



MACQUARIE
University

Australian Institute of Health Innovation

ANNUAL REPORT

2019



Contents

FOUNDING DIRECTOR'S REPORT	4
WHO WE ARE	6
AIHI AT A GLANCE	8
OUR BOARD	10
OUR PARTNERS	11
OUR DIRECTORS	12
CASE STUDIES	14
RESEARCHERS OF THE FUTURE	22
ORGANISATIONAL STRUCTURE	24
INTRODUCING OUR CENTRES	25
CENTRE FOR HEALTH SYSTEMS AND SAFETY RESEARCH	26
CENTRE FOR HEALTHCARE RESILIENCE AND IMPLEMENTATION SCIENCE	30
CENTRE FOR HEALTH INFORMATICS	34
NHMRC PARTNERSHIP CENTRE FOR HEALTH SYSTEM SUSTAINABILITY	38
NHMRC CENTRE OF RESEARCH EXCELLENCE IN DIGITAL HEALTH	44
NHMRC CENTRE OF RESEARCH EXCELLENCE IN IMPLEMENTATION SCIENCE IN ONCOLOGY	46
OUR STAFF	48
AWARDS	51
INSTITUTE ENGAGEMENT	52
MD RESEARCH PROGRAM	53
HIGHER DEGREE RESEARCHER PROGRAM	54
OUR PUBLICATIONS	56
GRANTS	72

Founding Director's Report



At any point in time across the Australian Institute of Health Innovation (AIHI), there's a wide range of research going on. We are studying and evaluating healthcare from many angles at considerable depth and with a great deal of purpose through our efforts on over 100 projects. That is the joy of working here. I invite you to delve into this research across the pages of our 2019 Annual Report.

We are passionate about our work, motivated by the fact there is plenty of evidence that we make a difference. Indeed, that is why we are here: to do innovative, interesting, and meaningful research that improves health services and systems and contributes to healthy populations.

As to that evidence, 2019 provided much to celebrate. To list only a few examples, Professor Johanna Westbrook was named as the 'National Research Leader in Medical Informatics' in a special report by *The Australian*. The Australian Alliance for Artificial Intelligence in Healthcare led by Professor Enrico Coiera increased from 50 member organisations to 90. Our Centre for Health Informatics celebrated its 20th anniversary

as Australia's largest and longest running academic research group in this discipline.

Contributions by the Centre for Health Systems and Safety Research and the Centre for Healthcare Resilience and Implementation Science's CareTrack Aged team to the Royal Commission into Aged Care Quality and Safety were included in the Interim Report of the Commission. The Centre for Healthcare Resilience and Implementation Science completed two large programs of work – the Deepening our Understanding of Quality in Australia (DUQuA) project, involving 32 of the largest hospitals in Australia, and the CareTrack Kids studies examining over 160,000 occasions of care. The National Health and Medical Research Council (NHMRC) Partnership Centre for Health System Sustainability contributed evidence to the national debate on many issues in order to create a health system that is built to last, especially around low-value care and overdiagnosis of cancer.

This year we presented at Macquarie University's TEDx, including curating the event with talks from Dr Robyn Clay-Williams, Professor Enrico Coiera

Benchmarked by SCIVAL's Field-Weighted Citation Impact, AIHI's publications are cited at a rate of 101% above world standard

and myself. There was sustained growth in PhD and Master of Research enrolments and submissions and the Macquarie University Doctor of Medicine Academic Research Program has continued to grow under the coordination of AIHI and led by Professor Frances Rapport.

We collaborated with many people to achieve our results, enjoying long term and newly forged relationships with partners in academia and industry, nationally and internationally. During 2019 we proudly expanded our portfolio to include a new NHMRC Partnership Project, two NHMRC Investigator Grants and a Medical Research Future Fund Project.

Ultimately, we are researchers and we like metrics. A key to quantifying our performance is to ask how we measure up against others internationally. The SCIVAL

Field-Weighted Citation Impact for AIHI stands this year at 2.01, meaning our research articles are cited at 101% above world average.



Professor Jeffrey Braithwaite
FOUNDING DIRECTOR



Who we are

The Australian Institute of Health Innovation (AIHI) is a globally recognised research-intensive centre, with a steadfast commitment to improving healthcare services and health systems in Australia and beyond. We are part of Macquarie University – ranked in the top 1% of universities worldwide – and our work is synergistic with and an integral part of MQ Health, Australia’s first fully integrated academic health sciences centre.

Our partnerships with those providing or receiving health services in real-life contexts ensure that our world-class, high-impact research has a positive influence on patients, health professionals and society more broadly.

AIHI comprises three independent, complementary and highly collaborative university research centres, each of which takes a systems perspective to solve healthcare problems, utilizing highly innovative and wide-ranging research methods.

1. Centre for Health Systems and Safety Research (CHSSR) [↗](#)
2. Centre for Healthcare Resilience and Implementation Science (CHRIS) [↗](#)
3. Centre for Health Informatics (CHI) [↗](#)

Our leadership in translational health services research is further evidenced by the innovative work of our three National Health and Medical Research Council (NHMRC funded) centres:

4. NHMRC Partnership Centre for Health System Sustainability [↗](#)
5. NHMRC Centre of Research Excellence in Implementation Science in Oncology [↗](#)
6. NHMRC Centre of Research Excellence in Digital Health [↗](#)

Reflecting our consistently high value research contribution, in 2019 AIHI managed grants and contracts valued at \$32 million. We also contributed to research associated with a further \$41 million worth of grants administered by other institutions.

Our highly successful approach is contributed by 190 academics and visiting researchers, including a skilled team of professional staff. We supervise 38 higher degree students and are contributing to the Macquarie University Master of Public Health program, and importantly, are involved in teaching and administering the Macquarie University Doctor of Medicine Academic Research Program.

Reflecting our consistently high value research contribution, in 2019 AIHI managed grants and contracts valued at \$32 million.





AIHI at a glance

HEAL. LEARN. DISCOVER.

OUR RESEARCH AND PROJECTS

\$10m

New research funding for 2019

31

Total new projects commenced in 2019

\$32m

Enterprise value of projects under AIHI management

85

Number of research projects under AIHI management

\$41m

Enterprise value of grants administered elsewhere involving AIHI

17

Number of projects administered elsewhere involving AIHI

\$23m

Category 1 Funding for grants under management 2019

190

Researchers, visiting appointees and professional staff

38

PhD, Master of Research and Master of Philosophy students

357

Peer-reviewed outputs

30

Outreach events

344

Media
Print, TV and radio

OUR STRATEGIC PRIORITIES

WHAT WE DO



Improve the safety and quality of care for patients and staff



Support better aged and community care



Enhance services for people with chronic ill-health



Optimise AI and machine learning, for safe, efficient and ethical support



Integrate services, making delivery and access easier

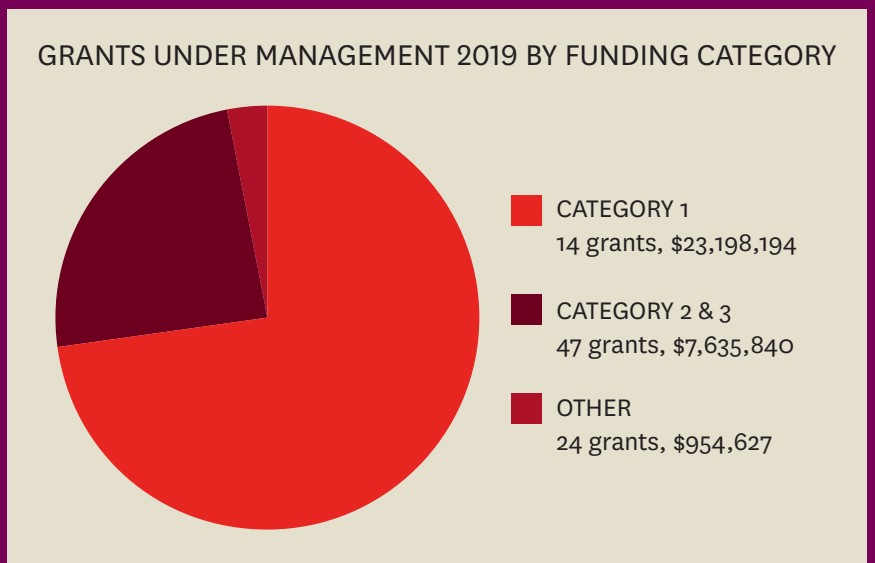


Build a sustainable health system for future generations

FUNDING HIGHLIGHTS

\$10m
New funding awarded in 2019

\$32m
Under AIHI management



Our Board



CHAIR
Professor
Patrick McNeil



MACQUARIE UNIVERSITY
Professor
Jeffrey Braithwaite



MACQUARIE UNIVERSITY
Professor
Johanna Westbrook



MACQUARIE UNIVERSITY
Professor
Enrico Coiera



MACQUARIE UNIVERSITY
Professor
Cliff Hughes AO



MACQUARIE UNIVERSITY
Professor
Lesley Hughes



NSW HEALTH SYSTEM
Professor
Adam Jaffé



NSW HEALTH SYSTEM
Professor
Chris Cowell



NSW HEALTH SYSTEM
Professor
George Rubin



NSW HEALTH SYSTEM
Professor
Patrick Bolton



NSW HEALTH SYSTEM
Professor
Sally Redman AO



NSW HEALTH SYSTEM
Ms Carrie Marr



INDEPENDENT MEMBERS
Professor
Les White AM



INDEPENDENT MEMBERS
Dr Karen Owen

BOARD SECRETARIES

Ms Joanna Holt
Ms Sue Christian-Hayes

Our Partners

The Australian Institute of Health Innovation is proud to partner with a broad range of government, industry, health services and research institutions. We also highly value our engagement with health consumers through advocacy groups and clinical trials. A full list of our partners can be found on our website at aihi.mq.edu.au with a selection listed here.



Hospitals



Academia



Clinicians



Industry



Health consumers



Peak bodies



International bodies



Government

- Agency for Clinical Innovation NSW
- Anglicare
- Australasian Association of Clinical Biochemists
- Australasian College of Health Informatics
- Australian Commission on Safety and Quality in Health Care
- Australian Defence Force
- Australian Genomics Health Alliance
- Australian Research Council
- Black Dog Institute
- Bond University
- Bupa Health Foundation Australia
- Bureau of Health Information
- Cancer Institute NSW
- Children's Cancer Institute Australia
- Clinical Excellence Commission (NSW)
- Cochlear Ltd
- Commonwealth Department of Health plus State and Territory departments of health
- Consumers Health Forum of Australia
- CSIRO Australian e-Health Research Centre
- Curtin University
- Dementia Australia Research Foundation Limited
- Harvard Medical School (USA)
- Health Quality & Safety Commission New Zealand
- Healthdirect Australia
- Independent Hospital Pricing Authority
- KPMG Australia
- Local Health Districts - various
- Melanoma Institute Australia
- Mito Foundation Australia
- Murdoch Children's Research Institute
- National Children's Digital Health Collaborative
- National Health and Medical Research Council
- National Library of Medicine (USA)
- NSW Department of Communities and Justice
- NSW Health Pathology
- Primary Health Networks - various
- Research Australia
- Royal College of Pathologists of Australasia
- Sax Institute
- St Vincent's Health Australia
- Sydney Children's Hospital Network
- University College London (UK)
- University of Melbourne
- University of New South Wales
- University of Notre Dame Australia
- University of Oxford (UK)
- University of South Australia
- University of Sydney
- University of Wollongong

Our Directors

PROFESSOR JEFFREY BRAITHWAITE

**Founding Director, Australian Institute of Health Innovation
Director, Centre for Healthcare Resilience and Implementation Science** 

Professor Jeffrey Braithwaite is a leading health services and systems researcher, internationally recognised for his work. He has considerable expertise in researching the culture and structure of acute settings, leadership, management and change in healthcare, quality and safety in healthcare, accreditation and surveying processes in international contexts and the restructuring of health services. He has published extensively, with over 600 refereed contributions and over 17,470 citations.

Professor Braithwaite is the recipient of research funding of over \$142 million spread over 96 grants. New research funding in the last five years amounts to over \$84.9 million; more than 87% of his funding is at the category one level.

His cutting-edge research on culture, reform and resilience has produced an extensive body of work that includes 14 highly regarded books. Professor Braithwaite has also led research laying new underpinnings of the discipline, particularly applying complexity science to healthcare improvement and reform. The International Society for Quality in Health Care has indicated his research is the most valuable international research in the field and, amongst others, the WHO and OECD have made extensive use of his work on quality indicators and Safety-II.

We conduct innovative and meaningful research that improves health services and systems and contributes to healthy populations.

A major breakthrough is represented in papers providing advances in healthcare structural change, and the need to deploy more sophisticated change strategies e.g., culture change or organisational change through collaborative networks. In 2019, he successfully secured, as lead investigator, a \$1.5 million Medical Research Future Fund Grant for keeping people out of hospitals. He was also awarded an NHMRC Leadership Award in the form of an Investigator Grant to examine genomics medicine implementation, creating a genomics learning organisation, valued at \$1.35 million.


PROFESSOR JOHANNA WESTBROOK

Director, Centre for Health Systems and Safety Research 

Professor Johanna Westbrook is internationally recognised for her research evaluating the effects of information and communication technology (ICT) in healthcare.

Professor Westbrook has led important research in the development and application of approaches to evaluate ICT, including new tools and methods which have been adopted internationally. She has extensive expertise in the study of medication safety.

Professor Westbrook has contributed to theoretical models regarding the design of complex multi-method ICT evaluations and conducted large trials of their effects. Integral to assessing the effectiveness of ICT to innovate work, and improve safety and quality of care, is gaining a deep understanding of clinical work and communication processes. Her research has included the development of the Work Observation Method by Activity Timing (WOMBAT) software to support the conduct of observational workflow studies, which is now used by 30 research teams across 12 countries. Her research has led to significant advances in our understanding of how clinical information systems deliver (or fail to deliver) expected benefits and supported translation of this evidence into policy, practice, and IT system changes. Professor Westbrook has over 450 publications, and has been awarded more than \$50 million in research grants.

In 2019, Professor Westbrook was named as the 'National Research Leader in Medical Informatics' by *The Australian* . Between 2016-2019, she was appointed by the Federal Minister for Health to the Board of the Australian Digital Health Agency



and in 2014 was named Australian ICT Professional of the Year by the Australian Information Industry Association. Professor Westbrook is Chair of the Deeble Institute of Health Policy Advisory Board, Australian Healthcare and Hospitals Association, and a member of the Boards of the Sax Institute and the International Medical Informatics Association.

PROFESSOR ENRICO COIERA
Director, Centre for Health Informatics 

Trained in medicine and with a computer science PhD in Artificial Intelligence (AI), Professor Enrico Coiera is Foundation Professor in Medical Informatics at Macquarie University and Director of the Centre for Health Informatics, a group he co-founded in 2000. He is also Director of the NHMRC Centre of Research

Excellence in Digital Health and founder of the Australian Alliance for Artificial Intelligence in Healthcare.

With a research background in industry and academia, Professor Coiera has a strong international reputation for his work on decision support and communication processes in biomedicine.

Professor Coiera spent ten years at the prestigious Hewlett-Packard Research Laboratories in Bristol UK where he led numerous health technology projects. He has overseen the development and trial of multiple

e-Health interventions, including the Healthy.me consumer app and clinical decision support systems.

The third edition of his textbook *Guide to Health Informatics* has been translated into several languages and is widely used internationally.

Professor Enrico has over 350 publications and over 16,100 citations in Google Scholar with an H-index of 63 (Google Scholar). Of these publications, 40 have more than 100 citations, nine more than 300 citations and one has more than 2,050 citations.

CASE STUDY

Providing evidence *that makes the difference*

Reforming aged care

The Royal Commission into Aged Care Quality and Safety incorporated research evidence provided by AIHI into the first Interim Report, titled *Neglect*.

Professor Johanna Westbrook was an expert witness to the Commission and discussed the appropriate use of linked data to make a difference in the lives of older Australians and their carers.

