependency Unit CLONES

Collaborative Research Activity involving RBWH Research Group / Department

Collaborative Led Researchers	RBWH Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
Adelaide Charlton	N Widdecombe	Validation of a 10-minute spontaneous breathing trial to predict time to circulatory death in organ donation candidates
J Winearls (Qld Health)	A Holley	Fibrinogen Concentrate vs. Cryoprecipitate in under 18-year olds
Professor Stephen Bernard Australian and New Zealand Intensive Care Research Centre	M Reade, A Holley	Pre-hospital Anti-fibrinolytics for Traumatic Coagulopathy and Haemorrhage (The PATCH Study) A multi-centre randomised, double-blind, placebo-controlled trial of pre-hospital treatment with tranexamic acid for severely injured patients at risk of acute traumatic coagulopathy

Collaborative Research Activity involving RBWH Research Group / Department (cont)

Collaborative Led Researchers	RBWH Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
The George Institute of Health	J Lipman	A multi-centre, blinded, randomised, controlled trial (RCT) to determine whether fluid resuscitation and therapy with a “balanced” crystalloid solution (Plasma-Lyte 148®) decreases 90-day mortality in critically ill patients requiring fluid resuscitation when compared to the same treatment with 0.9% sodium chloride (saline)
K Denny	J Lipman	Recognising Sepsis in SIRS Trial (RESIST)
E Raby (<i>WA Health</i>)	J Lipman, C Heney	Evolution of Beta lactam resistance in pseudomonas aeruginosa during treatment of major burn injury
G Eastwood Australian and New Zealand Intensive Care Research Centre	M Reade	Targeted Therapeutic Mild Hypercapnia After Resuscitated Cardiac Arrest A Phase III Multi-Centre Randomised Controlled Trial
Australian and New Zealand Intensive Care Research Centre	J Lipman	HREC/18/CALHN/443 Nutrition prescription in Australian and New Zealand intensive care units: A point-prevalence audit
Merck Sharp and Dohme (<i>Australia</i>) Pty Limited	J Lipman, J Gowardman	A Phase III, Randomized, Double-Blind, Active Comparator-Controlled Clinical Trial to Study the Safety, Tolerability, and Efficacy of Imipenem/ Cilastatin/Relebactam (MK-7655A) Versus Piperacillin/Tazobactam in Subjects with Hospital-Acquired Bacterial Pneumonia or Ventilator-Associated Bacterial Pneumonia
K Chu (<i>Qld Health</i>)	J Lipman	Timing of Lumbar puncture for the detection of xanthochromia in subarachnoid haemorrhage
Roche	J Gowardman, J Pincus, G Pang	A phase 3 randomized, double-blind, active-controlled study to assess the efficacy and safety of baloxavir marboxil plus oseltamivir, versus oseltamivir alone in hospitalized patients with severe influenza

Research Awards and Achievements

Recipient <i>(RBWH staff in bold)</i>	Award	Event
Jeffrey Lipman	Recipient of ISAC Fellow Award 2019 (FISAC)	International Society of Antimicrobial Chemotherapy

Research Grants

Investigators <i>(RBWH staff in bold)</i>	RBWH Research Groups / Departments	Project Title	Granting Body	Total of funds awarded	Funds used in 2019	Years
Bellapart J, Laupland KB, Nasrallah F	ICU	Diagnostic sensitivity of plasma endothelin-1 for cerebral vasospasm after subarachnoid hemorrhage	Royal Brisbane and Women’s Foundation/ Metro North Collaborative Research Grant	\$40,000	\$0.00	2019-2020
Roberts J, Lipman J, Cotta MO, Kruger P, Schlapbach L, Irwin A, Shekar K, Comans T, Paterson P, Harris P, Ungerer J, McWhinney B,	ICU	Personalising Antibiotic Therapy to Improve Outcomes in Patients with Severe Infections	BDHP/ MRFF Rapid applied research Translation Program	\$332,868	\$0.00	2019-2021
Dhanani J, Reade M, Eley V, Williams J	ICU	Pharmacokinetics of inhaled fentanyl and morphine.	MNHS Collaborative Research Grant	\$50,000	\$0.00	2019-2020
Shay McGuinness, Rachael Parke, Ross Freebairn, Seton Henderson, Colin McArthur, Sally Roberts, Paul Young, Joel Dulhunty and Jeffrey Lipman	ICU	BLING III	Medical Research Institute of New Zealand	\$1,195,807	\$0.00	2019-2020
Holley A, Lipman J, Cohen J, Reade M	ICU	A Prospective Evaluation of Australasian Critical Care Burns Patient	Jamieson Trauma Institute Project Funding	\$86,207	\$0.00	2019-2020

Research Grants (cont)

Investigators <i>(RBWH staff in bold)</i>	RBWH Research Groups / Departments	Project Title	Granting Body	Total of funds awarded	Funds used in 2019	Years
Roberts JA, Lipman J, Paterson DL, Harris P, Kruger P, Dorofaeff T, Schlapbach L, Beatson S, Schembri M	ICU	Reducing time to appropriate antibiotics and optimal doses to treat sepsis using rapid whole genome sequencing combined with dosing software	MRFF Rapid Applied Research Translation Program Grant	\$250,829	\$1,656	2019-2020
Roberts JA, Luque S, Zeitlinger M, Sime F	ICU	Screening anti-fungal exposure in intensive care unit: The SAFE-ICU study	European Society of Clinical Microbiology and Infectious Diseases (ESCMID) Study Group Research Grants	\$47,200	\$21,573.74	2019-2020