Professor Westbrook presented AIHI's research focusing on the power of information and communication technologies and existing healthcare data in electronic record systems to monitor and improve quality and safety in aged care and reduce the administrative burden on aged care staff. Professor Westbrook commented on the high volumes of routinely collected data in aged care in both electronic and paper-based format, and described how well-integrated electronic data is essential for assessing the impact of policy reforms and increasing transparency.

Professor Westbrook provided insights into how the research undertaken by AIHI, using data from existing sources including integrated electronic medical records and linked aged care datasets, has illuminated important issues relating to appropriate medication administration including in the areas of osteoporosis and antedementia and antipsychotic medications.

In an important first for Australian aged care research, AIHI found that among aged care facility residents with dementia across 68 facilities, 65% used antipsychotics longer than guidelines recommend. This groundbreaking research demonstrates how existing electronic data can be maximised to monitor quality use of medicines in aged care.

These data have also been analysed to examine trends in pressure injuries; the effects of community aged care services on delaying entry into aged care facilities; and the link between aged care services and quality of life for older adults.

Lind KE, Jorgensen M, Gray LC, Georgiou A, Westbrook JI. Anti-osteoporosis medication use in a high fracture-risk population: contemporary trends in Australian residential aged care facilities. *Health Services Insights*. 2019; 2(12). [↗](#)

Lind KE, Gray LC, Raban MZ, Georgiou A, Westbrook JI. Anti-dementia medication use by aged care facility residents with dementia. *International Journal of Geriatric Psychiatry*. 2019; 34(7):1029-40. [↗](#)

Jorgensen M, Siette J, Georgiou A, Westbrook JI. Longitudinal variation in pressure injury incidence among long-term aged care facilities. *International Journal for Quality in Health Care*. 2018; 30(9):684-91. [↗](#)

Lind KE, Raban MZ, Georgiou A, Westbrook JI. NSAID use among residents in 68 residential aged care facilities 2014 to 2017: An analysis of duration, concomitant medication use, and high-risk conditions. *Pharmacoepidemiology and Drug Safety*. 2019 28; 1480-1488. [↗](#)

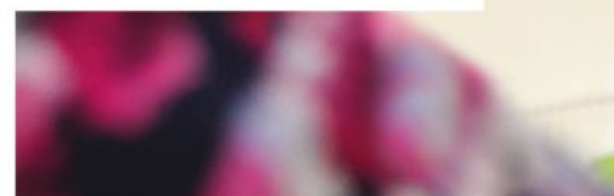
Siette J, Georgiou A, Jorgensen M, O'Donnell CJ, Westbrook JI. Integrating social engagement instruments into Australian community aged care assessments to enhance service provision. *Health and Social Care in the Community*. 2018; 26(6):810-8. [↗](#)

Brett L, Siette J, Nguyen AD, Jorgensen ML, Miao M, Westbrook JI, Lee W, Gow E, Hourihan F, Georgiou A. At the grassroots of home and community-based aged care: strategies for successful consumer engagement. *BMJ Open* 2019 9; e028754. [↗](#)

Brett L, Georgiou A, Jorgensen M, Siette J, Scott G, Gow E, Luckett G, Westbrook JI. Ageing well: evaluation of social participation and quality of life tools to enhance community aged care (study protocol). *BMC Geriatrics* 2019 19: 78. [↗](#)

Lind KE, Raban MZ, Georgiou A, Westbrook JI. Duration of antipsychotic medication use by aged care facility residents with dementia. *Alzheimer Disease & Associated Disorders*. 2019; 33(4):331-338. [↗](#)

In August 2019, AIHI brought together community aged care clients and staff, senior management from Uniting, health consumer representatives, Department of Health, and members of our Aged Care Evaluation and Research [↗](#) team for our second annual Ageing Well Stakeholder Forum. [↗](#) Discussions related to social engagement and community aged care services including integrated care and consumer choice. [↗](#)



CASE STUDY

Providing evidence *that makes the difference*



CASE STUDY

Providing evidence *that makes the difference*

First evaluation of rapid flu test

In a world first review, AIHI researchers confirmed the efficacy of the breakthrough rapid molecular diagnostic test for influenza which delivers results in two hours. The review provided evidence that the test improves patient outcomes and reduces unnecessary resource utilisation both in hospital emergency departments (ED) and inpatient settings.

Influenza poses a substantial health and economic burden every year, with 1,255 deaths in Australia in 2017 alone. After the rapid molecular diagnostic test for influenza was introduced in NSW in July 2017, researchers from the AIHI Diagnostic Informatics [team](#), in collaboration with NSW Health Pathology, conducted a series of large multicentre studies to assess its impact.

As reported in the *Medical Journal of Australia*, 70% of patients can be accurately diagnosed while in the ED, compared to less than 2% using the conventional test. There was also a 4% reduction in the rate of hospital admission. Further, and as outlined in the *Journal of Clinical Microbiology*, the use of the rapid test for adults hospitalised with respiratory illnesses was associated with a shorter hospital stay and a reduction in ancillary laboratory testing.



Wabe N, Li L, Lindeman R, Yimsung R, Dahm MR, Clezy K, McLennan S, Westbrook JI, Georgiou A. The impact of rapid molecular diagnostic testing for respiratory viruses on outcomes for emergency department patients. *The Medical Journal of Australia*. 2019; 210(7):316-320. [📄](#)

Wabe N, Li L, Lindeman R, Yimsung R, Dahm MR, McLennan S, Clezy K, Westbrook JI, Georgiou A. Impact of rapid molecular diagnostic testing of respiratory viruses on outcomes of adults hospitalized with respiratory illness: a multicenter quasi-experimental study. *Journal of Clinical Microbiology*. 2019; 57(4):e01727-01718. [📄](#)

Wabe N, Li L, Dahm MR, Lindeman R, Yimsung R, Clezy K, Thomas J, Varndell W, Westbrook JI, Georgiou A. Timing of respiratory virus molecular testing in emergency departments and its association with patient care outcomes: a retrospective observational study across six Australian hospitals. *BMJ Open*. 2019; 9(8):e030104. [📄](#)

The review provided evidence that the test improves patient outcomes.

CASE STUDY

Providing evidence *that makes the difference*

A landmark study for child health

“One of the most important papers in child health in the last 5 years.”

This is how the Editor-in-Chief of JAMA Network described CareTrack Kids when results were published in the *Journal of the American Medical Association*, one of the world’s prestige medical journals.

CareTrack Kids [📄](#) is a landmark national study into the standard of healthcare provided to children in Australia. Results showed children receive care in line with clinical practice guideline recommendations on average 60% of the time.

By examining 17 common childhood conditions, the study measured adherence by GPs and paediatricians to clinical practice guideline recommendations. Care was evaluated for 6,689 children 15 years of age and younger who had 15,240 visits to emergency departments, for inpatient admissions, or to paediatricians and general practitioners in selected urban and rural locations in three Australian states. These visits generated 160,202 quality indicator assessments.

The outcomes of CareTrack Kids will guide the efficient, safe and effective delivery of healthcare to future generations of Australian children.

Braithwaite J, Hibbert P, Jaffe A, White L, Cowell C, Harris M, Runciman W, Hallahan AR, Wheaton G, Williams H, Murphy E, Molloy C, Wiles L, Ramanathan S, Arnolda G, Ting HP, Hooper TD, Szabo N, Wakefield JG, Hughes CF, Schmiede A, Dalton C, Dalton S, Holt J, Donaldson L, Kelley E, Lilford R, Lachman P, Muething S. The quality of health care for children in Australia. *Journal of the American Medical Association*. 2018; 319(11):1113-24. [📄](#)

Sunderland N, Westbrook JI, Urwin R, Knights Z, Taitz J, Williams H, Wiles L, Molloy C, Hibbert P, Ting HP, Churruca K, Arnolda G, Braithwaite J. Appropriate management of acute gastroenteritis in Australian children: a population-based study. *PLOS One*. 2019; 14(11):e0224681. [📄](#)

Hibbert P, Stephens JH, de Wet C, Williams H, Hallahan A, Wheaton GR, Dalton C, Ting HP, Arnolda G, Braithwaite J. Assessing the quality of the management of tonsillitis in Australian children: a population-based sample survey. *Otolaryngology-Head and Neck Surgery*. 2019; 160(1):137-44. [📄](#)

Children receive care in line with clinical practice guidelines on average 60% of the time.



CASE STUDY

Providing evidence *that makes the difference*

Understanding how quality measures impact hospital care

Deepening our Understanding of Quality in Australia (DUQuA) [🔗](#) is the largest study on quality management in Australian public hospitals and one of the largest conducted internationally.

For the first time, hospital quality management systems, leadership and culture were studied for how they relate to healthcare delivery, quality and patient factors.

DUQuA is an NHMRC funded research project and was conducted in 32 large public hospitals around Australia, encompassing 119 participating departments, and 2,387 participants, including clinicians (doctors, nurses, and allied health professionals), hospital managers, and patients.

DUQuA extends the work undertaken in the Deepening our Understanding of Quality Improvement in Europe study, which examined the relationships between quality management systems, clinical processes, and patient factors in 188 hospitals across seven European countries.

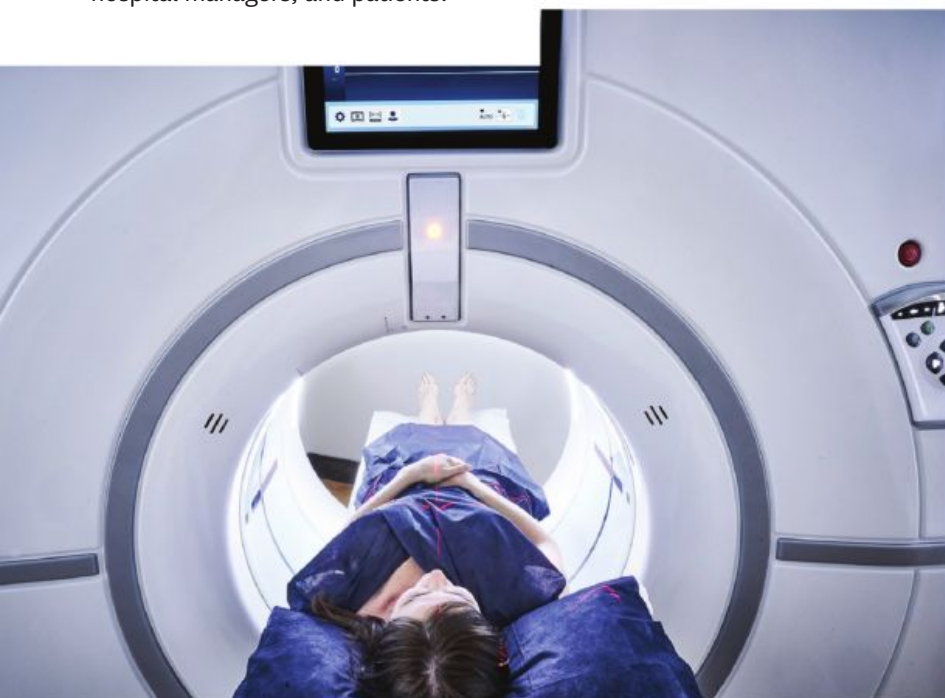
Results were published in the *International Journal for Quality in Health Care* and other peer-reviewed journals, and presented at international conferences and symposiums. Individually tailored benchmarking reports were provided to each of the 32 hospitals and are reportedly being used to assist those preparing for accreditation.

DUQuA is the largest study on quality management in Australian hospitals.

Braithwaite J, Clay-Williams R, Taylor N, Ting HP, Winata T, Hogden E, Li Z, Selwood A, Warwick M, Hibbert P, Arnolda G. Deepening our Understanding of Quality in Australia (DUQuA): an overview of a nation-wide, multi-level analysis of relationships between quality management systems and patient factors in 32 hospitals. *International Journal for Quality in Health Care*. 2020; 32(Supplement 1):8-21. [🔗](#)

Braithwaite J, Clay-Williams R, Taylor N, Ting HP, Winata T, Arnolda G, Sunol R, Groene O, Wagner C, Klazinga NS, Donaldson L, Dowton SB. Bending the quality curve. *International Journal for Quality in Health Care*. 2020 Feb 6; 32(Supplement 1):1-7. [🔗](#)

Clay-Williams R, Taylor N, Ting HP, Winata T, Arnolda G, Austin E, Braithwaite J. The relationships between quality management systems, safety culture and leadership and patient outcomes in Australian Emergency Departments. *International Journal for Quality in Health Care*. 2020 Feb 6; 32(Supplement 1):43-51. [🔗](#)



CASE STUDY

Providing evidence *that makes the difference*

Unlocking AI for healthcare



The Australian Alliance for Artificial Intelligence in Healthcare (AAAiH), [led](#) by Professor Coiera, has grown from 50 organisations at the start of 2019 to over 90 organisations with 250 individual members from Australia, the UK, US, New Zealand and Canada.

AAAiH brings together national and international partners and engaged stakeholders in academia, government, consumer, clinical, industry organisations, and peak bodies to translate frontier AI technologies into real-world health services.

The group has developed a number of initiatives including a green paper on AI in healthcare, an Australia-wide workforce survey, and a national workshop. AAAiH was also an official conference partner of the first AIMed global summit in Australia.



CASE STUDY

Providing evidence *that makes the difference*

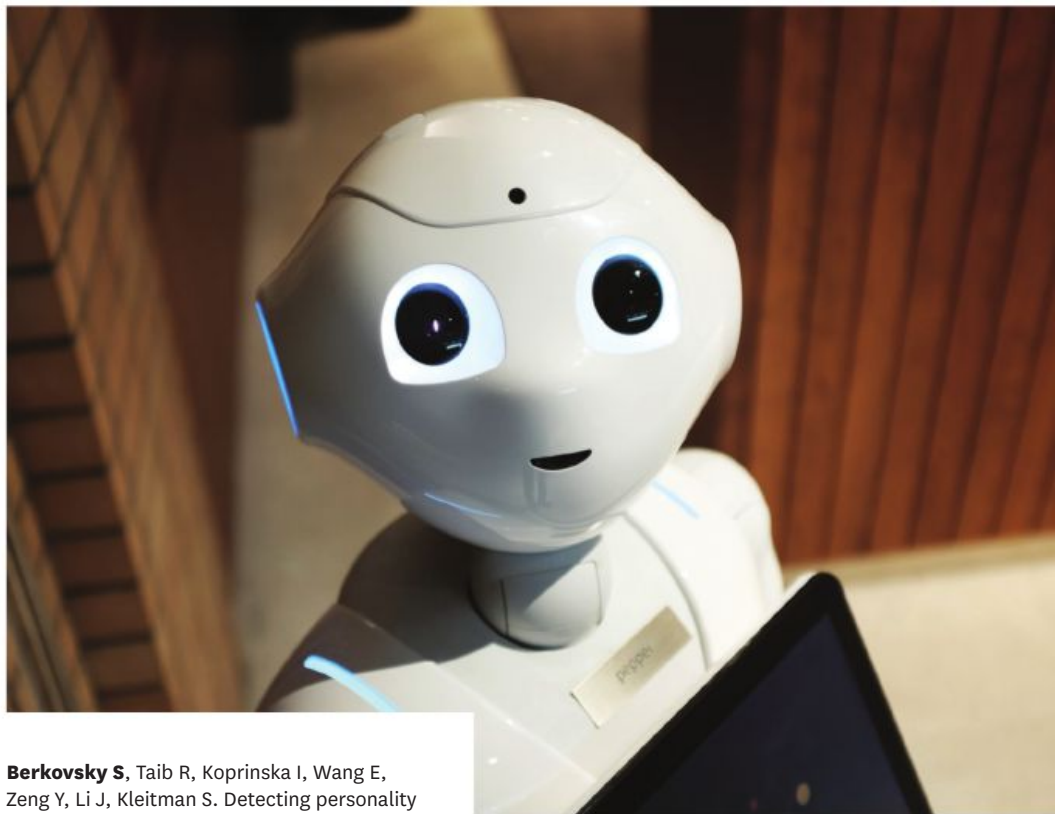
Detecting personality traits using eye-tracking data

In ground-breaking research using AI, personality detection has been made more accurate and may be used to enhance medical care.