2019 Research Publications

Journal Articles

- Abraham J, Sinollareddy M, Roberts MS, Williams P, Peake SL, **Lipman J, Roberts JA**. Plasma and interstitial fluid population pharmacokinetics of vancomycin in critically patients with sepsis. *Int J Antimicrob Agents*. 2018 Oct 5. pii: S0924-8579(18)30280-2. doi: 10.1016/j.ijantimicag.2018.09.021. In Press
- Dhaese SAM, Farkas A, Colin P, **Lipman J**, Stove V, Verstraete AG, **Roberts JA**, De Waele JJ. Population pharmacokinetics and evaluation of the predictive performance of pharmacokinetic models in critically ill patients receiving continuous infusion meropenem: a comparison of eight pharmacokinetic models. *J Antimicrob Chemother*. 2019 Feb 1;74(2):432-441
- Koulenti D, Parisella FR, Xu E, **Lipman J**, Rello J. The relationship between ventilator-associated pneumonia and chronic obstructive pulmonary disease: what is the current evidence? *Eur J Clin Microbiol Infect Dis*. 2019 Jan 24. doi: 10.1007/s10096-019-03486-2. In Press
- Paul SK, **Roberts JA, Lipman J**, Deans R, Samanta M. A Robust Statistical Approach to Analyse Population Pharmacokinetic Data in Critically Ill Patients Receiving Renal Replacement Therapy. *Clin Pharmacokinet*. 2019 Feb;58(2):263-270
- Despoina Koulenti, Andrew Song, Aaron Ellingboe, MohdHafiz Abdul-Aziz, Patrick Harris, Emile Gavey, **Jeffrey Lipman**. Infections by multidrug-resistant Gram-negative Bacteria: What's new in our arsenal and what's in the pipeline? *Int J Antimicrob Agents*. 2018 Oct 27. pii: S0924-8579(18)30303-0. doi: 10.1016/j.ijantimicag.2018.10.011
- Heffernan AJ, Sime FB, **Lipman J, Dhanani J**, Andrews K, Ellwood D, Grimwood K, **Roberts JA**. Intrapulmonary pharmacokinetics of antibiotics used to treat nosocomial pneumonia caused by gram-negative bacilli: a systematic review. *Int J Antimicrob Agents*. 2018 Nov 22. pii: S0924-8579(18)30336-4. doi: 10.1016/j.ijantimicag.2018.11.011
- Yasser Sakr, Ulrich Jaschinski, Xavier Wittebole, Tamas Szakmany, **Jeffrey Lipman**, Silvio A. Namendys-Silva, Ignacio Martin-Loeches, ICON Investigators, Marc Leone,8 Mary-Nicoleta Lupu,9 and Jean-Louis Vincent;Sepsis in Intensive Care Unit Patients: Worldwide Data From the Intensive Care over Nations Audit. *Open Forum Infect Dis*. 2018 Nov 19;5(12): ofy313. doi: 10.1093/ofid/ofy313. eCollection 2018 Dec
- De Backer D, Cecconi M, **Lipman J**, Machado F, Myatra SN, Ostermann M, Perner A, Teboul JL, Vincent JL, Walley KR.Challenges in the management of septic shock: a narrative review. *Intensive Care Med*. 2019 Feb 11. doi: 10.1007/s00134-019-05544-x. (In press)
- Sjövall F, Alobaid AS, Wallis SC, Perner A, **Lipman J, Roberts JA**. Maximally effective dosing regimens of meropenem in patients with septic shock. *J Antimicrob Chemother*. 2018 Jan 1;73(1):191-198. doi: 10.1093/jac/dkx330
- Milford EM1,2, **Reade MC3,4**. Resuscitation Fluid Choices to Preserve the Endothelial Glycocalyx. *Crit Care*. 2019 Mar 9;23(1):77. doi: 10.1186/s13054-019-2369-x
- Guerra Valero YC1, **Roberts JA2, Lipman J3, Fourie C4, Starr T5**, Wallis SC4, Parker SL4. Analysis of capillary microsamples obtained from a skin-prick to measure vancomycin concentrations as a valid alternative to conventional sampling: A bridging study. 2019 May 30; 169:288-292. doi: 10.1016/j.jpba.2019.03.018. Epub 2019 Mar 9
- Weber N1, Jackson K2, McWhinney B3, Ungerer J3, Kennedy G2, **Lipman J4, Roberts JA5**. Evaluation of pharmacokinetic/pharmacodynamic and clinical outcomes with 6-hourly empiric piperacillin-tazobactam dosing in hematological malignancy patients with febrile neutropenia. 2019 Jul;25(7):503-508. doi: 10.1016/j.jiac.2019.02.014. Epub 2019 Mar 15
- Lipman J1**, Brett SJ2, De Waele JJ3, Cotta MO4, Davis JS5, Finfer S6, Glass P7, Knowles S7, McGuinness S8, Myburgh J7, Paterson DL4, Peake S9, Rajbhandari D7, Rhodes A10, Roberts JA4, Shirwadkar C11, Starr T4, Taylor C7, Billot L7, Dulhunty JM4. A protocol for a phase 3 multicentre randomised controlled trial of continuous versus intermittent β -lactam antibiotic infusion in critically ill patients with sepsis: BLING III. 2019 Mar;21(1):63-68
- Cohen J1**, Venkatesh B. Adjunctive Corticosteroid Treatment in Septic Shock. 2019 Aug;131(2):410-419. doi: 10.1097/ALN.0000000000002604
- Koulenti D1,2,3, Parisella FR4, Xu E1, **Lipman J1,2,5**, Rello J6. The relationship between ventilator-associated pneumonia and chronic obstructive pulmonary disease: what is the current evidence? 2019 Apr;38(4):637-647. doi: 10.1007/s10096-019-03486-2. Epub 2019 Jan 24
- Roberts JA1,2,3**, Alobaid AS1,4, Wallis SC1, Perner A5,6, **Lipman J1,2,7**, Sjövall F6,8,9. Defining optimal dosing of ciprofloxacin in patients with septic shock. 2019 Jun 1;74(6):1662-1669. doi: 10.1093/jac/dkz069
- Weiss E1, Zahar JR2, Alder J3, Asehnoune K4, Bassetti M5, Bonten MJM6, Chastre J7, De Waele J8, Dimopoulos G9, Eggimann P10, Engelhardt M11, Ewig S12, Kollef M13, **Lipman J14**, Luna C15, Martin-Loeches I16, Pagani L17, Palmer LB18, Papazian L19, Poulakou G20, Prokocimer P21, Rello J22, Rex JH23, Shorr AF24, Talbot GH25, Thamlikitkul V26, Torres A27, Wunderink RG28, Timsit JF29. Elaboration of consensus clinical endpoints to evaluate antimicrobial treatment efficacy in future HABP/VABP clinical trials. 2019 Feb 4. doi: 10.1093/cid/ciz093. [Epub ahead of print]