Personality detection is an important task in psychology, as personality traits are linked to various behaviours and real-life outcomes. Detecting personality traits traditionally involves the time-consuming analysis of lengthy questionnaires which is frequently unreliable, especially if the respondents do not answer honestly.

This research project used a new framework for objective personality detection using humans' physiological responses to stimuli. These responses were processed and fed into machine learning algorithms capable of accurately predicting personality traits.

Across all the subjects and personality traits, the predictions achieved accuracy of almost 90%. The project resulted in multiple publications, one of them winning the Best Paper Award of the ACM International Conference on Human Factors in Computing Systems (CHI-2019), the premier conference in human-computer interaction.



Berkovsky S, Taib R, Koprinska I, Wang E, Zeng Y, Li J, Kleitman S. Detecting personality traits using eye-tracking data. *CHI Conference of Human Factors in Computing Systems*; 4 May 2019; Glasgow, Scotland UK. 2019. [↗](#)

TEDx

AIHI was proud to be part of the sold-out Macquarie University TEDx in September 2019, resulting in three talks being promoted on the official TED website.

Professor Jeffrey Braithwaite

Turning, breaking, or vanishing point? [↗](#)

Professor Enrico Coiera

Will AI mean we no longer need doctors? [↗](#)

Dr Robyn Clay-Williams [↗](#)

Gender equality requires gender-based design. [↗](#)

The event was organised by members of AIHI including Hossai Gul, Director and Curator, TEDx Macquarie University, and Zeyad Mahmoud, Director and Producer, TEDx Macquarie University. Highlighting the leadership skills that abound in AIHI, other volunteer organisers from AHI included Chiara Pomare, Melissa Miao, Dr Amalie Dyda and Sheila Pham.



Researchers of the future



RABIA BASHIR

Winner of the 2019 Macquarie University Dean's Award for Research Excellence

A NEW PERSPECTIVE ON RESEARCH INEFFICIENCIES

My PhD research examined inefficiencies in the systematic review ecosystem. My background was in software engineering, so I took that perspective and proposed the development of a new method for helping researchers to decide when a systematic review update is warranted. This has the potential to benefit meta-research and clinical research informatics.

I was truly blessed to undertake my doctoral research with two amazing supervisors, Associate Professor Adam Dunn and Dr Didi Surian, who always motivated and encouraged me to become an independent researcher. During my studies, I gained innovative skills, learned new methodologies, and articulated brand new concepts. I am now an Honorary Postdoctoral Associate with AIHI.



ZEYAD MAHMOUD

Cotutelle PhD candidate with University of Nantes, France

RESEARCH ACROSS DISCIPLINES AND CONTINENTS ENHANCES HOSPITAL MANAGEMENT

My PhD, entitled *Hospital Management in the Anthropocene*, was the first multinational interdisciplinary research project designed to address one of the greatest challenges faced by health systems in our modern era: striking a balance between efficiency and human centricity. Building on our existing knowledge in the fields of Management Science, Health Services Research and Big History, I developed a unique management framework that can be easily operationalised for hospitals looking to improve the efficiency of operating theatres while empowering and supporting their nursing staff.

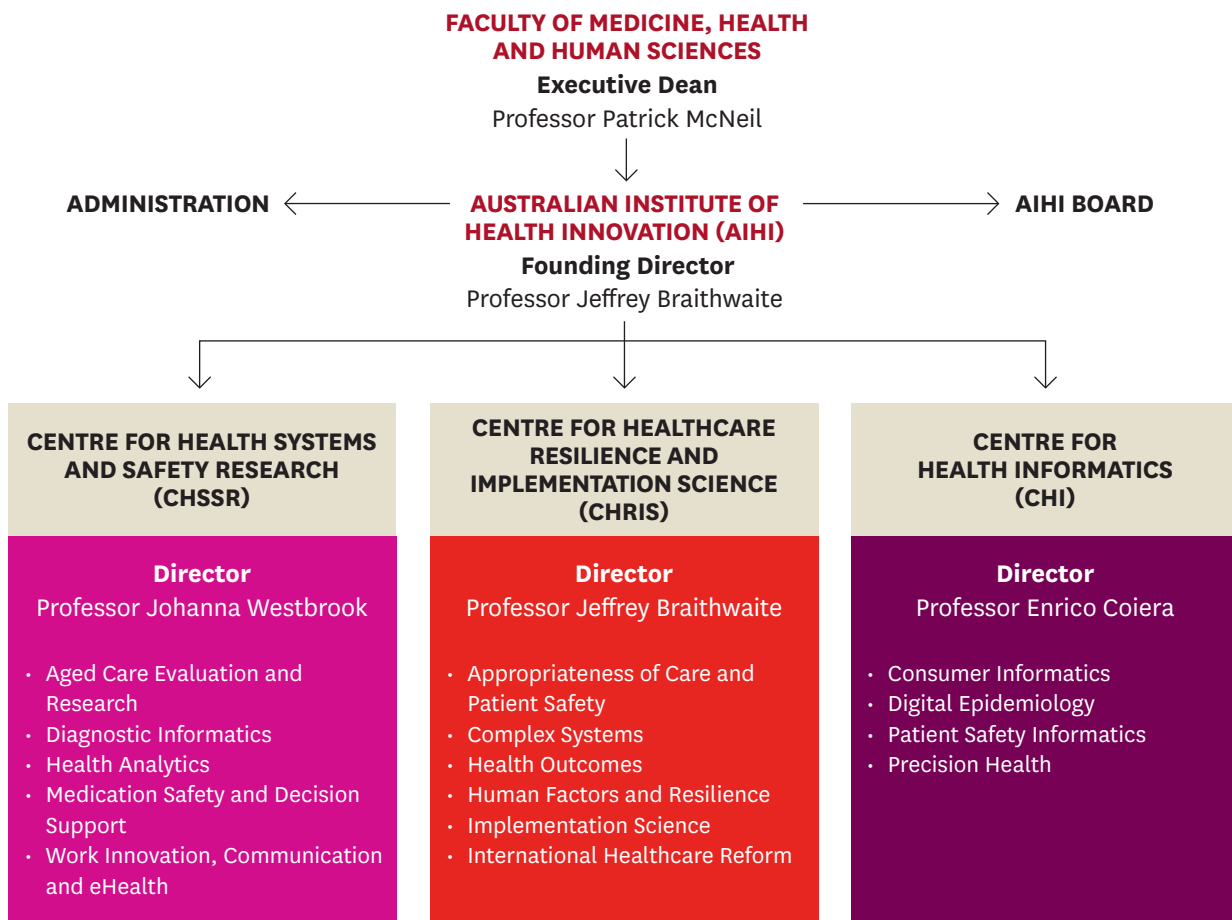
My PhD journey has been extremely rewarding; I have been honoured to speak to academics, clinicians,

health administrators, and policymakers at 12 conferences and seminars in four countries. I am grateful to my supervisors and to the culture at AIHI that provides students with the flexibility and support needed to advance their careers; my colleagues at AIHI have been with me every step of the way. I am now a Postdoctoral Research Fellow with AIHI.

**Our bright and dedicated
PhD students are working
on research projects
that address complex
problems and contribute
real solutions.**



Organisational structure



- NHMRC PARTNERSHIP CENTRE FOR HEALTH SYSTEM SUSTAINABILITY
- NHMRC PARTNERSHIP PROJECT FOR DIGITAL SUPPORT FOR AGED CARE
- NHMRC CENTRE OF RESEARCH EXCELLENCE IN DIGITAL HEALTH
- NHMRC CENTRE OF RESEARCH EXCELLENCE IN IMPLEMENTATION SCIENCE IN ONCOLOGY
- NHMRC PROJECT GRANT CARETRACK AGED

Global themes: Patient Safety; Improvement Studies; Multidisciplinary Teamwork; Behaviour Change; International Health Reform; Digital Health; Aged Care

Introducing our Centres



The Australian Institute of Health Innovation (AIHI) is powered by three complementary Centres dedicated to improving the services and systems that deliver healthcare to patients:

- Centre for Health Systems and Safety Research [↗](#)
- Centre for Healthcare Resilience and Implementation Science [↗](#)
- Centre for Health Informatics [↗](#)

The Centres contribute their collective expertise to explore the big questions of safety, quality, technology and sustainability that challenge health systems nationally and internationally.


The success of AIHI's collaborative approach is apparent in being funded for three additional Centres: the NHMRC Partnership Centre for Health System Sustainability, [↗](#) the NHMRC Centre of Research

Excellence in Digital Health [↗](#) and the NHMRC Centre of Research Excellence in Implementation Science in Oncology [↗](#).

AIHI also contributes to student supervision (PhD and Master of Research candidates) and to the Faculty of Medicine, Health and Human Science's teaching programs. Key teaching responsibilities include supervision of Doctor of Medicine (MD) students' research projects and teaching in the MD and Master of Public Health Programs.

As part of MQ Health, Macquarie's academic health sciences centre, encompassing Macquarie University Hospital, AIHI is at the forefront of bringing together education, biomedical and translational research with state-of-the-art clinical care.

Centre for Health Systems and Safety Research

From hospitals to aged care services, health information technologies are designed to make things better – from greater efficiency to improved patient safety. Challengingly, the implementation of these technologies is complex and often disrupts healthcare delivery. The Centre for Health Systems and Safety Research (CHSSR)  tackles important research questions about how health information technologies can be designed and utilised to deliver improved outcomes for Australians.

Effective information exchange, communication and teamwork are essential elements of the patient safety puzzle. Through our design and application of complex multi-method evaluation models, our research is delivering high quality evidence to inform decision making and drive changes in healthcare policy and practice.

During 2019 the CHSSR team conducted internationally leading studies and were awarded two significant new grants:

\$1.8 million

Funding to undertake an NHMRC Partnership Project aimed at creating a digital dashboard of integrated aged care data to identify and support residents at risk of poor outcomes. The project also aims to address several issues highlighted at the Royal Commission into Aged Care Quality and Safety, including the monitoring of pressure injuries and medication management.

\$2.5 million

Five-year NHMRC Investigator Grant to continue research into how information technologies can improve healthcare services, patient safety and outcomes in the area of medication safety.

“2019 was incredibly rewarding in seeing the translation of key research findings directly influencing policy and practice in the health system, from the management of medications in paediatrics to interim recommendations of the Royal Commission into Aged Care Quality and Safety.”

PROFESSOR JOHANNA WESTBROOK

aged care insite



Osteoporosis: the silent disease of aged care

Residential aged care facilities can do more to reduce the risk of osteoporosis and its associated fractures...



APPLY NOW START MID-YEAR

Retirement Living... Apply now...



RETIREMENT LIVING

Apply now...

Apply now...

Apply now...

Patient safety put at risk by negative workplace cultures

By Johanna Westwood May 1, 2019 - 13:00pm

If you are disgruntled, exhausted or just bored by the relentlessly combative tone of the federal election campaign, you should be. An increasing body of international research is confirming what many of us instinctively feel: That is, the most engaged, fit, or exposure to, negative ways of communicating erodes our ability to work effectively...



A simulator with doctors and nurses assessing a newly delivered baby found their performance deteriorated if they were exposed to even mild stressors.

Aged care residents turned into 'zombies' on antipsychotics for more than 200 days at a time

By Lily Power Aug 24, 2019 - 12:00pm

People living with dementia in aged care facilities are being excessively medicated with antipsychotic drugs for more than 200 days at a time, twice as long as the maximum time recommended, a study has found.



Experts have told the Royal Commission on Aged Care Quality and Safety that antipsychotic drugs are over-used, leaving patients into 'zombies' when they only make a difference in about 30 per cent of cases.

aged care insite



More access to antimicrobials medication needed now study

This is the opinion of a new study by the Australian Institute of Health and Welfare...

A study is underway to evaluate the effectiveness of antimicrobials in the aged care sector...

Where businesses go for police checks.

knows my industry



How will we know when Australia's aged care system is fixed?

By Sarah-Jane Duggan Author: Joyce Sasse on October 30, 2019

Introduction by Croakey: After over a year of consultations and investigations, the Royal Commission into Aged Care Quality and Safety is due to release its interim report tomorrow.

Hopes rapid flu test could save lives



A new test for which results can be obtained in minutes could help reduce the impact of influenza and other respiratory viruses...

Concerns over antipsychotics in aged care

By Lily Power



About 38 per cent of Australian aged care residents with dementia are taking antipsychotics

Many people living with dementia in aged care facilities are taking antipsychotic drugs for longer than 200 days - more than twice as long as the maximum recommended time, researchers say.

The Macquarie University study found about 38 per cent of Australian aged care residents with dementia were taking antipsychotic medication, the same as a worldwide estimate.

"Our research shows that people with dementia are on antipsychotic medication for roughly twice as long as the recommended maximum time to treat behavioural and psychological symptoms of dementia," lead author Kimberly Lind said.



Harnessing the power of informatics to improve aged care

By Lily Power

Introduction by Croakey: The Cairns hearing of the Royal Commission into Aged Care Quality and Safety is underway, and the quality of food served to aged care residents varies markedly from facility to facility and is sometimes very poor.

Capability that I might have observed that a modestly increased investment, staff training and care with manual would be beneficial, and that equipping food was being necessary residents' demand.

Aged care residents on drug 'triple whammy' face risk of acute kidney injury

By Lily Power August 11, 2019 - 12:00pm

Today's TOP STORIES: Mental health: Launch in their care: Workers battling stress and trauma in their job; Healthcare: Northern Beaches Hospital: Abandon public-private model, doctors urge; Crime: Man fighting for 180 after alleged assault by three boys; Case comment: It's our turn: Benji Munn's plan to capitalise on Benji's claim and trademark NOW.

About one in six people living in aged care who were on Durgeneo-type pain killers were at risk of acute kidney injury posed by a 'triple whammy' mix with other medicines, new research finds.

About two out of three aged care residents take more than 10 medicines a day, say experts.



National media

Sydney Morning Herald and Fairfax Media featured Professor Westbrook’s opinion piece on “Patient safety put at risk by negative workplace cultures”. ↗



Medication management

More than \$500,000 of commissioned work was completed to evaluate and develop guidelines for electronic medication management systems in aged care, for government organisations including ACSQHC.



Paediatric care policy

The NHMRC Partnership Project with the Sydney Children’s Hospital Network and eHealth NSW has resulted in reviews of guidelines and changes to electronic systems.



Royal Commission

The Royal Commission into Aged Care Quality and Safety adopted evidence provided by AIHI into its first Interim Report.



Medication error

Systematic review of the impact on medication errors of double-checking during medication administration was listed as one of the top 10 most read papers in *BMJ Quality and Safety*. ↗



WOMBAT

The first cross-country study was completed using the WOMBAT software to quantify the impact of electronic medication management systems on hospital pharmacists’ work in Australia and in England. The results were published in the *International Journal of Medical Informatics*. ↗



Sepsis

The first national sepsis epidemiology report established an epidemiological and statistical reference for the Australian Commission on Safety and Quality in Health Care (ACSQHC) to develop national clinical care standards to improve sepsis patient outcomes. ↗



Innovative tool

Development of a tool ↗ for the assessment of potential and actual harm from medication errors, providing a standardised approach to assessing medication related harm.



Parliament House lecture

Professor Westbrook chaired and facilitated the Inaugural John Deeble Lecture and panel discussion at Parliament House, Canberra.



CHSSR Research Streams

AGED CARE EVALUATION AND RESEARCH (ACER)

Dr Mikaela Jorgensen

mikaela.jorgensen@mq.edu.au

Our mission is to improve the health and wellbeing of older Australians through enhancing the delivery of community-based and residential aged care services. As clients and providers begin to use new information technologies, our team is focused on:

- Unlocking and integrating health and aged care data to better understand care journeys.
- Developing new approaches to help care providers improve meaningful outcomes such as quality of life and cognition.
- Evaluating models of aged care service and technology delivery and providing timely feedback to inform policy.
- Co-designing research with aged care clients and the workforce to better suit their needs and preferences. ↗

DIAGNOSTIC INFORMATICS

Professor Andrew Georgiou

andrew.georgiou@mq.edu.au

Diagnostic informatics encompasses major areas of research across the diagnostic analytical process. This ranges from the clinical choice of diagnostic request, the quality and efficiency of the analytical process, right through to the interpretation

and follow-up of test results and their impact on patient care outcomes.