Journal Articles (cont)

18. Dhaese SAM1, Thooft ADJ2, Farkas A3, **Lipman J4**, Verstraete AG5, Stove V6, **Roberts JA7**, De Waele JJ8. Early target attainment of continuous infusion piperacillin/tazobactam and meropenem in critically ill patients: A prospective observational study. 2019 Aug; 52:75-79. doi: 10.1016/j.jcrc.2019.04.013. Epub 2019 Apr 9
19. Venkatesh B1, **Cohen J2**. Hydrocortisone in Vasodilatory Shock. 2019 Apr;35(2):263-275. doi: 10.1016/j.ccc.2018.11.005. Epub 2019 Jan 28
20. Ramanan M1,2,3, **Cohen J2,3,4,5**, Venkatesh B2,3,5,6,7. Steroids and Sepsis: The Debate Continues. 2019 Spring;57(2):17-30. doi: 10.1097/AIA.0000000000000220
21. Jager NGL1,2, van Hest RM2, **Lipman J1,3**, **Roberts JA1**,3,4, Cotta MO1,4. Antibiotic exposure at the site of infection: principles and assessment of tissue penetration. 2019 Jul;12(7):623-634. doi: 10.1080/17512433.2019.1621161. Epub 2019 May 28
22. Schetz M1, De Jong A2, Deane AM3,4, Druml W5, Hemelaar P6, Pelosi P7,8, Pickkers P6,9, Reintam-Blaser A10,11, **Roberts J12**,13,14,15, Sakr Y16, Jaber S2. Obesity in the critically ill: a narrative review. 2019 Jun;45(6):757-769. doi: 10.1007/s00134-019-05594-1. Epub 2019 Mar 19
23. Shehabi Y1, Howe BD1, Bellomo R1, Arabi YM1, Bailey M1, Bass FE1, Bin Kadiman S1, McArthur CJ1, Murray L1, **Reade MC1**, Seppelt IM1, Takala J1, Wise MP1, Webb SA1; ANZICS Clinical Trials Group and the SPICE III Investigators. Early Sedation with Dexmedetomidine in Critically Ill Patients. 2019 Jun 27;380(26):2506-2517. doi: 10.1056/NEJMoa1904710. Epub 2019 May 19
24. Sime FB1, Byrne CJ2, Parker S3, Stuart J4, Butler J4, **Starr T4**, Pandey S3, Wallis SC3, **Lipman J3,4**, **Roberts JA5,6,7,8**. Population pharmacokinetics of total and unbound concentrations of intravenous posaconazole in adult critically ill patients. 2019 Jun 6;23(1):205. doi: 10.1186/s13054-019-2483-9
25. Ho KM1, Rao S1, Honeybul S1, Zellweger R1, Wibrow B1, **Lipman J1**, **Holley A1**, Kop A1, Geelhoed E1, Corcoran T1, Misur P1, Edibam C1, Baker R1, Chamberlain J1, Forsdyke C1, Rogers FB1. A Multicenter Trial of Vena Cava Filters in Severely Injured Patients. N Engl J Med. 2019 Jul 7. doi: 10.1056/NEJMoa1806515. In press
26. T P Wan W1, Guerra Valero Y2, Choi GYS3, Ordóñez Mejía JL4, Wallis SC5, Joynt GM6, **Lipman J7**, Gomersall CD8, **Roberts JA9**. pii: S0924-8579(19)30071-8. doi: 10.1016/j.ijantimicag.2019.03.018. [Epub ahead of print]
27. Sumi CD1, Heffernan AJ1,2, **Lipman J3**, **Roberts JA4,5,6,7**, Sime FB1. What Antibiotic Exposures Are Required to Suppress the Emergence of Resistance for Gram-Negative Bacteria? A Systematic Review. 2019 Jul 20. doi: 10.1007/s40262-019-00791-z. [Epub ahead of print]
28. Ho KM1, **Holley A2**, **Lipman J3**. Vena Cava filters in severely-injured patients: One size does not fit all. 2019 Aug;38(4):305-307. doi: 10.1016/j.jccpm.2019.07.003
29. Ho KM1, **Holley A2**, **Lipman J3**. Vena Cava filters in severely-injured patients: One size does not fit all. 2019 Aug;38(4):305-307. doi: 10.1016/j.jccpm.2019.07.003
30. Denny KJ1, De Wale J2, **Laupland KB3**, Harris PNA4, **Lipman J5**
31. Economou CJP1, Xie J2, Comadira G3, Richards B3, Tallott M3, Wallis SC2, Ordoñez J2, Lipman J4, Roberts JA5. [Epub ahead of print]
32. Koulenti D1,2, Xu E3, Mok IYS3, Song A3, Karageorgopoulos DE4, Armaganidis A5, **Lipman J3,6,7**, Sotiriou-Tsiodras4. DOI: 10.3390/microorganisms7080270
33. Ballot DE1,2, Bandini R3, Nana T4, Bosman N4, Thomas T4, Davies VA5, Cooper PA5, Mer M6,7, **Lipman J6,8**. 2019 Sep 7;19(1):320. doi: 10.1186/s12887-019-1709-y
34. Ballot DE1,2, Bandini R3, Nana T4, Bosman N4, Thomas T4, Davies VA5, Cooper PA5, Mer M6,7, **Lipman J6,8**. A review of -multidrug-resistant Enterobacteriaceae in a neonatal unit in Johannesburg, South Africa. 2019 Sep 7;19(1):320. doi: 10.1186/s12887-019-1709-y
35. Venkatesh B1,2,3,4,5, Khanna AK6, Cohen J7,8,9,10. Intensive Care Med. 2019 Sep 13. doi: 10.1007/s00134-019-05770-3. [Epub ahead of print]
36. Sime FB1,2, **Lassig-Smith M3**, **Starr T3**, Stuart J3, Pandey S1, Parker SL1, Wallis SC1, **Lipman J1,3**, **Roberts JA4**,2,3,5. Print 2019 Oct
37. Koulenti D1,2, Xu E3, Yin Sum Mok I4, Song A5, Karageorgopoulos DE6, Armaganidis A7, **Lipman J8,9,10**, Tsiodras S11. 2019 Sep 24;7(10). pii: E386. doi: 10.3390/microorganisms7100386
38. **Dhanani JA1,2,3**, **Lipman J4,5**, **Pincus J5,6**, **Townsend S5,6**, **Livermore A5**, Wallis SC4, Abdul-Aziz MH4, Roberts JA4,5,7,8. Chemotherapy. 2019 Oct 14:1-4. doi: 10.1159/000502474. [Epub ahead of print]
39. Blot S, Antonelli M, Arvaniti K, Blot K, Creagh-Brown B, de Lange D, De Waele J, Deschepper M, Dikmen Y, Dimopoulos G, Eckmann C, Francois G, Girardis M, Koulenti D, Labeau S, Lipman J, Lipovestky F, Maseda E, Montravers P, Mikstacki A, Paiva JA, Pereyra C, Rello J, Timsit JF, Vogelaers D; Abdominal Sepsis Study (AbSeS) group on behalf of the Trials Group of the European Society of Intensive Care Medicine. Epidemiology of intra-abdominal infection and sepsis in critically ill patients: "AbSeS", a multinational observational cohort study and ESICM Trials Group Project. Intensive Care Med. 2019 Oct 29. doi: 10.1007/s00134-019-05819-3. [Epub ahead of print]
40. Robba C1, Poole D2, Citerio G3, Taccone FS4, Rasulo FA5; Consensus on brain ultrasonography in critical care group. Brain Ultrasonography Consensus on Skill Recommendations and Competence Levels Within the Critical Care Setting. Neurocrit Care. 2019 Jul 1. doi: 10.1007/s12028-019-00766-9. [Epub ahead of print]
41. Pandey S1, Dhanani J2,3, **Lipman J2,3**, **Roberts JA2,3,4,5**, Wallis SC2, Parker SL2. Development and validation of LC-MS/MS methods to measure tobramycin and lincomycin in plasma, microdialysis fluid and urine: application to a pilot pharmacokinetic research study. 10.1515/cclm-2019-0780. [Epub ahead of print]
42. Parker SL1, Pandey S2, Sime FB2,3, **Lipman J2,4**, **Roberts JA2,3,4,5**, Wallis SC2. A validated LC-MS/MS method for the simultaneous quantification of meropenem and vaborbactam in human plasma and renal replacement therapy effluent and its application to a pharmacokinetic study. Anal Bioanal Chem. 2019 Nov 16. doi: 10.1007/s00216-019-02184-4. [Epub ahead of print]
43. Ranganathan D1,2, Abdul-Aziz MH3, John GT1, McWhinney BC4, Fassett RG3, Healy H1,3, Kubler P, Lim A1, **Lipman J5**, Purvey M1, Roberts M1, Reyalddeen R1, Ungerer J4, Roberts JA3,5,6,7. Pharmacokinetics of Enteric-Coated Mycophenolate Sodium in Lupus Nephritis (POEMSLUN). Ther Drug Monit. 2019 Dec;41(6):703-713. doi: 10.1097/FTD.0000000000000658
44. Denny KJ1,2, Kumar A3, Timsit JF4,5, **Laupland KB6,7**. Extra-cardiac endovascular infections in the critically ill. Intensive Care Med. 2019 Nov 22. doi: 10.1007/s00134-019-05855-z. [Epub ahead of print]