Diagnostic informatics involves laboratory medicine, anatomic pathology and medical imaging. Whilst diagnostic testing may account for a small (less than 5%) proportion of most hospital budgets, it is considered to have a huge influence on medical decision-making. It underpins much of our health care system, generating information that is crucial to the prevention, diagnosis, prognosis, stratification of risk and treatment of disease. ↗

MEDICATION SAFETY AND ELECTRONIC DECISION SUPPORT

Dr Magda Raban

magda.raban@mq.edu.au

The Medication Safety and Electronic Decision Support research team focuses on evaluating and optimising electronic systems and decision support to improve the delivery of healthcare and health outcomes. Our research spans multiple health settings, including hospitals and residential aged care. ↗

WORK INNOVATION, COMMUNICATION AND EHEALTH

Dr Neroli Sunderland

neroli.sunderland@mq.edu.au

Understanding the way clinical care is delivered is central to supporting effective and safe delivery models including the design of new service

models. Our research investigates patterns of clinicians' work, and the factors that influence workflow and workloads, task errors, and patient and staff safety and wellbeing.

We apply a broad range of methods including direct observational methods, social network analysis and qualitative techniques. Projects have included investigation of the relationship between organisational culture and ICT use, the impact of electronic health record systems on workflow and efficiency, and clinicians' actions in response to electronic decision support alerts. ↗

HEALTH ANALYTICS

Associate Professor Ling Li

ling.li@mq.edu.au

Health data analytics provides insights into rich, dynamic data available from electronic health record systems. The Health Analytics team is focused on:

- Developing and applying rigorous, cutting-edge research methods to evaluate the impact of eHealth interventions on patient safety and outcomes.
- Utilising rich dynamic electronic health record data to improve patient care delivery.
- Providing real-time information that can support decisions and deliver actionable insights. ↗

Left to right: Dr Mikaela Jorgensen, Professor Andrew Georgiou, Dr Magda Raban, Dr Neroli Sunderland and Associate Professor Ling Li



Centre for Healthcare Resilience and Implementation Science

Ageing populations, technological breakthroughs, limited resources and consumer expectations all combine to make health system improvement a challenge of the greatest magnitude. The Centre for Healthcare Resilience and Implementation Science (CHRIS) is reconceptualising healthcare research to build more resilient systems to meet this challenge.

CHRIS pursues highly collaborative, multidisciplinary research and is pioneering new approaches to ensure research findings are translated into better and more cost-effective care. By scrutinising the myriad interactions between interconnected webs of professionals, patients and technologies, CHRIS is committed to enhancing understanding of the big picture of healthcare delivery.

The Centre is leading new research into the factors that combine to produce system-wide resilience. Such resilience can be harnessed to ensure organisations are more resistant to costly challenges and are able to improve patient outcomes and reduce wasteful use of resources. CHRIS is also scrutinising the processes of change to help ensure that many more research findings are translated into real world gains for patients, policymakers, healthcare providers and funding agencies.

During 2019, CHRIS secured funding for two major new research projects:

\$1.35 million

NHMRC Investigator Grant to design and implement a real-world learning healthcare system to improve care for children with rare cancers.

\$1.5 million

Funding from the Australian Medical Research Future Fund to develop a program to support best practice care across the New South Wales health system harnessing implementation science, complexity science and evidence-based care.

CHRIS's leadership is expressed in various ways including being involved in the NHMRC Partnership Centre for Health System Sustainability and the NHMRC Centre of Research Excellence in Implementation Science in Oncology. We also work with international bodies including the WHO, OECD, The International Society for Quality in Health Care and The Society for Organisational Behaviour in Health Care to support global healthcare reform.



16 September 2019 Patient safety: a case of constant vigilance

HBSE has never been a better time to be admitted to hospital in Australia. Health professionals are highly trained, cutting edge technology is widely available, and the majority of patients recover to live full lives.

While this is reassuring, I find many of my colleagues researching health systems around the world agree we still have a long way to go. With the World Health Organisation's *World Patient Safety Day* on 17 September, it is timely to reflect on how far we have come and where we are heading.

The constant safety movement began almost 40 years ago – slowly at first. Prior to this, it was considered inevitable that some patients would experience harm while journeying through the system. This was part of the risk of the system, we believed, until we took the time to look closely and realised that there was much more to be understood.

From the 1970s to the 1990s countries such as the US, UK and Australia began leading the way. The idea was to provide evidence-based studies such as the *Quality in Australian Health Care* study published in the *MAJ* in 1995, which could be used to provide unbiased information and be turned into advice to clinicians, policymakers and the general public to reduce the number of adverse events due to medical management.

By the turn of the past century, a seminal report from the US Institute of Medicine caught the world's attention. In 1999, *To Err is Human* reported that between 44 000 and 98 000 deaths per year in the US could be attributed to preventable errors in the delivery of health care.

Since then, it has become broadly known and much better understood that there are risks to patients when they interact with health services. The dedication of the health care profession is rarely in doubt, but the way care is organised has considerable scrutiny. Paradoxically, *most care is safe*, but cases of harm are much more likely to be newsworthy.

More evidence emerged. The *Haymarket ICU* and *Melting Midgeen* interventions in the early to mid 2000s successfully reduced infections when putting in a central line for intensive care patients in the

YVONNE ZURENSKI
Associate Professor
Health System
Sustainability, Australian
Institute of Health
Innovation, Monash
University and the
HEALTH Partnership
Centre on Health System
Sustainability

SUSAN WOOD-PINFIN
Associate Professor,
Children's Health, The
University of NSW and
the Sydney Children's
Hospital Network

CHRISTINE BODEN
Associate Professor,
Program Director, Priority
Populations, the Sydney
Children's Hospital
Network

Care coordination for children with chronic conditions

Making life better and saving money for the healthcare system

Having a child frequently admitted to hospital or requiring ongoing medical care is very stressful for families. The worry about the child's health and the determined attention needed by families to navigate our complex health system is a great challenge.

According to the Australian Institute of Health and Welfare, over one-third (33%) of Australian children have long-term health conditions, and frequently need care from multiple providers in diverse healthcare settings. Long term health conditions include asthma, diabetes and allergies, but some children have very complex conditions including developmental, genetic or chromosomal disorders. These children are frequent visitors to hospital clinics, emergency departments (ED) and

healthcare services in the community. Many families, however, rely on tertiary children's hospitals in metropolitan centres for most of their health care, because that is where their trained interdisciplinary specialist teams are located.

This is not sustainable. Attending tertiary children's hospitals is costly for families due to travel, accommodation costs, family disruption and loss of income for the parents. Further, it is costly for the health system because highly specialised tertiary children's hospitals are high-cost settings. Ideally, families would prefer to receive excellent care for their children closer to home, while keeping them out of metropolitan children's hospitals.

THE AUSTRALIAN

Paramedics accused of deadly culture of KPIs before care

By LIKE GIBBITTS
SUNDAY FEBRUARY 24, 2019 • 2 COMMENTS

Nine people died within five months last year as a result of South Australian paramedics not immediately taking them to hospital or underestimating their clinical risk, a new report finds.

All the deaths have been referred to the coroner, while the paramedics could face disciplinary action following a series of internal investigations.

Health Minister Stephen Wade and SA Ambulance Service chief David Price refused to be drawn yesterday on whether the state could face legal action.

The release of an independent review, conducted by academic Peter Hibbert and focused on events from August to December, comes after *The Australian* last week revealed a spike in "adverse incidents" during the period.

Associate Professor Hibbert found "preventable patient harm may have occurred" in 14 of the 17 incidents he investigated.

That number is expected to rise as more cases are assessed. Seven "adverse incidents" were recorded in 2012.

Associate Professor Hibbert found an overriding theme was an under-appreciation of the clinical risk posed to patients.

His 14 recommendations, including a call for SANS to develop a "robust and organisation-wide strategy for delivering high quality and safe care", have been accepted by the government.

"The most significant finding across the incidents was a lack of response to abnormal

NATIONAL AGED CARE

All the lonely people: Aged care residents at risk of neglect at Christmas

By Julia Power
December 21, 2019 • 11:00am

View all comments

TODAY'S TOP STORIES

CLIMATE POLICY

PM accused of using 'bait number' to mislead Australians about exit to emissions

SPENDING ACCOUNT LAWS

Spending faces a flood of drinking venoms, but an 'entertainment drought'

HEALTH PERSON

Man initially feared to have been taken by crocodiles, found alive and healthy three weeks later

TRADE WARS

Trump's trade war and Huawei has 'wake up' Chinese entrepreneurs

Far from being the most wonderful time of the year, Christmas and the summer holidays can be the worst for the 230,000 residents of aged care: staffing is at a minimum, activities are cancelled, and visitors and families are away on holidays.

Experts are urging families to visit lonely and frail relatives living in aged care over the summer holidays because staffing levels may result in neglect.

Aged care expert Professor Ruth Sagar, who conducted a review of staffing levels at 59 Australian facilities, said "Nursing homes have absolute minimum staffing at night, on weekends and public holidays. There might not be any qualified staff

WE HEAR YOU INVESTIGATING ATTITUDES TOWARD HEARING DEVICES

As part of the *HEALTH PARTNERSHIP* research program, we've conducted a survey of attitudes toward hearing devices. The results show that many people still have negative perceptions of hearing aids, which can impact their willingness to use them. We're working to change these attitudes through education and support.

Health Voices

JOURNAL OF THE COMMUNITY HEALTHCARE ASSOCIATION



Shifting our focus to achieve better care



Jeffrey Braithwaite

Professor Jeffrey Braithwaite is a leading health services and systems researcher with an international reputation for his work investigating and contributing to systems improvement. He is Founding Director of the Australian Institute of Health Innovation, Monash University, and President-Elect for the International Society for Quality in Health Care.

Sarah was admitted to hospital recently. She had abdominal pain, anxiety, and a rash, and the team suggested she needed exploratory surgery for her abdominal pain. The way understandably worried. Because of this and a couple of problems at work, she had got on top of her.



WELCOME • RESEARCH AND HEALTH SYSTEMS • EVIDENCE-BASED POLICY • WHEN WE MOVE BEYOND OUR USUAL VALUES, WHAT SOLUTIONS CAN WE FIND TO LOW-VALUE HEALTHCARE?



When we move beyond our usual silos, what solutions can we find to low-value healthcare?

Editor: Melissa Crowe, Author: Nicola Dzurik, 1st December 2019

All presented at Croakey, a recent health system consultation aimed to generate creative and effective solutions to tackle low-value healthcare.

Five key messages emerged from the discussions, according to Nicola Dzurik, Associate Professor of Health System Sustainability, Australian Institute of Health Innovation, Monash University, and the coordinator of the IHEARC Partnership Centre for Health System Sustainability. You can read a Twitter summary from the day [here](#).

Twitter summary



Independent investigation needed into hospital failures

Want an independent body that investigates and reports on incidents, the Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Instead of the HSB was intended to assess other self-regulatory bodies such as entities, which is not an independent and professionally staffed organisation to investigate safety risks.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

A patient in an Australian hospital suffers serious harm that could have been prevented by better care. It offers an independent review.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

Healthcare Safety Partnership Branch (HSPB), has been recently set up in response to several major reviews into the handling of patient safety incidents.

“We welcome health system advocates, research scientists and industry as partners in our efforts to develop innovative solutions and ensure healthcare system efficiency, effectiveness and sustainability.”

PROFESSOR JEFFREY BRAITHWAITE



CareTrack Kids

CareTrack Kids, a NHMRC Partnership Grant project, published papers in the areas of preventive care, autism, acute abdominal pain, croup, depression and anxiety, bronchiolitis, upper respiratory tract infection, asthma and tonsillitis. [↗](#)



Aged care

The Interim Report of the Royal Commission in Aged Care Quality and Safety cited the NHMRC Project CareTrack Aged protocol paper published in *BMJ Open*. [↗](#)



Child injury prevention

The National Child Injury Prevention Strategy, secured with research from the Health Outcomes team, began foundational development and consultations. [↗](#)



Quality management

Results from Deepening our Understanding of Quality in Australia (DUQuA), one of the most important studies of its kind in the world to determine how hospital quality management is related to patient care, have been released and published in a Special Issue of the *International Journal for Quality in Health Care*. [↗](#)



Epilepsy

The Patient Reported Implementation Science Model (PRIME) [↗](#) offers for the first time an overarching vision and framework to explain the delivery of care for people with complex epilepsy.



Female Firsts

Dr Robyn Clay-Williams was featured on SBS TV Insight program titled “Female Firsts”. [↗](#)



Cochlear Implants

Research on cochlear implant use has been integral to the development of a global statement on hearing loss and was the basis of an informative video on the barriers and facilitators to people receiving a cochlear implant. [↗](#)



PhD research

PhD candidates Chiara Pomare, Kristiana Ludlow, Zeyad Mahmoud and Hossai Gul contributed to major studies in health services improvement.



CHRIS Research Streams

APPROPRIATENESS OF CARE AND PATIENT SAFETY

Professor Jeffrey Braithwaite

jeffrey.braithwaite@mq.edu.au

Associate Professor Peter Hibbert

peter.hibbert@mq.edu.au

The Appropriateness of Care and Patient Safety stream investigates the level of evidence-based or best practice healthcare that Australians receive. Our suite of research includes a number of internationally recognised long-term population-based studies including CareTrack Australia, CareTrack Kids and CareTrack Aged. ↗

IMPLEMENTATION SCIENCE

Professor Frances Rapport

frances.rapport@mq.edu.au

The Implementation Science stream examines how to bring about service improvements, faster patient care pathways, more informed patients and greater shared care services across primary, community and tertiary contexts. The desired outcome is sustainable high-quality and safe healthcare services, informed equally by patients and healthcare professionals, and clear models of professional care delivery. ↗

COMPLEX SYSTEMS

Professor Jeffrey Braithwaite

jeffrey.braithwaite@mq.edu.au

Complex Systems research takes a holistic approach to investigating

the health system, recognising that it is a Complex Adaptive System, with multiple individuals, a network of multidisciplinary teams and patients, complicated technologies and processes, and complex interdependencies of resources. Our diverse work exploring useful ways to capture, leverage and embrace the complexity of our health system, focusses on aspects of organisational culture and how to measure it, implementation of genomic medicine, and implementation evaluation of mental health initiatives. ↗

HEALTH OUTCOMES

Associate Professor

Rebecca Mitchell

r.mitchell@mq.edu.au

The Health Outcomes research stream examines the burden of injury and disease to determine priorities for prevention efforts and conduct research in the population and within the health system aimed at identifying where health outcomes could be improved. ↗

HUMAN FACTORS AND RESILIENCE

Dr Robyn Clay-Williams

robyn.clay-williams@mq.edu.au

The Human Factors and Resilience research stream provides a vital contribution, nationally and internationally, to understanding how healthcare systems function, and how to make them safer for

patients. We aim to understand how everyday work is done by doctors, nurses, and allied health practitioners on the frontlines of patient care, and we use that knowledge to develop processes and tools for increasing the number of things that go right and thereby making care better for patients and their families. Our work addresses healthcare needs at multiple levels, from local health district, to hospital, to clinical teams. ↗

LEARNING HEALTH SYSTEMS

Professor Jeffrey Braithwaite

jeffrey.braithwaite@mq.edu.au

Despite many efforts over 25 years, modern healthcare systems persistently underperform. Errors, suboptimal care and waste come at a high human and economic cost. This ambitious project, sitting at the intersection of technology and human behaviour, aims to help break this impasse. By harnessing information technologies, data mining, machine learning and genomics, the learning system will help drive the transition from today's standardised treatment protocols to precision and personalised medicine.

Left to right: Professor Jeffrey Braithwaite, Associate Professor Peter Hibbert, Professor Frances Rapport, Associate Professor Rebecca Mitchell and Dr Robyn Clay-Williams



Centre for Health Informatics

The Centre for Health Informatics (CHI) celebrated its 20th anniversary in 2019 and is Australia's largest and longest running academic research group in this discipline.