Journal Articles (cont)

45. Dhaese SAM1, Colin P2, Willems H3, Heffernan A4, Gadeyne B3, Van Vooren S5, Depuydt P3, Hoste E3, Stove V6, Verstraete AG6, **Lipman J7, Roberts JA8**, De Waele JJ3. Saturable elimination of piperacillin in critically ill patients: implications for continuous infusion. [Epub ahead of print]
46. Alexis Tabah 1 , Matteo Bassetti 2 , Marin H Kollef 3 , Jean-Ralph Zahar 4 , José-Artur Paiva 5 , Jean-Francois Timsit 6 7 , **Jason A Roberts** 8 9 10 , Jeroen Schouten 11 , Helen Giamarellou 12 , Jordi Rello 13 14 , Jan De Waele 15 , Andrew F Shorr 16 , Marc Leone 17 , Garyphallia Poulakou 18 , Pieter Depuydt 15 , Jose Garnacho-Montero 19 Antimicrobial De-Escalation in Critically Ill Patients: A Position Statement From a Task Force of the European Society of Intensive Care Medicine (ESICM) and European Society of Clinical Microbiology and Infectious Diseases (ESCMID) Critically Ill Patients Study Group (ESGCIP) 2019 Nov 28 [Online ahead of print]
47. **John Robert Gowardman** 1 Acute Laryngeal Injury Following Mechanical Ventilation: Revisiting the Known Unknowns Crit Care Med
48. Connor B Reid 1, Lisa Steele 2, Kelsey Pasquill 2, Elizabeth C Parfitt 1, **Kevin B Laupland** 3 4 5 6 Occurrence and Determinants of Klebsiella Species Bloodstream Infection in the Western Interior of British Columbia, Canada 2019 Dec 19
49. **Kevin B Laupland** 1 2 3, Kelsey Pasquill 4 , Gabrielle Dagasso 5 , Elizabeth C Parfitt 5 , Lisa Steele 4 , Henrik C Schonheyder 6 Population-based Risk Factors for Community-Onset Bloodstream Infections 2019 Dec 19 [Online ahead of print]
50. **Michael C Reade** 1 Addressing High Practice Variability in Reported Management of Burns Dec 2019
51. **Anthony D Holley** 1 , **Michael C Reade** 2 , **Jeffrey Lipman** 2 , Anthony Delaney 3 , Andrew Udy 4 , Richard Lee 3 , Edward Litton 5 , Winston Cheung 6 , Andrew Turner 7 , Tessa Garside 8 , Lewis Macken 3 , Benjamin Reddi 9 , Mark Kol 6 , Alex Kazemi 10 , Asim Shah 11 , Shane Townsend 2 , Jeremy Cohen 2 Survey of Critical Care Practice in Australian and New Zealand Burn Referral Centres Dec 2019
52. **Laupland KB**, Pasquill K, Dagasso G, Parfitt EC, Steele L, Schonheyder HC. Population-based risk factors for community-onset bloodstream infections. *Eur J Clin Micro Infect Dis* 2019 (Epub ahead of print)
53. Reid CB, Steele L Pasquill K, Parfitt EC, **Laupland KB**. Occurrence and determinants of Klebsiella species bloodstream infection in the western interior of British Columbia, Canada. *BMC Infect Dis* 2019;19(1):1070
54. Denny K, Kumar A, Timsit JF, **Laupland KB**. Extra-cardiac endovascular infections in the critically ill. *Intensive Care Med* (Epub ahead of print)
55. **Laupland KB**, Pasquill K, Parfitt EC, Steele L. Bloodstream infection due to beta-hemolytic streptococci: A population-based comparative analysis. *Infection* 2019;47(6):1021-1025
56. **Laupland KB**, Tabah A, Kelway C, Lipman J. Does intermittent pneumatic compression PREVENT thrombosis in the ICU? *Anaesth Crit Care Pain Med* 2019;38(4):303-304
57. **Laupland KB**, Pasquill K, Parfitt EC, Dagasso G, Gupta K, Steele L. In-hospital death is a biased measure of fatal outcome from bloodstream infections. *Clin Epidemiol* 2019; 11:47-52
58. Timsit JF, Bassetti M, Cremer O, Daikos G, de Waele J, Kallil A, Kipnis E, Kollef M, **Laupland K**, Paiva JA, Rodríguez-Baño J, Ruppé É, Salluh J, Taccone FS, Weiss E, Barbier F. Rationalizing antimicrobial therapy in the ICU: a narrative review. *Intensive Care Med.* 2019 45(2):172-189
59. Valiquette L, **Laupland KB**. Looking beyond the laboratory is not preposterous. *JAMMI* 2019 (Epub ahead of press)
60. **Laupland KB**, Valiquette L. Presenteeism: Symptom of an ailing medical practice model for Canadian physicians? *JAMMI* 2019;4(3):136-138
61. Carignan A, Valiquette L, **Laupland KB**. Impact of climate change on emerging infectious diseases: Implications for Canada. *JAMMI* 2019;4(2):55-59.

2019 Conference Presentations – Invited Speaker, Oral and Poster

Invited Speakers

JEREMY COHEN

1. Cortisol, Aldosterone, Vitamin C in Septic Shock: World Congress of Intensive Care Melbourne
2. Evolution of the Hot Case: World Congress of Intensive Care Melbourne.

JEFFREY LIPMAN

1. Logan Hospital Research and Innovation Symposium Keynote April 2019
2. Antimicrobial Masterclass for Acute Care Clinicians QE II Hospital Brisbane June 2019
3. Short Course in Critical Infection 2019 Mater Hospital Brisbane Sept 2019
4. Neil Widdicombe Brett Hoggard and Daniel Best. Integrated Systems and Telehealth in Support of Critical Aeromedical Transfers. WADEM Congress on Disaster and Emergency Medicine 7 May 2019 • Brisbane, Australia.

Oral Presentations

JEFFREY LIPMAN

1. 46th Annual Meeting of the Japanese Society of Intensive Care Medicine, Kyoto, March 2019
2. Meeting in Tokyo – March 2019
3. Euro Asia, ESICM, Taiwan, April 2019
4. Malaysian Society of Anaesthesiologists and College of Anaesthesiologists, Ipoh, July 2019
5. 10th Thai Critical Care Congress , Bangkok, August 2019
6. Scientific Meeting – Hanoi University of Pharmacy, Ho Chi Minh City, Vietnam, October 2019
7. 40th Annual Scientific meeting of Korean Society of Critical Care Medicine, Seoul, April 2020.

PROFESSOR TESS CRAMOND MULTIDISCIPLINARY PAIN CENTRE



A/Prof Paul Gray
Director
PTCMPC

The Profess Tessa Cramond Multidisciplinary Pain Centre (PTCMPC) has continued to build research involvement and collaborations throughout 2019. It is the vision of this Centre to continue this growth.

The highlights for 2019 were:

- Dr Nicole Andrews (Occupational Therapist) being awarded a ‘Queensland and National iAwards for her work with the PainROADMAP. This was a well-deserved award as she continues her work in developing and validating an activity App to be used in patients with persistent pain. Dr Andrews is involved in many other research initiatives that are detailed in this report
- The PTCMPC was awarded a grant from Metro North Research to appoint a Research Development Officer. This appointment will greatly accelerate the research platform of the Centre
- The PTCMPC is excited and committed to developing new and ongoing research initiatives and collaborations. This is especially so as the Centre prepares for the move to the Surgical, Treatment and Rehabilitation Services building in 2021.

Supervised Post-Graduate Research Students

Name <i>(RBWH staff in bold)</i>	Current Studies <i>(e.g. PhD, Masters etc.)</i> University <i>(duration)</i>	Research Project Title	Supervisors <i>(RBWH staff in bold)</i>
Erin Crofton	PhD (2018-present)	Is sensory sensitivity a factor in non-adherence with compression garments post-burn	Pamela Meredith (CQU), Jenny Strong, Paul Gray
Genevieve O'Donoghue	PhD CQU (2018-2020)	Couples, attachment and chronic pain	Pamela Meredith (CQU), Jenny Strong, Nicole Andrews

RBWH Research Staff with research roles, positions or appointments: e.g. Coordinators, Fellow, Adjunct and Honorary appointments

Name <i>(RBWH Staff in bold)</i>	Type of Position	FTE	Funding Source <i>(operational/external/in-kind)</i>	Research Program	Affiliated University/ies
Nicole Andrews	Postdoctoral Research Fellow	0.8	External	RECOVER Injury Research Centre	The University of Queensland
Jenny Strong	Honorary Research Fellow of the PTCMPC		In-kind	Occupational Therapy, RBWH, Research Program	The University of Queensland

Honorary Positions: e.g. Non-RBWH staff with research appointments at RBWH

Name	Position	Research Program	Affiliated University/ies
Scott Farrell	Honorary Research Fellow of the PTCMPC	Radiologic properties of symptomatic zygapophyseal joints in chronic whiplash: a case-control study	RECOVER Injury Research Centre, University of Queensland
Julie Vermeir	Honorary Research Student of the PTCMPC	Gamified Web-based Attentional Bias Modification Training for Adults with Chronic Pain	Queensland University of Technology

Current RBWH Research Group / Department Led Research Activity

RBWH Research Group / Department Led Researchers <i>(RBWH staff in bold)</i>	Collaborative Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
Nicole Andrews	Belinda Long (OT), Jenny Strong, Sue Laracy (OT)	Evaluation of occupational therapy interventions within the orthopaedic physiotherapy screening clinic
Nicole Andrews	Marlien Varnfield (CSIRO), David Ireland (CSIRO)	Towards understanding how much is too much for individuals with chronic pain
Nicole Andrews	Olivia Zheng (Trauma Service), Jodie Ross (Trauma Service), Venerina Johnston (UQ), Elise Gane (UQ), Esther Smits (UQ), Charlotte Brakenridge (UQ), Paul Gray , Michael Rudd (Trauma Service)	An investigation of the prevalence, impact, and management of chronic pain post trauma at a tertiary public hospital
Nicole Andrews	David Ireland (CSIRO), Marlien Varnfield (CSIRO), Cate Sinclair (Pain Specialists Australia), Michael Deen (MSHHS), Kathleen Cooke (St Vincents), Helen Rowe (The Therapy Space), Atiyeh Vaezipour (UQ), Esther Smits (UQ)	Is app gamification effective in increasing consumer engagement and satisfaction? An evaluation of gamification for a chronic pain monitoring app
Nicole Andrews	Venerina Johnston (UQ), Genesta Nicolson , Michael Handy (Trauma Service), Robyn Charles (Trauma Service)	Evaluating the use of the 'Leading the Way in Your Recovery' resource

Collaborative Research Activity involving RBWH Research Group / Department

Collaborative Led Researchers	RBWH Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
Atiyeh Vaezipour (UQ), Mark Horswill (UQ), Oscar-Oviedo Trespalacios (CARRS-Q), Venerina Johnston (UQ), Patricia Delhomme (IFSTTAR)	Nicole Andrews (PTCMPC)	Improving the management of driving behaviour in individuals with chronic pain
Charlotte Brakenridge (UQ), Venerina Johnston (UQ), Esther Smits (UQ), Elise Gane (UQ)	Nicole Andrews (PTCMPC)	Impact of interventions on work-related outcomes for individuals with musculoskeletal injuries after road traffic crash: a systematic review
Charlotte Brakenridge (UQ), Venerina Johnston (UQ), Michelle Smith (UQ), Sjaan Gomersall (UQ)	Nicole Andrews (PTCMPC)	Identifying optimal sit-stand recommendations for office workers with low back pain
Esther Smits (UQ), Venerina Johnston (UQ), Charlotte Brakenridge (UQ), Elise Gane (UQ)	Nicole Andrews (PTCMPC)	Recovery following a road traffic crash – a Delphi study
Monika Hasenbring (Ruhr-University of Bochum, Germany), Gerold Ebenbichler, (Vienna Medical University, Austria)	Nicole Andrews (PTCMPC)	Overactivity in chronic pain, the role of pain related endurance and neuromuscular activity – An interdisciplinary, narrative review.
Jessica Thackeray (UQ), Sophie Bowen (UQ), Cory Poll (UQ), Pamela Meredith (CQU)	Nicole Andrews (PTCMPC), Jenny Strong (PTCMPC)	"Can Sensory and Attachment-Informed approaches be used to modify perceptions of pain?"
Robyn Scheer (OT), Erin Crofton (OT)	Nicole Andrews (PTCMPC)	The effect of limb position on leg circumference measurements in patients diagnosed with lower limb lymphoedema
Lynn DeBar (Kaiser Permanente Centre for Health Research, Portland, USA), Meghan Mayhew (Kaiser Permanente Centre for Health Research, Portland, USA)	Nicole Andrews (PTCMPC)	PPACT administrative supplement for research on sleep disturbances and impact on chronic pain
Venerina Johnston (UQ), Melissa Kendall (MSHHS), Donna Valiant (UQ), Ray Quinn (MSHHS), Ben Turner (MSHHS), Hannah Gullo (UQ), Charlotte Brakenridge (UQ)	Nicole Andrews (PTCMPC)	Review of vocational rehabilitation services for persons with brain injury within Queensland