In 2009, CHI joined with the Centre for Clinical Governance Research at UNSW and the Simpson Centre at Liverpool Hospital to establish AIHI which subsequently moved to Macquarie University in late 2014.

Over 20 years, CHI has been awarded more than \$21 million in government funding, over \$5 million from industry and over \$20 million from other sources including university support, published 854 publications, including three editions of *Guide to Health Informatics* (Coiera) which has been translated into several languages. Three commercialisations have also occurred.

2019 was also a year of growth with the addition of a new Precision Health Research stream bringing expertise in human-computer interaction and machine learning for health applications, precision healthcare, evaluating AI technologies, and person-centred health informatics.

During 2019, CHI celebrated three PhD completions:



Dr David Lyell, Automation bias in electronic prescribing: The effects of over-reliance on clinical decision support in relation to errors, cognitive load and verification.



Dr Rabia Bashir, Using software engineering principles to improve the completeness and efficiency of the systematic review ecosystem.



Dr Toby Hodgson, Evaluating the use of speech recognition for electronic health record documentation.

CHI's researchers featured prominently as keynote speakers and facilitators at national and international conferences, workshops and seminars in New Zealand, the UK, Japan and Sri Lanka throughout 2019.

MACQUARIE University The Lighthouse

Bid to beat tech giants in developing digital scribe for doctors

NEWS
By Jane Quinn
Published
10 December 2019
Updated
16 December 2019
Faculty of Medicine and Health Sciences



It's time patients try the doctor record on electronic health systems, making it digital for doctors to use rather than paper notes, says Quinn.

Macquarie University researchers developing an artificial intelligence that transcribes and summarises consultations between doctors and patients are eager for more data.

Researchers at the Australian Institute of Health Innovation (AIHI) at Macquarie University are competing against big tech players, including Google, Amazon and Microsoft, to develop a portable digital scribe for doctors.

The tool will use speech recognition and artificial intelligence (AI) to record and transcribe consultations, extract relevant information and summarise it in a patient's electronic health record.

This would allow doctors to focus on the patient, with the digital scribe generating the appropriate notes. But no one has yet been able to obtain the quantity and quality of data they need to accurately develop the tool.

AusDoc.PLUS

5 MINUTE NEWS

How GPs can help develop a time-saving 'digital scribe'

More data is needed to help AI create a program to cut time spent note taking, says researcher
16 December 2019
By Carmel Spence

GPs are being recruited to record patient consultations to help create a 'digital scribe' that would slash the time doctors spend writing up notes.

Macquarie University researchers plan to use the doctors' recordings to develop a tool that uses speech recognition and artificial intelligence to record and transcribe consultations.

The tool would extract relevant information and summarise it in a patient's electronic health record, say the team from the university's Australian Institute of Health Innovation (AIHI).

Such a tool would benefit doctors worldwide by reducing the time spent on documentation and note taking, allowing them to focus on the patient.

However, developing such a digital scribe is proving a difficult task, as researchers have not been able to obtain the quantity and quality of data needed to accurately create the service.

The team have reached out to the broader clinical community through Medicine, in which they describe the challenges and their progress so far.



'Consistent evidence' social media pushes non-smokers into vaping: study

By Caitlin Finlayson
December 27, 2019 - 12:00pm

View all comments

Advertising for electronic cigarettes is pushing non-smokers and young people to take up vaping despite the health risks, in a finding that will galvanise opponents of the push to legalise nicotine vaping in Australia.

Researchers from Macquarie University reviewed 45 studies involving 27,303 people globally to examine the effect of e-cigarette marketing on non-smokers.



Legalise Vaping Australia campaign director Brian Marlow with vaper Katarina Perovic. (JENNIFER POLZEL)

When Strangers Diagnose You Online

On platforms like Reddit, people are seeking opinions on anything from skin conditions to syphilis

Maya Koeth
Nov 27 - 8 min read



THE CONVERSATION



4 ways to talk with vaccine skeptics

Your neighbor is telling you about his new baby. He feels nervous about vaccinating, and you're considering adopting Leo's opinion. Your neighbor's group is chatting about contacts. One member tells the group they just vaccinated, and she's using the vaccine-hesitating chat thread. It's a Facebook parenting group, someone comments we shouldn't trust pharmaceutical companies because they're covering up studies showing vaccine safety risks. There are similar scenarios every second Tuesday. So what do you do when you're faced with someone who questions vaccination? Do you try to convince them to vaccinate? Do you ignore them? Or might something else work?

Read more: We argue about vaccination - and why they're wrong

Talking about vaccination can be really difficult. Vaccination involves strong values, like protection of children, social responsibility, and respect for science.

'Pre-bunking' app stops anti-vaxxer lies

JANE QUINN

ANTI-VAXXER lies are spreading online so fast that researchers are developing an app to stop them before they can take root. The app, called Pre-bunking, was developed by researchers at Macquarie University and the Walter Institute of Health Sciences.

The app will allow people who are already vaccinated to see what anti-vaxxer lies are out there that are based on credible research. "The great research is in the evidence of anti-vaxxer but the evidence is a breeding ground for misinformation about vaccination which has led to a decline in vaccination rates across many areas of the world," says Quinn. "The transmission of vaccine is about vaccine confidence where it's never been established in people who are vaccine-hesitant or anti-vaxxer. And there will be a pre-bunking tool to reduce app."



Alan Owen

nature
Does psychology have a conflict-of-interest problem?
Some star psychologists don't disclose the research papers the large sums they earn in fee talking about their work. Is that a concern?



Gen Z has made Jenni Turner diversity in California, she's the woman group that got it

The big picture: How a vaping tax could encourage smoking



Advertising and social media is pushing non-smokers to take up vaping, according to new research. Macquarie University researchers found 'consistent evidence' that advertising...

New Artificial Intelligence can predict personality

NEWS
A new artificial intelligence system can predict personality traits from a person's social media posts. The system, called AI-Personality, was developed by researchers at Macquarie University and the University of Sydney.

In the near future, when you apply for a job or join a new team at work, a machine, rather than a human, may assess your personality traits to see if you are suitable.

Realising that people could manipulate conventional personality tests, a team of computing and psychology researchers from Macquarie, CSIRO and the University of Sydney decided to investigate ways to make personality detection more objective.



The talking robot. Associate Professor Shikha Bhatnagar says by using new technology, she can accurately assess personality traits.

“Twenty years ago, when the Centre for Health Informatics was founded, digital health seemed to many like a futurist’s fantasy. Today it is the bedrock of modern healthcare. What tomorrow will bring through AI will just blow you away.”



Evidence review

The National Library of Medicine in the United States awarded a National Institute of Health grant to accelerate evidence synthesis by coupling results data from ClinicalTrials.gov and bibliographic databases.



AI safety

Associate Professor Farah Magrabi received a prestigious University of York UK Fellowship and is the only Australian on the international team of a £12 million program to examine safety governance of AI in all domains.



Voice assistants

Research found that that in more than 50% of cases voice assistants like Siri and Alexa did not recognise a crisis situation and offer appropriate direction. Research has led to improvements by developers.



Incident reporting

Work contributing to Australia's first standardised health IT-related incident classification system has been adapted for the Australian Commission on Safety and Quality in Health Care for their Guidance for hospitals: Classifying EMM-related adverse events and incidents.



AI and ethics

The International Network on the Future of AI and Medical Ethics, named Associate Professor Magrabi as a foundation member, and the only informatician.



Vaping

Research found that young people and non-smokers were at risk of taking up vaping when exposed to positive online advertising or social messages about vaping.



Health apps

A review of the safety of consumer health apps, published in JAMIA, has remained in the top 5 most read list since publication.



Clinical predictive tool

Using the "GRASP" tool (for grading and assessment of predictive tools), clinicians increased their correct decisions by 64%. 88% of participants reported GRASP useful.



Vaccinations

Research shows that anti-vaccination messages spread more quickly and have a wider reach than public health messages.



CHI Research Streams

PRECISION HEALTH

**Associate Professor
Shlomo Berkovsky**

shlomo.berkovsky@mq.edu.au

The Precision Health research stream focuses on the use of machine learning methods to develop patient models and personalised predictions of diagnosis and care. In addition, the stream studies how sensors and physiological responses can predict medical conditions, and how clinicians and patients interact with health technologies.

We undertake collaborative projects with leading national research groups, such as the Melanoma Institute Australia, Kolling Institute, and Optus-Macquarie Cyber Security Hub. [↗](#)

CONSUMER INFORMATICS

Dr Annie Lau

annie.lau@mq.edu.au

The Consumer Informatics team investigates the science, design and impact of digital health for patients and consumers. We are passionate about understanding and improving the health of individuals through the use of digital technology.

We work closely with patients, consumers and multidisciplinary colleagues to identify important gaps, and together develop innovative ideas and apply rigorous methods to test the boundaries of how digital technologies can improve health. [↗](#)

PATIENT SAFETY INFORMATICS

Associate Professor Farah Magrabi

farah.magrabi@mq.edu.au

Ensuring patients do not come to harm during healthcare is one of the key aims of health services research. The Patient Safety Informatics program examines how health service delivery can be made safer through the effective use of digital health. We also investigate the risks of current and future technologies including AI. Our work is used nationally and internationally by healthcare organisations, government departments, patient safety agencies and industry. [↗](#)

DIGITAL EPIDEMIOLOGY

Associate Professor Adam Dunn

adam.dunn@mq.edu.au

The Digital Epidemiology team translates the applications of machine learning and network science to solve problems related to the production, reporting, and use of evidence in clinical medicine and public health.

Associate Professor Shlomo Berkovsky, Dr Annie Lau,
Associate Professor Farah Magrabi and Associate
Professor Adam Dunn



NHMRC Partnership Centre for Health System Sustainability

The NHMRC Partnership Centre for Health System Sustainability (PCHSS) is a \$10.75 million, five-year collaboration involving 17 lead investigators, 20 expert advisors and over 40 system implementation partners from around Australia. PCHSS is led by Professor Braithwaite, founding director of AIHI. In 2019, PCHSS continued to expand its internationally recognised research to improve healthcare services and systems.

PCHSS LEAD INVESTIGATORS AND PARTNER ORGANISATIONS



WESTERN AUSTRALIA

Dr Delia Hendrie^{RL}
 Prof Liz Geelhoed^{RL}
 Dr Darren Gibson^{RL}
 WA Dept of Health*

NORTHERN TERRITORY

Department of Health, NT*

SOUTH AUSTRALIA

Prof Jon Karnon^{RL}
 PHN Country SA*
 PHN Adelaide*

VICTORIA

Prof Tony Scott^{RL}
 Prof Rachele Buchbinder AO^{RL}
 Prof Helena Teede^{RL}
 Circle Health*
 Monash Partners*
 Dept of HHS Victoria*
 PHN South Eastern Melbourne*
 Cabrini Health*

TASMANIA

University of Tasmania*
 Dept of HHS Tasmania*
 PHN Primary Health Tasmania*

QUEENSLAND

Prof Paul Glasziou^{RL}
 Prof Leonard Gray^{RL}
 Prof Robyn Ward AM^{RL}
 Metro South Health*
 Queensland Health*
 PHN Brisbane South*
 James Cook University*

NEW SOUTH WALES

Prof Jeffrey Braithwaite^{CIA}
 Prof Enrico Coiera^{RL}
 Prof Johanna Westbrook^{RL}
 Dr Teresa Anderson^{RL}
 Dr Jean-Frédéric Levesque^{RL}
 Mr George Leipnik^{RL}
 Mr James Downie^{RL}
 Prof Christine Bennett AO^{RL}
 Ms Annette Schmiede^{RL}
 Sydney LHD and Sydney Health Partners*
 Macquarie University Hospital*
 PHN Sydney North Health Network*

ACT

Ms Leanne Wells^{RL}
 ACT Health*

NATIONAL COLLABORATORS

Consumers Health Forum of Australia
 Aged Care Guild
 Independent Hospital Pricing Association
 HammondCare

CIA – Chief investigator first listed
 RL – Research lead Investigator
 * System-based implementation partner organisation

FUNDING PARTNERS



Government of Western Australia
 Department of Health

VISION

Our research findings will significantly influence the development of a resilient healthcare system that is affordable, cost-effective and delivers improved health outcomes for all Australians.

ADDRESSING THE CHALLENGES

The Australian healthcare system is challenged by multiple threats to its capacity to deliver high-quality care. These include ageing populations, increasing rates of chronic and complex diseases, growing cost pressures from new medical technologies and medicines, wasteful spending on low-value care, inefficiencies arising from system fragmentation and limited use of data and evidence to support reform. PCHSS aims to explore these and other challenges to health system sustainability and develop and evaluate a set of practical interventions that are appropriate from clinical, patient, and economic perspectives.

ACHIEVEMENTS IN 2019

The second full year of PCHSS operation provided many opportunities for research, translation and implementation. A key highlight was the public event, "Treatment overload: Lifting the burden of too much healthcare" which was held in Sydney and attended by more than 100 clinicians, researchers, policy makers, journalists and consumers. The Secretary of NSW Health, Ms Elizabeth Koff, opened proceedings and the day featured a dynamic simulation game on healthcare complexity. Videos of the event on YouTube have been viewed over 1,000 times.



Health System Sustainability

NHMRC Partnership Centre

>\$12m

in leverage funding

>60

health system collaborators

>250

publications

27

collaborating health system organisations

>180

media engagements

The three broad themes of our research are:



Using analytics, technology and shared data



Reducing waste and low-value-care



Promoting better value for the health dollar

PCHSS Research Streams

USING ANALYTICS, TECHNOLOGY AND SHARED DATA

Professors Johanna Westbrook, Enrico Coiera and Len Gray

We tackle important questions in informatics and healthcare including using big data to improve care, diagnostic testing and medication management, as well as designing analytics to guide better healthcare decisions.

We are also examining how telehealth might best be deployed and funded to improve healthcare across the country. [↗](#)

HIGHLIGHTS

DEMENTIA CARE

Research on patients with dementia in Australian aged care facilities revealed a dual set of challenges related to medication. On the one hand, some patients were missing out on potentially beneficial medications for reasons that were not clinically relevant (such as the patient's primary language), while on the other hand, some dementia patients were being unnecessarily sedated with antipsychotic drugs for more than 200 days at a time, twice as long as the maximum time recommended. This research was covered by media nationally.

DIGITAL SCRIBES


Research on digital scribes (tools designed to automatically capture clinician-patient verbal interactions) has shown they are not living up to their full potential. Multiple obstacles to the effective use of digital scribes were found and the next step is to develop digital scribes that are fit-for purpose and acceptable to patients and clinicians alike.



The cost of healthcare worldwide is rising unsustainably. To counter this growth, alternative service models that are cost effective and maintain the quality of care are needed.

REDUCING WASTE AND LOW VALUE CARE

Professors Paul Glasziou and Rachelle Buchbinder


While 30% of delivered healthcare is wasteful or of low value, we are finding ways to reduce wasteful expenditure and to deliver needed care more cost-effectively. 

HIGHLIGHTS

ALTERNATIVE HEALTHCARE

The cost of healthcare worldwide is rising unsustainably. To counter this growth, alternative service models that are cost effective and maintain the quality of care are needed. A scoping review of systematic reviews (which included more than 550 reviews) was conducted to identify and synthesise evidence on alternative healthcare delivery arrangements in high-income countries. This research aims to support future health system planning, identify new models of care delivery and explore other sustainability initiatives.

OVER-DIAGNOSIS OF CANCER

The lifetime risk of cancer diagnosis and mortality in Australia is overestimated by current calculation methods. New research revealed that many of the most common cancers were over-diagnosed – that is, detected cancers that would likely not have substantially affected a patient’s health had they gone undetected or untreated. 



PROMOTING BETTER VALUE FOR THE HEALTH DOLLAR

Professors Jon Karnon, Tony Scott and Dr Delia Hendrie

We are developing new frameworks and metrics to improve health system sustainability. ↗

HIGHLIGHTS

BETTER INCENTIVES

Research to guide the design of government incentives, found that current incentives to entice GPs to move from urban to more rural practices were not very effective.

BETTER EVALUATION

Two Primary Health Networks trialled the in-DEPth (Evidence-informed, co-creation framework for the Design, Evaluation and Procurement of Health services) framework to develop evidence-informed procurement specifications for services for people with mental health problems or alcohol and other substance abuse. in-DEPth supports a systematic approach to commissioning services that are evidence-informed, contextually relevant and informed by stakeholder perspectives.



CENTRE COORDINATION AND RESEARCH UNIT

**Professor Jeffrey Braithwaite
and Associate Professor
Yvonne Zurynski**

HIGHLIGHTS

LEARNING HEALTH SYSTEMS

Learning Health Systems are seen as models for the future of healthcare as they bring science, informatics, incentives and culture into alignment, thereby making knowledge generation an integrated part of the day-to-day functioning of health systems. Professor Braithwaite, Associate Professor Zurynski and colleagues published a working paper on Learning Healthcare Systems. Further, we are currently undertaking a systematic review, which includes more than 190 papers, synthesising the state of knowledge in this field.

NETWORKS

Professors Braithwaite and Westbrook and colleagues put forward an evaluation framework to underpin understanding of the effectiveness and sustainability of clinical and health networks. Drawing on the literature on networks and communities of practice in healthcare, as well as theoretical and evidence-based studies of the evaluation of health and non-health networks, the framework comprises network goals, characteristics and relationships at member, network and community levels.

CONSUMERS HEALTH FORUM OF AUSTRALIA

In collaboration with the Consumers Health Forum of Australia and the Royal Australian College of General Practitioners, a roundtable was held about social prescribing – the practice of health professionals connecting patients with social services and community groups to address social determinants of poor health. A report on the outcomes of the roundtable have been published.


MEDIA ENGAGEMENT

A number of editorials were published in outlets such as *Croakey News*, *MJA Insight+* and *The Conversation*. These included articles on patient safety, breaking down healthcare silos, and the relevance of climate to health system sustainability.

For more details visit our website healthsystemsustainability.com.au





The NHMRC Centre of Research Excellence in Digital Health (CREiDH)  had a very productive year publishing widely in highly respected journals such as *JAMIA*, *npj Digital Medicine*, *JMIR*, *The Lancet* and *BMJ*, with a strong focus on AI and human computer interaction.

CREiDH is led by Professor Enrico Coiera and administered by AIHI.

NHMRC Centre of Research Excellence in Digital Health

COLLABORATIVE PARTNERS

- Professor Enrico Coiera, AIHI, Macquarie University
- Professor Paul Glasziou, Bond University
- Professor William Runciman, University of South Australia
- Dr David Hansen, CSIRO Australian e-Health Research Centre
- Professor Teng Liaw, UNSW Sydney
- Associate Professor Farah Magrabi, AIHI, Macquarie University
- Associate Professor Vitali Sintchenko, University of Sydney
- Professor Karin Verspoor – University of Melbourne
- Associate Professor Blanca Gallego-Luxan, UNSW Sydney
- Dr Annie Lau, AIHI, Macquarie University
- Dr Teresa Harms, Oxford University
- Professor Ann Blandford, University College London
- Professor Fiona Stevenson, University College London
- Associate Professor Enrico Costanza, University College London
- Megan Forster, National Children's Health Collaborative
- Leandra Hawkins, National Children's Health Collaborative

THE FELLOWSHIP BY TRAINING PROGRAM

In 2019, the CREiDH and Australasian College of Health Informatics welcomed a new digital peak body, the Australasian Institute of Digital Health (AIDH). Lead Informaticians within the Health Informatics Society voted for this new peak body and in 2020 will see the Fellowship by Training Program managed by AIDH, with support from the CREiDH.

In 2019, the Program delivered strong learning outcomes including seven Master Classes and ten Journal Clubs. The Program arranged candidate's participation in conferences and colloquiums, at which some candidates were recipients of prestigious awards.

During 2019, two candidates completed the Program and now have a PhD academic qualification and a portfolio of work with industry contacts.

HIGHLIGHTS

Researchers are working on creating a **Digital Scribe** using speech recognition and AI to transcribe and summarise consultations between doctors and patients and reduce the clinical burden.

The **Advanced Clinical Analytics** team produced a Systematic Review process using 15 different tools to produce reviews within two weeks, normally a one-year timeframe. Research into a 'Green Button' concept supported by Natural Language Processing in the area of chest pain stratification is also being conducted.

The **Safety and Quality** team conducted research into the safety concerns of consumer-facing mobile apps and context-aware systems for chronic disease patients and developed a classification for tracking digital health incidents involving medications in conjunction with the ACSQHC's National Roundtable on Medications Management. The Team has also been working with the Clinical Excellence Commission (NSW) to assist with machine learning methods for analysis of safety incident monitoring data.

The **Consumer Informatics** team is using deep learning to analyse large sets of body camera data collected from participants with multiple chronic conditions – examining what works and doesn't work in self-care.

The **Rapid Response** team is working with the National Children's Digital Health Collaborative in the areas of consumer generated data entered in electronic health records or portals and consumers' engagement with electronic health records, portals and apps.



NHMRC Centre of Research Excellence in Implementation Science in Oncology

Australian cancer survival rates are amongst the best in the world and are incrementally improving, creating a growing cohort who require ongoing support and management.

This growth in demand for services places stresses on our health system, a system that is also dealing with rapid growth in new treatments and treatment strategies for cancer, along with an increased focus on patient experience.

To address these challenges, the NHMRC Centre of Research Excellence in Implementation Science in Oncology [↗](#) is working to understand how cancer services are currently delivered. As we proceed, this understanding will inform strategies to improve the adoption of evidence-based practices.

The Centre is administered by AIHI with a central coordinating team comprising: Dr Gaston Arnolda (team leader), Dr Bróna Nic Giolla Easpaig, Dr Yvonne Tran, Dr Klay Lamprell, Ms Teresa Winata and PhD Student Ms Mia Bierbaum. The AIHI team collaborates with the South Australian Health Economics Team led by Professor Jon Karnon.

HIGHLIGHTS

- Building teams with key industry partners, the South-Eastern and South-Western Sydney Local Health Districts.
- Implementing a large-scale qualitative study to characterise multi-disciplinary oncology service provision in two Local Health Districts and to explore patient-reported measures (protocol and methodology papers published).
- Interviewing clinicians to understand their views of oncology clinical practice guidelines and to understand facilitators/barriers to effective multidisciplinary team meetings.
- Performing systematic reviews on clinicians' views of patient-reported measures in oncology, clinicians' views on oncology clinical practice guidelines, and on the use of nudges to alter clinicians' behaviour.
- Exploring predictors of oncology patient satisfaction.
- Exploring oncology outpatient staffing and financing.

Tran Y, Lamprell K, Nic Giolla Easpaig B, Arnolda G, Braithwaite J. What information do patients want across their cancer journeys? A network analysis of cancer patients' information needs. *Cancer Medicine*. 2019; 8(1):155-64. [↗](#)



CHIEF INVESTIGATORS

Professor Jeffrey Braithwaite

AIHI, Macquarie University

Professor Robyn Ward AM

University of Sydney

Professor David Currow

Flinders University

Professor Geoff Delaney

South-Western Sydney Local
Health District

Professor Richard Kefford AM

Macquarie University

Professor Ian Olver AM

University of South Australia

Professor Jonathan Karnon

Flinders University

Professor Phil Crowe

University of New South Wales

Associate Professor Winston Liauw

South-Eastern Sydney Local
Health District

Professor Johanna Westbrook

AIHI, Macquarie University

Our staff

At AIHI, we recognise and value the diversity of cultural and professional backgrounds of our staff, gaining collectively from global perspectives in healthcare. We attract highly skilled clinicians, scientists, engineers, epidemiologists, statisticians, psychologists and analysts who are developing expert communities of practice, multi-disciplinary research teams and synergistic networking and co-authorship.

We are proud to have coordinated the Macquarie University International Women's Day event for the past two years as well as celebrating the World Health Organisation's World Sepsis Day (pictured) and World Patient Safety Day.

- 5**
Professors
- 6**
Associate Professors
- 6**
Senior Research Fellows
- 29**
Research Fellows
- 17**
Postdoctoral Fellows
- 56**
Professional and other staff
- 70**
External academics
- 38**
HDR students
- 41**
PACE students







Awards

AIHI CENTRE FOR HEALTH SYSTEMS AND SAFETY RESEARCH AGED CARE EVALUATION AND RESEARCH – DEMENTIA AND AGED CARE SERVICES TEAM

Finalist (Social Inclusion) in The Future of Ageing Awards 2019.

ASSOCIATE PROFESSOR FARAH MAGRABI

Awarded the Assuring Autonomy International Programme Fellowship from the University of York, UK.

ASSOCIATE PROFESSOR PETER HIBBERT AND PROFESSOR JEFFREY BRAITHWAITE

Awarded the Peter Reizenstein Award for Best Paper published in the *International Journal for Quality in Health Care* in 2018.

ASSOCIATE PROFESSOR REBECCA MITCHELL

Awarded joint first prize for the Golden Issue of *Injury*.

ASSOCIATE PROFESSOR SHLOMO BERKOVSKY

Best Paper Award of the ACM International Conference on Human Factors in Computing Systems (CHI-2019).

ASSOCIATE PROFESSOR STEPHANIE BEST, DR JANET LONG AND PROFESSOR JEFFREY BRAITHWAITE

Awarded second best oral presentation at the Australian Genomics Health Alliance National Conference.

CHIARA POMARE

First place in the Higher Degree Researcher Image Prize at the 4th Annual EnCouRage Research Symposium, Macquarie University.

DR JOYCE SIETTE

Received a Conference Travel Award from the NHMRC National Institute for Dementia Research, Dementia Centre for Research Collaboration.

DR MAGDA RABAN

Named most Prolific Tweeter during Health Services and Policy Research Conference for the Health Services Research Association of Australia and New Zealand.

DR MIKAELA JORGENSEN

Outstanding Oral Presentation award at the International Association of Gerontology and Geriatrics Asia/Oceania Regional Congress, Taiwan.

KRISTIANA LUDLOW

Awarded Best NSW-Based Student Presentation at the 18th National Conference of Emerging Researchers in Ageing.

PROFESSOR FRANCES RAPPORT, DR VIRGINIA MUMFORD AND DR ROBYN CLAY-WILLIAMS, DR PATTI SHIH, DR MONA FARIS, PROFESSOR JEFFREY BRAITHWAITE

Named one of the top five best-cited papers published for 2017-2018 in *Epilepsy and Behaviour*.

PROFESSOR JOHANNA WESTBROOK

National Research Leader in the field of Medical Informatics awarded by *The Australian Research Magazine*.

PROFESSOR JEFFREY BRAITHWAITE

Winner Editor's Choice award for *International Journal for Quality in Health Care*.

RABIA BASHIR

Awarded the 2019 Macquarie University Ramy Razavian Dean's Award for Excellence in Higher Degree Research.

Institute engagement

AIHI SEMINAR SERIES

The AIHI Seminar Series provides a public monthly forum for the sharing of ideas, new research and calls to action that invigorate debate and contribute to improving the health system in Australia and internationally. We are pleased to present the most popular of the 24 sessions held during 2019. A complete list of seminars is available on our website. [↗](#)

THE USE OF DIGITAL RESOURCES BY THE AGEING GENERATION
SPEAKER: PROFESSOR HEIKO GEWALD

*Center for Research on Service Sciences
 Neu-Ulm University of Applied Sciences, Germany*

Digital resources like smartphones, fitness trackers and health apps have evolved as ubiquitous powerful media for society. This seminar presented findings from recent studies on technology adoption of senior citizens and discussed avenues for future research.

SAFETY IN HEALTHCARE – STATE OF THE ART OR STATE OF MIND?
SPEAKER: PROFESSOR CLIFF HUGHES AO

Australian Institute of Health Innovation

In recognition of the World Health Organisation's World Patient Safety Day, this seminar highlighted factors to consider when thinking about safety in healthcare. According to WHO, more than 134 million adverse events occur in healthcare settings each year worldwide, leading to 2.6 million deaths.

NSW BUREAU OF HEALTH INFORMATION: OPPORTUNITIES FOR RESEARCH AND COLLABORATION
SPEAKER: DR DIANE WATSON

Chief Executive, NSW Bureau of Health Information

This seminar presented an overview of the NSW Bureau of Health Information's work, in particular the Bureau's Strategic Plan: 2019-21,

and the different ways researchers can work with the Bureau and use its patient-reported experiences and outcomes survey data.

THE POWER OF THE PATIENT VOICE
SPEAKER: MAUREEN WILLIAMS

Patient Advocate

This powerful seminar outlined the importance of patient voices in healthcare quality and safety, exploring the possibilities of including patients in medical research, the pitfalls of informed consent and the power of patient narrative in healthcare.

THE PATIENT DIED – WHAT ABOUT INVOLVEMENT IN THE FOLLOWING REGULATORY INVESTIGATION OF THE ADVERSE EVENT? EXPERIENCES FROM NORWAY.
SPEAKER: PROFESSOR SIRI WIIG

Quality and Safety in Healthcare Systems

University of Stavanger, Norway

Norway does not have a well-established tradition of user involvement when investigating adverse events. This seminar presented results from a one-year process evaluation focusing on the perspectives of patients' next of kin as well as investigators who participated in a new regulatory investigation process related to adverse events causing patient death.

MD Research Program

The new Macquarie University Doctor of Medicine (Macquarie MD) is a four-year, fast-track program designed for students with a first degree who are high flyers; who engage in a variety of experiences and activities; have the interpersonal skills desirable in a medical student and doctor; and the resilience, commitment and desire to help improve the health of Australian and global communities.

Embedded into the Macquarie MD is a rigorous structured research program developing key research skills where the students work on a research project focusing on an aspect of health systems, patient safety and quality, clinical research or public health. AIHI oversees the research program on behalf of the University.



Higher degree researcher program

2019 HIGHLIGHTS



PhD

24 Candidates
3 Thesis Submissions



MRes
(Year Two)

13 Candidates
4 Thesis Submissions



MPhil

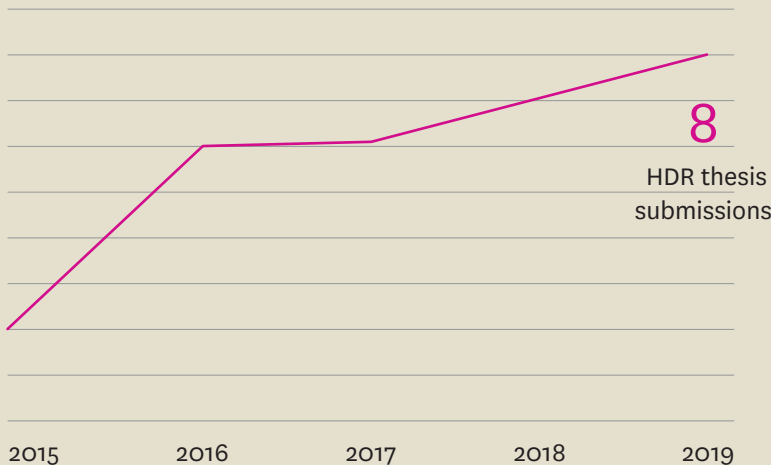
1 Candidate
1 Thesis Submission



38

HDR Candidates supervised by AIHI

CONTINUED GROWTH IN HDR THESIS SUBMISSIONS



Drawing on the expertise of our internationally regarded pool of academics, the AIHI Higher Degree Research (HDR) program represents a key period of training in the career of health systems researchers. Many have gone on to secure senior roles in academia, health services and industry, both in Australia and abroad.

AIHI HDR candidates are valued members of our research community, where we seek to provide them with real-world opportunities to make a difference.

Postgraduate candidates can pursue several qualifications including:

- Master of Research (MRes)
- Master of Philosophy
- Doctor of Philosophy

Read about our programs and see profiles of our PhD and Masters graduates: [goto.mq/aihistudy](https://goto.mq.aihistudy)

E: aihi.hdr@mq.edu.au

We foster an environment of collaborative learning.