Research Awards and Achievements

Recipient <i>(RBWH staff in bold)</i>	Award	Event
Nicole Andrews	Pain ROADMAP – Winner Research & Development Project of the Year 2019	Queensland iAwards
	Pain ROADMAP Merit Award for Data Insights Innovation of the Year 2019	
	Pain ROADMAP Merit Award for Community Services Market 2019	
Nicole Andrews	Pain ROADMAP – Merit Award for Research and Development Project of the Year 2019	Australian iAwards
	Pain ROADMAP – Merit Award for Data Insights Innovation of the Year 2019	
Jenny Strong	Award for Excellence in Research Learning and Innovation	CAHRLI June 2019

Research Grants

Investigators <i>(RBWH staff in bold)</i>	RBWH Research Groups / Departments	Project Title	Granting Body	Total of funds awarded	Funds used in 2019	Years
Erin Crofton, Jennifer Strong, Pamela Meredith (CQU), Paul Gray	Occupational Therapy and PTCMPC	Is sensory sensitivity a factor in non-adherence with compression garments post-burn	RBWH Foundation scholarship	\$38,082.52	\$38,082.52	2019-2020
Atiyeh Vaezipour (UQ), Nicole Andrews , Mark Horswill (UQ), Oscar-Oviedo Trespalacios (CARRS-Q), Venerina Johnston (UQ), Patricia Delhomme (IFSTTAR)	PTCMPC and OT	Improving the management of driving behaviour in people with chronic pain: perspectives of people with chronic pain and health professionals	RACV Safety Research Fund	\$74,630	\$20,000	2019-2020
Nicole Andrews , David Ireland (CSIRO), Marlien Varnfield (CSIRO)	PTCMPC and OT	An evaluation of the usability of a pediatric version of the Pain ROADMAP App	APS/APRA/CFK Clinical Research Grant	\$30,000	\$12,400	2019-2020

2019 Research Publications

Journal Articles

- Brakenridge, Charlotte L., Gane, Elise M., Smits, Esther J., **Andrews, Nicole E.** and Johnston, Venerina (2019) Impact of interventions on work-related outcomes for individuals with musculoskeletal injuries after road traffic crash: a systematic review protocol. *Systematic Reviews*, 8 1: 247. doi:10.1186/s13643-019-1178-2
- Ireland, David and **Andrews, Nicole** (2019). Pain ROADMAP: A mobile platform to support activity pacing for chronic pain. *Stud Health Technol Inform.* 266:89-94. doi: 10.3233/SHTI190778
- Hasenbring, Monika I., **Andrews, Nicole E.**, Ebenbichler, Gerold, Overactivity in Chronic Pain, the Role of Pain Related Endurance and Neuromuscular Activity – An Interdisciplinary, Narrative Review. *The Clinical Journal of Pain*. Publish Ahead of Print. doi: 10.1097/AJP.0000000000000785
- Crofton, Erin**, Meredith, Pamela, Gray, Paul, O'Reilly, Sarah, and **Strong, Jenny** (2019). Non-adherence with compression garment wear in adult burns patients: A systematic review and meta-ethnography. *Journal of the International Society for Burn Injuries*. <https://doi.org/10.1016/j.burns.2019.08.011>.

2019 Conference Presentations – Invited Speaker, Oral and Poster

Invited Speakers

- Andrews, N.** Over-exercising and pain? Moving on With Pain Symposium, Aarhus, Denmark, November 2019.

SKININTEGRITYSERVICE

Dr Jill Campbell – recipient of the RBWH Foundation Robert and Janelle Bird Early Career Research Fellowship and awarded the health Innovation, Investment and Research Office Nursing and Midwifery Early Career Research Fellowship.

Supervised Post-Graduate Research Students

Name <i>(RBWH staff in bold)</i>	Current Studies <i>(e.g. PhD, Masters etc.)</i> University <i>(duration)</i>	Research Project Title	Supervisors <i>(RBWH staff in bold)</i>
Lizanne Dalglish	PhD, QUT (2018-current)	Microcirculatory Dysfunction and Skin Failure in Critically ill patients: An exploratory study	Professor Fiona Coyer, Dr Kathleen Finlayson, Dr Jill Campbell
Harn-Rong (Nancy) Wang	Master of Nursing	Pressure Injury development in critically ill patients with cervical spine precautions: The Inspect study	Professor Fiona Coyer, Dr Jill Campbell

RBWH Research Staff with research roles, positions or appointments: e.g. Coordinators, Fellow, Adjunct and Honorary appointments

Name <i>(RBWH Staff in bold)</i>	Type of Position	FTE	Funding Source <i>(operational/external/in-kind)</i>	Research Program	Affiliated University/ies
Dr Jill Campbell	Joint appointment	0.2	RBWH and QUT		QUT
Monica Stankiewicz	Honorary research fellow	0.6	RBWH		Griffith University

Current RBWH Research Group / Department Led Research Activity

RBWH Research Group / Department Led Researchers <i>(RBWH staff in bold)</i>	Collaborative Researchers and Others <i>(RBWH staff in bold)</i>	Research Project Title
Dr Jill Campbell <i>(RBWH site PI)</i>	Brigid Gillespie <i>(Griffith Uni)</i> , Rachel Walker <i>(PAH)</i> , Wendy Chaboyer <i>(Griffith Uni)</i> , Marie Cooke <i>(Griffith Uni)</i> , and Jennifer Whitty. AI: Lukman Thalib, Sharon Latimer, Donna McClean, Jill Campbell, Rosalind Probert	Efficacy and Effectiveness of Prophylactic fOam dressings in the prevention of sacral pressure injuries in at-risk hospitalised patients: The EEPOC Trial. National Health and Medical Research Council (NHMRC) Project Grant (2018)