REAL WORLD LEARNING WITH PACE

The multi-award-winning PACE (Professional and Community Engagement) program at Macquarie University supports undergraduate students with authentic workplace experiences. In 2019 AIHI hosted 41 PACE students, placing them alongside academics to participate in projects ranging from conversational chatbots to social networks in aged care.

MEET JOSH JUNG

Josh Jung is one of the first graduates of the Bachelor of Clinical Sciences at Macquarie University, joining AIHI via the PACE program with Dr Annie Lau and Dr Kathleen Yin. After the 12-week program, Josh stayed on as a part-time Research Assistant. He gained valuable skills including pre-screening and interviewing patients and writing up interview summaries along with carrying out thematic analysis to support the principal researchers. In 2019, Josh was accepted into the Macquarie University Doctor of Medicine.

Each year Macquarie University holds a 3 Minute Thesis competition. Here students at AIHI attend an "elevator pitch" preparation workshop. In the Faculty heat, AIHI's Chiara Pomare secured second place and Kristiana Ludlow placed third.

Our publications

1 JANUARY TO 31 DECEMBER 2019 ↗

1

Books

3

Books edited

34

Book chapters

230

Peer-reviewed
journal articles

78

Conference
abstracts/posters

11

Full conference
papers

BOOKS (1)

1. **Berkovsky S**, Cantador I, Domonkos T. *Collaborative recommendations: algorithms, practical challenges, and applications*. Singapore: World Scientific Publishing; 2019.


BOOKS EDITED (3)

1. **Braithwaite J**, Hollnagel E, Hunte GS, editors. *Resilient Health Care Volume 5: Working Across Boundaries*. Boca Raton, Florida: Routledge: Taylor & Francis Group; 2019.
2. Scott P, de Keizer N, **Georgiou A**, editors. *Applied Interdisciplinary Theory in Health Informatics*. Amsterdam: IOS Press; 2019. (263).
3. Zheng K, **Westbrook JI**, Kannampallil T, Patel V, editors. *Cognitive Informatics: Reengineering clinical workflow for more efficient and safer care*. New York: Springer International Publishing; 2019.

BOOK CHAPTERS (34)

1. **Braithwaite J**, **Churruca K**, Wells L, **Rapport F**, Lawson T, Arro P, Watson J. *Partnering with patients for change and improvement: an Australian perspective*. In: Pomey MC, Denis JL, Dumez V, editors. *Patient Engagement: How Patient-provider Partnerships Transform Healthcare Organizations*. London, United Kingdom: Palgrave Macmillan; 2019. (Published Online First 11 October 2019) p. 169-98.
2. **Braithwaite J**, Hollnagel E, Hunte GS. *Introduction: the journey to here and what happens next*. In: **Braithwaite J**, Hollnagel E, Hunte GS, editors. *Resilient Health Care Volume 5: Working Across Boundaries*. Boca Raton, FL: Routledge: Taylor & Francis Group; 2019. (5) p. 3-8.

3. **Braithwaite J**, Hollnagel E, Hunte GS. *Discussion, integration and concluding remarks*. In: **Braithwaite J**, Hollnagel E, Hunte GS, editors. *Resilient Health Care Volume 5: Working Across Boundaries*. Boca Raton, FL: Routledge: Taylor & Francis Group; 2019. (5) p. 165-72.
4. **Braithwaite J**, Hollnagel E, Wears RL. *Bon voyage: navigating the boundaries of resilient health care*. In: **Braithwaite J**, Hollnagel E, Hunte GS, editors. *Resilient Health Care Volume 5: Working Across Boundaries*. Boca Raton, FL: Routledge: Taylor & Francis Group; 2019. (5) p. 9-14.
5. **Braithwaite J**, **Rapport F**. *Predicting the future for ideas, systems and solutions: the fifth research paradigm and beyond*. In: **Rapport F**, **Braithwaite J**, editors. *Transforming Healthcare with Qualitative Research*. Abington, United Kingdom: Routledge; 2019. (In Press).
6. **Churruca K**, **Long JC**, **Ellis LA**, **Braithwaite J**. *Looking back over the boundaries of our systems and knowledge*. In: **Braithwaite J**, Hollnagel E, Hunte GS, editors. *Resilient Health Care Volume 5: Working Across Boundaries*. Boca Raton, FL: Routledge: Taylor & Francis Group; 2019. (5) p. 81-92.
7. **Clay-Williams R**, **Austin E**, **Braithwaite J**, Hollnagel E. *Qualitative assessment to improve everyday activities: work-as-imagined and work-as-done*. In: **Rapport F**, **Braithwaite J**, editors. *Transforming Healthcare with Qualitative Research*. Abington, United Kingdom 2019. (In Press).

- 
8. **Coiera E.** *Assessing technology success and failure using information value chain theory.* In: Scott P, Keizer Nd, **Georgiou A**, editors. *Applied Interdisciplinary Theory in Health Informatics: IO Press Ebooks*; 2019. (263) p. 35-48.
 9. Elkady T, Rees A, **Khalifa M.** *Nurses acceptance of automated medication dispensing cabinets.* In: Mantas J, Hasman A, Gallos P, Kolokathi A, Househ M, Liaskos J, editors. *Health Informatics Vision: From Data via Information to Knowledge 2019.* (262) p. 47-50.
 10. Gabarron E, Luque LF, Schopf TR, **Lau A**, Armayones M, Wynn R, Serrano JA. *Impact of facebook ads for sexual health promotion via an educational web app: a case study.* In: Khosrow-Pour M, editor. *Healthcare Policy and Reform: Concepts, Methodologies, Tools, and Applications: IGI Global*; 2019. (2) p. 990-1003.
 11. **Georgiou A, Hardie R-A, Dahm MR, Li J, Thomas J, Sezgin G, Li L, Westbrook JI.** *Diagnostic Informatics: its role in enhancing clinical excellence, patient safety and the value of care.* In: Ohno-Machado L, Séroussi B, editors. Volume 264: MEDINFO 2019: Health and Wellbeing e-Networks for All: IOS Press Ebooks; 2019. (264) p. 591-5.
 12. Hiddleston C, Buchman T, **Coiera E.** *Turning "Night into Day": challenges, strategies, and effectiveness of re-engineering the workflow to enable continuous electronic intensive care unit collaboration between Australia and U.S.* In: Zheng K, **Westbrook JI**, Kannampallil T, Patel V, editors. *Cognitive Informatics Health Informatics: Springer, Cham*; 2019.
 13. **Khalifa M.** *Challenges of health analytics utilization: a review of literature.* In: Mantas J, Hasman A, Gallos P, Kolokathi A, Househ M, Liaskos J, editors. *Health Informatics Vision: From Data via Information to Knowledge: ISO Press Ebooks*; 2019. (262) p. 55-8.
 14. **Khalifa M.** *Improving patient safety by reducing falls in hospitals among the elderly: a review of successful strategies.* In: Mantas J, Hasman A, Gallos P, Kolokathi A, Househ M, Liaskos J, editors. *Health Informatics Vision: From Data via Information to Knowledge: ISO Press Ebooks*; 2019. (262) p. 340-3.
 15. **Khalifa M.** *Using PubMed to generate email lists of participants for healthcare survey research: a simple and practical approach.* In: Mantas J, Hasman A, Gallos P, Kolokathi A, Househ M, Liaskos J, editors. *Health Informatics Vision: From Data via Information to Knowledge: IOS Press Ebooks*; 2019. (262) p. 348-51.
 16. **Lamprell K, Rapport F, Braithwaite J.** *Narrativizing cancer patients' longitudinal experiences of care: qualitative inquiry into lived and online stories of melanoma.* In: **Rapport F, Braithwaite J**, editors. *Transforming Healthcare with Qualitative Research.* Abington, United Kingdom: Routledge; 2019. (In Press).
 17. **Lamprell K, Rapport F, Braithwaite J.** *Look the other way: patient-centred care begins with care for our physicians.* In: **Rapport F, Braithwaite J**, editors. *Transforming Healthcare with Qualitative Research.* Abington, United Kingdom: Routledge; 2019. (In Press).
 18. **Li L, Rathnayake K**, Green M, Fullick M, Shetty A, Walter S, **Braithwaite J**, Lander H, **Westbrook JI.** *Improving the performance of clinical decision support for early detection of sepsis: a retrospective observational cohort study.* In: Ohno-Machado L, Séroussi B, editors. Volume 264: MEDINFO 2019: Health and Wellbeing e-Networks for All: IOS Press Ebooks; 2019. p. 679-83.
 19. **Lichtner V**, Franklin BD, **Westbrook JI.** *Researching collective mindfulness and health IT: a framework and translation to context-specific questions.* In: Marcilly R, Kuziemsy CE, Nohr C, Pelayo S, editors. *Context Sensitive Health Informatics: Sustainability in Dynamic Ecosystems: IOS Press*; 2019. (265) p. 31-6.

20. **Lichtner V, Westbrook JI.** *Collective mindfulness and processes of sensemaking in health IT implementation.* In: Scott P, de Keizer N, **Georgiou A**, editors. Volume 263: Applied Interdisciplinary Theory in Health Informatics: IOS Press; 2019. (263) p. 98-108.
21. **Miao M, Georgiou A, Dahm MR, Li J, Thomas J.** *Shared decision-making in emergency departments: context sensitivity through divergent discourses.* In: Marcilly R, Kuziemsky CE, Nøhr C, Pelayo S, editors. Volume 265: Context Sensitive Health Informatics: Sustainability in Dynamic Ecosystems: IOS Press; 2019. (265) p. 128-33.
22. Orbell S, Allom V, Caudwell KM, **Smith J.** *Changing patterns of health and illness.* In: Van Teijlingen E, Humphris G, editors. Psychology and Sociology Applied to Medicine. 4 ed. Edinburgh, Scotland: Elsevier; 2019. p. 40-1.
23. Orbell S, Allom V, Caudwell KM, **Smith J.** *Disease prevention and health promotion.* In: Van Teijlingen E, Humphris G, editors. Psychology and Sociology Applied to Medicine. 4 ed. Edinburgh, Scotland: Elsevier; 2019. p. 60-1.
24. **Prgomet M, Georgiou A, Callen J, Westbrook JI.** *Fit between individuals, tasks, technology, and environment (FITTE) framework: a proposed extension of FITT to evaluate and optimise health information technology use.* In: Ohno-Machado L, Séroussi B, editors. Volume 264: MEDINFO 2019: Health and Wellbeing e-Networks for All: IOS Press eBooks; 2019. (264) p. 744-8.
25. **Rapport F, Braithwaite J.** *The fourth research paradigm.* In: **Rapport F, Braithwaite J**, editors. Transforming Healthcare with Qualitative Research. Abington, United Kingdom: Routledge; 2019. (In Press).
26. **Rapport F, Braithwaite J.** *Introduction to transforming healthcare with qualitative research.* In: **Rapport F, Braithwaite J**, editors. Transforming Healthcare with Qualitative Research. Abington, United Kingdom: Routledge; 2019. (In Press).
27. Scott P, de Keizer N, **Georgiou A.** *Preface.* In: Scott P, de Keizer N, **Georgiou A**, editors. Applied Interdisciplinary Theory in Health Informatics. Amsterdam: IOS Press; 2019. (263) p. i - xvi.
28. Scott P, de Keizer N, **Georgiou A.** *Reflecting and looking to the future: what is the research agenda for theory in health informatics?* In: Scott P, de Keizer N, **Georgiou A**, editors. Applied Interdisciplinary Theory in Health Informatics Amsterdam: IOS Press; 2019. (263) p. 205-18.
29. Shih P, **Rapport F, Long JC, Auton E, Bierbaum M, Faris M, Braithwaite J, Clay-Williams R.** *Resilient healthcare in refractory epilepsy treatment: illuminating successful people-centred patient care.* In: **Rapport F, Braithwaite J**, editors. Transforming Healthcare with Qualitative Research. Abingdon, United Kingdom: Routledge Publishing; 2019. (Accepted 6 September 2019).
30. Tiroshi A, Kuflik T, **Berkovsky S, Kaafar MA.** *Graph based recommendations: from data representation to feature extraction and application.* In: Khalid O, Khan S, Zomaya AY, editors. Big Data Recommender Systems: Recent Trends and Advances. London, UK: The Institution of Engineering and Technology; 2019. (2).
31. **Walter SR, Dunsmuir W, Raban MZ, Westbrook JI.** *Understanding clinical workflow through direct continuous observation: addressing the unique statistical challenges.* In: Zheng K, **Westbrook JI, Kannampallil T, Patel VL**, editors. Cognitive Informatics. New York: Springer, Cham; 2019. (Published Online First: 26 July 2019).
32. **Westbrook JI, Raban MZ, Walter SR.** *Interruptions and multitasking in clinical work: A summary of the evidence.* In: Zheng K, **Westbrook JI, Kannampallil T, Patel VL**, editors. Cognitive Informatics. New York: Springer, Cham; 2019. (Published Online First: 26 July 2019) p. 103-14.
33. Wiig S, **Braithwaite J, Braut GS.** *Politics, accident research and analysis.* In: Gould KAP, MacRae CA, editors. Inside High-Risk Systems – Perspectives on Safety and Accident Research. Boca Raton, Florida, USA: CRC Press: Taylor & Francis Group; 2019. (Accepted 24 December 2019).
34. Zhuravsky L, Lofquist EA, **Braithwaite J.** *Creating resilience in health care organisations through various forms of shared leadership.* In: **Braithwaite J, Hollnagel E, Hunte GS**, editors. Resilient Health Care Volume 5: Working Across Boundaries. Boca Raton, FL: Routledge: Taylor & Francis Group; 2019. (5) p. 53-66.
- PEER-REVIEWED JOURNAL ARTICLES (230)**
1. **Akbar S, Coiera E, Magrabi F.** Safety concerns with consumer-facing mobile health applications and their consequences: a scoping review. *Journal of the American Medical Informatics Association.* 2019; Published Online First: 10 October 2019.
2. Alexander GL, **Georgiou A, Siette J, Madsen R, Livingstone A, Westbrook JI, DeRoche C.** Exploring information technology (IT) sophistication in New South Wales residential aged care facilities. *Australian Health Review* 2019; Published Online First: 28 June 2019.