Research Grants

Investigators <i>(RBWH staff in bold)</i>	RBWH Research Groups / Departments	Project Title	Granting Body	Total of funds awarded	Funds used in 2019	Years
Dr Jill Campbell	RBWH Skin Integrity Services	Towards a better understanding of continence management in the acute care setting; A multisite exploratory study'	RBWH Foundation Robert and Janelle Bird Early Career Research Fellowship	\$100,000	\$50,000	2019-2020
Dr Jill Campbell	RBWH Skin Integrity Services	Towards improved understanding of incontinence and incontinence-associated dermatitis in the acute care setting	Health Innovation, Investment and Research Office Nursing and Midwifery Early Career Research Fellowship	\$20,000	Nil	2019-2020

2019 Research Publications

Journal Articles

1. **Campbell J**, Cook JL, Doubrovsky A, Vann A, Mcnamara G, Coyer F (2019). Exploring incontinence-associated dermatitis in a single centre intensive care unit. *Journal Wound Ostomy Continence Nursing*. 46(5):401-407
2. Dalgleish L, **Campbell J**, Finlayson K, Coyer F (2019). Acute Skin Failure in the Critically Ill Adult Population: A Systematic Review (Accepted for publication)
3. Coyer F, **Campbell J**, Doubrovsky a. Efficacy of an incontinence-associated dermatitis intervention for critically ill patients in intensive care; an open label pilot randomised control trial. *Adv Skin & Wound Care*. Accepted 29 August 2019
4. Webster, J., Scuffham, P., **Stankiewicz, M.**, & Chaboyer, W.P. 2019 Negative pressure wound therapy for skin grafts and surgical wounds healing by primary intention. *The Cochrane Library*
5. **Stankiewicz, M.**, Gordon, J., Dulhunty, J., Brown, W., Pollock, H. & Barker-Gregory, N. 2019. A cluster controlled clinical trial of two prophylactic sacral dressings in the prevention of sacral pressure injuries in critically ill patients, *Wound Practice and Research* 27(1) 21-26
6. **Stankiewicz, M.**, Gordon, J., Rivera, J. Khoo, A., Nessen, A. & Goodwin, M. 2019. Clinical management of ileostomy high-output stomas to prevent electrolyte disturbance, dehydration and acute kidney injury: a quality improvement activity. *Journal of Stomal Therapy Australia*, 39 (1) 8-10.

Book Publications

1. **Coleman, K.** & Neilsen, G., 2019 Wound care: A practical guide for maintaining skin integrity. Elsevier Chatswood.

Book Chapters / Letters

1. **Coleman, K.** 2019 Healable vs non-healable wounds, *Wound care: A practical guide for maintaining skin integrity*. Elsevier Chatswood. Chapter 3 p 35-46
2. **Coleman, K.** 2019 Traumatic Wounds, *Wound care: A practical guide for maintaining skin integrity*. Elsevier Chatswood. Chapter 4 p 47-64
3. Sandy-Hodgetts, K., Capper, T., **Stankiewicz, M.**, 2019 Surgical and Perinatal wounds, *Wound care: A practical guide for maintaining skin integrity*. Elsevier Chatswood. Chapter 5 p 65-76
4. Simm, J. & **Campbell, J.** 2019 Skin integrity issues, *Wound care: A practical guide for maintaining skin integrity*. Elsevier Chatswood Chapter 8 p113-134
5. **Smith, D.**, Parker, C., & Finlayson, K., Conditions affecting the lower limbs, *Wound care: A practical guide for maintaining skin integrity*. Elsevier Chatswood. Chapter 9 p135-152
6. **Smith, D., Hocking, K.**, 2019 How to individualise your wound management plan, *Wound care: A practical guide for maintaining skin integrity* Chapter 12p 199-208.

2019 Conference Presentations – Invited Speaker, Oral and Poster

Invited Speakers

1. **Campbell J** (2019). Pressure injury and incontinence-associated dermatitis; What's the difference? ACT Wounds Australia Symposium. Australian launch of the 2019 NPIAP/EPUAP and PPIA International Pressure Injury Guideline Canberra ACT December 2019
2. **Campbell J** (2019). Skin in the game: protecting vulnerable skin and CVAD securement. Pre-Congress Symposium. Skin anatomy and Physiology. Cancer Nurse's Society Australia National Congress. June 2019, Melbourne Australia
3. **Campbell J** (2019). *Incontinence-associated dermatitis; Accepted but unacceptable*. Herston State of the Art Healthcare Symposium. Royal Brisbane and Women's Hospital, Brisbane September 2019
4. **Stankiewicz M** (2019). Wound Expert Forum: Managing and preventing complex wounds. Invited speaker for Smith & Nephew, Melbourne 11th June and Brisbane 13th June.

Poster Presentations

1. Walker R, Gillespie B, Chaboyer W, Cook M, Whitty J, Thalib L, Probert R, **Campbell J**, McLean D, Latimer S, Sladdin I (2019). Efficacy and Effectiveness of Prophylactic fOam dressings in the prevention of sacral pressure injuries in at risk hospitalised patients: the EEPOC trial. Princess Alexandra Hospital Health Symposium, July 30-August 2, 2019 Brisbane.

Other communications and outputs

1. **Campbell J.** (Small working group member - Populations with specific pressure injury needs) in European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline. The International Guideline. Emily Haesler (Ed.). EPUAP/NPIAP/PPPIA: 2019
2. **Campbell J.** Invited expert panel member Consensus position paper skin frailty. Hosted by the International Skin Tear Advisory Panel, October 2019 London UK.