3. Amalberti R, Vincent C, Nicklin W, **Braithwaite J**. Coping with more people with more illness. Part 1: the nature of the challenge and the implications for safety and quality. *International Journal for Quality in Health Care*. 2019; 31(2):154-8.
4. Augustovicova D, **Lystad RP**, Arriaza R. Time-loss injuries in karate: a prospective cohort study of 4 consecutive World Karate Championships. *The Orthopaedic Journal of Sports Medicine*. 2019; 7(8):232596711986586.
5. **Augustsson H, Churruca K, Braithwaite J**. Mapping the use of soft systems methodology for change management in healthcare: a scoping review protocol. *BMJ Open*. 2019; 9(4):e026028.
6. **Augustsson H, Churruca K, Braithwaite J**. Re-energising the way we manage change in healthcare: the case for Soft Systems Methodology and its application to evidence-based practice. *BMC Health Services Research*. 2019; 19:666.
7. **Bashir R, Dunn AG**. Software engineering principles address current problems in the systematic review ecosystem. *Journal of Clinical Epidemiology*. 2019; 109:136-41.
8. **Bashir R, Surian D, Dunn AG**. The risk of conclusion change in systematic review updates can be estimated by learning from a database of published examples. *Journal of Clinical Epidemiology*. 2019; 110:42-9.
9. **Baysari MT**, Duong M, **Zheng WY**, **Nguyen AD**, Lo S, Ng B, Ritchie A, Le Couteur D, McLachlan A, Bennett A, Hilmer S. Delivering the right information to the right person at the right time to facilitate deprescribing in hospital: a mixed methods multisite study to inform decision support design in Australia. *BMJ Open*. 2019; 9(9):e030950.
10. **Baysari MT, Hardie R-A**, Barclay P, **Westbrook JI**. Effects of an electronic medication management system on pharmacists' work in a paediatric hospital. *Journal of Pharmacy Practice and Research*. 2019; 49(4):317-23.
11. **Baysari MT, Raban MZ**. The safety of computerised prescribing in hospitals. *Australian Prescriber*. 2019; 42(4):136-8.
12. **Baysari MT, Zheng W**, Tariq A, Heywood M, Scott G, **Li L, Van Dort BA, Rathnayake K**, Day R, **Westbrook JI**. An experimental investigation of the impact of alert frequency and relevance on alert dwell time. *International Journal of Medical Informatics*. 2019; Published Online First: 2 November 2019.
13. **Baysari MT, Zheng WY, Li L, Westbrook JI**, Day RO, Hilmer S, **Van Dort BA**, Hargreaves A, Kennedy P, Monaghan C, Doherty P, Draheim M, Nair L, Samson R. Optimising computerised decision support to transform medication safety and reduce prescriber burden: study protocol for a mixed-methods evaluation of drug-drug interaction alerts. *BMJ Open*. 2019; 9(8):e026034.
14. **Best S**, Williams S. Professional identity in interprofessional teams: findings from a scoping review. *Journal of Interprofessional Care*. 2019; 33(2):170-81.
15. **Bierbaum M**, McMahon CM, Hughes S, Boisvert I, **Lau A, Braithwaite J, Rapport F**. Barriers and facilitators to cochlear implant uptake in Australia and the United Kingdom. *Ear and Hearing*. 2019; 41(2):374-85.
16. **Bierbaum M, Lystad RP**, Curtis K, **Mitchell R**. Incidence and severity of head injury hospitalisations in Australian children over a ten-year period. *Health Promotion Journal of Australia*. 2019; 30:189-98.
17. Bowman S, Fox R, **Nic Giolla Easpaig B**. Virtually caring: a qualitative study of internet-based mental health services for LGBT young adults in rural Australia. *Rural and Remote Health*. 2019; (Accepted 22 November 2019).
18. **Braithwaite J, Herkes J, Churruca K, Long JC, Pomare C, Boyling C, Bierbaum M, Clay-Williams R, Rapport F, Shih P, Hogden A, Ellis LA, Ludlow K, Austin E, Seah R, McPherson E, Hibbert P, Westbrook JI**. The Comprehensive Researcher Achievement Model (CRAM): a framework for measuring researcher achievement, impact and influence derived from a systematic literature review of metrics and models. *BMJ Open*. 2019; 9:e025320.
19. **Braithwaite J, Ludlow K, Churruca K, James W, Herkes J, McPherson E, Ellis LA, Long JC**. Systems transformation: learning from change in 60 countries. *Journal of Health Organisation & Management*. 2019; 34(3):237-253.
20. **Braithwaite J**, Vincent C, Nicklin W, Amalberti R. Coping with more people with more illness. Part 2: new generation of standards for enabling healthcare system transformation and sustainability. *International Journal for Quality in Health Care*. 2019; 31(2):159-63.
21. **Braithwaite J, Zurynski Y, Ludlow K, Holt J, Augustsson H**, Campbell M. Towards sustainable healthcare system performance in the 21st century in high-income countries: a protocol for a systematic review of the grey literature. *BMJ Open*. 2019; 9:e025892.

22. **Brett L, Georgiou A, Jorgensen M, Siette J**, Scott G, Gow E, Luckett G, **Westbrook JI**. Ageing well: evaluation of social participation and quality of life tools to enhance community aged care [Study Protocol]. *BMC Geriatrics*. 2019; 19(78).
23. **Brett L, Nguyen A, Siette J**, Dove J, Hourihan F, McClean T, **Georgiou A**. The co-design of timely and meaningful information needed to enhance social participation in community aged care services: think tank proceedings. *Australian Journal on Ageing*. 2019; Published Online First: 14 August 2019.
24. **Brett L**, Noblet T, **Jorgensen M, Georgiou A**. The use of physiotherapy in nursing homes internationally: a systematic review. *PLOS One*. 2019; 14(7):e0219488.
25. **Brett L, Siette J, Nguyen AD, Jorgensen M, Miao M, Westbrook JI**, Lee W, Gow E, Hourihan F, **Georgiou A**. At the grassroots of home and community-based aged care: strategies for successful consumer engagement. *BMJ Open*. 2019; 9(11):e028754.
26. **Brett L**, Stapley P, Meedya S, Traynor V. Effect of physical exercise on physical performance and fall incidents of individuals living with dementia in nursing homes: a randomized controlled trial. *Physiotherapy Theory and Practice*. 2019;1-14.
27. Bridges J, Pope C, **Braithwaite J**. Making health care responsive to the needs of older people. *Age and Ageing*. 2019; 48(6):785-8.
28. Bueno WP, Saurin TA, Wachs P, Kuchenbecker R, **Braithwaite J**. Coping with complexity in intensive care units: a systematic literature review of improvement interventions. *Safety Science*. 2019; 118:814-52.
29. Burgess A, Swain MS, **Lystad RP**. An Australian survey on health and injuries in adult competitive surfing. *Journal of Sports Medicine and Physical Fitness*. 2019; 59(3):462-8.
30. **Campbell CA, Li L**, Kotwal S, **Georgiou A**, Horvath AR, **Westbrook JI**, Endre Z. Under detection of acute kidney injury in hospitalised patients – a retrospective, multi-site, longitudinal study. *Internal Medicine Journal*. 2019; Published Online First: 28 February 2019.
31. Cardona M, O’Sullivan M, Lewis E, Turner RM, Garden F, Alkhouri H, Asha S, Mackenzie J, Perkins M, Suri S, Holdgate A, Winoto L, Chang DCW, **Gallego-Luxan B**, McCarthy S, Hillman K, Breen D. Prospective validation of a checklist to predict short term death in older patients after emergency department admission in Australia and Ireland. *Academic Emergency Medicine*. 2019; 26(6):610-20.
32. Cavalli L, Jeebhay M, Marques F, **Mitchell R**, Neis B, Ngajilo D, Watterson A. Scoping global aquaculture occupational health and safety. *Agromedicine*. 2019; 24(4):391-404.
33. **Churruca K, Ellis LA, Long JC, Pomare C, Wiles L, Arnolda G, Ting H**, Woolfenden S, Sarkozy V, de Wet C, **Hibbert PD, Braithwaite J**. The quality of care for Australian children with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders*. 2019; 49(12):4919-28.
34. **Churruca K, Ludlow K, Taylor N, Long JC, Best S, Braithwaite J**. The time has come: embedded implementation research for health care improvement. *Journal of Evaluation in Clinical Practice*. 2019; 25(3):373-80.
35. **Churruca K, Pomare C, Ellis LA, Long JC, Braithwaite J**. The influence of complexity: a bibliometric analysis of complexity science in healthcare. *BMJ Open*. 2019; 9:e:027308.
36. **Churruca K**, Ussher JM, Perz J, **Rapport F**. ‘It’s always about the eating disorder’: finding the person through recovery-oriented practice for bulimia. *Culture, Medicine, and Psychiatry*. 2019; Published Online First: 10 October 2019.
37. Cierna D, Štefanovský M, Matejová L, **Lystad RP**. Epidemiology of competition injuries in elite European judo athletes: a prospective cohort study. *Clinical Journal of Sports Medicine*. 2019; 29(4):336-40.
38. **Clay-Williams R, Blakely B**, Lane P, Senthuran S, Johnson A. Improving decision making in acute healthcare through implementation of an intensive care unit (ICU) intervention in Australia: a multimethod study. *BMJ Open*. 2019; 9(3).
39. **Clay-Williams R**, Stephens JH, Williams H, Hallahan A, Dalton C, **Hibbert P, Ting P, Arnolda G, Wiles L, Braithwaite J**. Assessing the appropriateness of the management of otitis media in Australia: a population-based sample survey. *Journal of Paediatrics and Child Health*. 2019; 56(2):215-23.
40. **Coiera E**. On algorithms, machines, and medicine. *The Lancet Oncology*. 2019; 20(2):166-7.
41. **Coiera E**. The price of artificial intelligence [Editorial]. *Yearbook of Medical Informatics*. 2019; 28(1):14-5.
42. **Coiera E**. The last mile: where artificial intelligence meets reality. *Journal of Medical Internet Research*. 2019; 21(11):e16323.

43. Coleshill MJ, Aung E, **Nguyen AD**, Stocker SL, **Baysari MT**, Kamel B, Schulz M, McLachlan AJ, Day RO. Improving adherence to urate lowering therapy in people living with gout. *International Journal of Rheumatic Diseases*. 2019; 22(4):542-4.
44. Cooper A, Davies F, Edwards M, Anderson P, Carson-Stevens A, Cooke M, Donaldson L, Dale J, Evans B, **Hibbert P**, Hughes T, Porter A, Rainer T, Sirwardena A, Snooks H, Edwards A. The impact of general practitioners working in or alongside emergency departments: a rapid realist review. *BMJ Open*. 2019; 9(4):e024501.
45. Crane MF, **Rapport F**, **Callen J**, Boga D, Gucciardi DF, Sinclair L. Military police investigator perspectives of a new self-reflective approach to strengthening resilience: a qualitative study. *Military Psychology*. 2019; 31(5):384-96.
46. Cunningham F, Ranmuthugala G, **Westbrook JI**, **Braithwaite J**. Tackling the wicked problem of health networks: the design of an evaluation framework. *BMJ Open* 2019; 9(5):e024231.
47. Curtis K, Kennedy B, Holland A, **Mitchell R**, Tall G, Smith H, Soundapan S, Loudfoot A, Burns B, Dihn M. Determining the priorities for change in paediatric trauma care delivery in NSW, Australia. *Australasian Emergency Care*. 2019; Published Online First: 7 November 2019.
48. Curtis K, Kennedy B, Holland AJ, Tall G, Smith H, Soundappan SV, Burns B, **Mitchell R**, Wilson K, Loudfoot A, Dinh M, Lyons T, Gillen T, Dickinson S. Identifying areas for improvement in paediatric trauma care in NSW Australia using a clinical, system and human factors peer-review tool. *Injury*. 2019; 50(5):1089-96.
49. **Dahm M**, Hemsley B, Hill S, Balandin S, **Georgiou A**. Health information infrastructure for people with intellectual and developmental disabilities (I/DD) living in supported accommodation: communication, co-ordination and integration of health information. *Health Communication*. 2019; 34(1):91-9.
50. **Dahm MR**, Brown A, Martin D, Williams M, Osbourne B, Basseal J, Potter M, **Hardie R-A**, **Li J**, **Thomas J**, **Georgiou A**. Interaction and innovation: practical strategies for inclusive consumer-driven research in health services. *BMJ Open*. 2019; 9(12):e031555.
51. **Dahm MR**, **Georgiou A**, Bryant L, Hemsley B. Information infrastructure and quality person-centred support in supported accommodation: an integrative review. *Patient Education and Counselling*. 2019; 102(8):1413-26.
52. Denecke K, Gabarron E, Grainger R, Konstantinidis ST, **Lau A**, Rivera-Romero O, Miron-Shatz T, Merolli M. Artificial intelligence for participatory health: applications, impact, and future implications. *Yearbook of Medical Informatics*. 2019; 28(1):165-73.
53. Dinnen T, Williams H, Yardley S, Noble S, Edwards A, **Hibbert P**, Kenkre J, Carson-Stevens A. Patient safety incidents in advance care planning for serious illness: a mixed-methods analysis. *BMJ Support & Palliative Care*. 2019; Published Online First: 28 August 2019.
54. **Dunn AG**, Orenstein L, **Coiera E**, Mandl KD, Bourgeois FT. The timing and frequency of trial inclusion in systematic reviews of type 2 diabetes drugs was associated with trial characteristics. *Journal of Clinical Epidemiology*. 2019; 109:62-9.
55. **Dyda A**, Karki S, Gidding HF, Kaldor J, McIntyre P, Banks E, MacIntyre CR, Liu B. Influenza vaccination coverage in a population-based cohort of Australian-born Aboriginal and non-Indigenous older adults. *Communicable Diseases Intelligence*. 2019; 43.
56. **Dyda A**, **Shah Z**, **Surian D**, **Martin P**, **Coiera E**, Dey A, Leask J, **Dunn AG**. HPV vaccine coverage in Australia and associations with HPV vaccine information exposure among Australian Twitter users. *Human Vaccines & Immunotherapeutics*. 2019; 15(7-8):1488-95.
57. **Easpai BNG**, **Arnolda G**, **Tran Y**, **Bierbaum M**, **Lamprell K**, Delaney G, Liauw W, Chittajallu R, **Winata T**, Ward R, Currow D, Olver I, Karnon J, **Westbrook JI**, **Braithwaite J**. What is multidisciplinary cancer care like in practice? A protocol for a mixed-method study to characterise ambulatory oncology services in the Australian public sector. *BMJ Open*. 2019; 9(10):e031179.
58. **Ellis LA**, **Augustsson H**, **Godahl A**, **Pomare C**, **Churruca K**, **Long J**, **Ludlow K**, **Zurynski Y**, **Braithwaite J**. Improving the implementation of eMental health in real-world settings: a critical scoping review of the research and next steps. *Journal of Community Psychology*. 2019; (Accepted 10 December 2019).
59. **Ellis LA**, **Churruca K**, **Clay-Williams R**, **Pomare C**, **Austin EE**, **Long JC**, **Groedahl A**, **Braithwaite J**. Patterns of resilience: a scoping review and bibliometric analysis of resilient health care. *Safety Science Special Issue of Resilient Health Care*. 2019; 118:241-57.
60. **Ellis LA**, **Wiles LK**, Selig R, **Churruca K**, Lingam R, **Long JC**, **Molloy CJ**, **Arnolda G**, **Ting HP**, **Hibbert P**, Downton B, **Braithwaite J**. Assessing the quality of care for paediatric depression and anxiety in Australia: a population-based sample survey. *Australian and New Zealand Journal of Psychiatry*. 2019; 53(10):1013-25.

61. Evans HP, Anastasiou A, Edwards A, **Hibbert P**, Makeham M, Luz S, Sheikh A, Donaldson L, Carson-Stevens A. Automated classification of primary care patient safety incident report content and severity using supervised machine learning (ML) approaches. *Health Informatics Journal*. 2019; Published Online First: 7 March 2019.
62. Falkland EC, Wiggins MW, **Westbrook JI**. Cue utilization differentiates performance in the management of interruptions. *Human Factors*. 2019; Published Online First: 25 June 2019.
63. Forbes O, Davis S, **Dyda A**, Rosewell A, Williams S, Kirk M, Roces MC, Lim-Quizon MC, Viney K. Field epidemiology training programs in Asia-Pacific: what is best practice for supervision? *Western Pacific Surveillance and Response Journal*. 2019; 10(4):1-9.
64. Foster K, **Mitchell R**, McCloughen A, Young A, Curtis K. Resilient, recovering, distressed: a longitudinal qualitative study of parent psychosocial trajectories following child critical injury. *Injury*. 2019; 50(10):1605-11.
65. Foster K, **Mitchell R**, Young A, Van C, Curtis K. Resilience-promoting factors for parents with severely injured children during the acute hospitalisation period: a qualitative inquiry. *Injury*. 2019; 50(5):1075-81.
66. Foster K, **Mitchell R**, Young A, Van C, Curtis K. Parent experiences and psychosocial support needs 6 months following paediatric critical injury: a qualitative study. *Injury*. 2019; 50(5):1082-8.
67. Fox R, **Nic Giolla Easpai B**, Watson L. Making space for community critical methodology: stories from the Australian context. *American Journal of Community Psychology*. 2019; 63(1):227-38.
68. **Gates PJ**, **Baysari MT**, Gazarian M, **Raban MZ**, Meyerson S, **Westbrook JI**. Prevalence of medication errors among paediatric inpatients: systematic review and meta-analysis. *Drug Safety* 2019; 42(11):1329-42.
69. **Gates PJ**, **Baysari MT**, **Mumford V**, **Raban MZ**, **Westbrook JI**. Standardising the classification of harm associated with medication errors: the Harm Associated with Medication Error Classification (HAMEC). *Drug Safety*. 2019; 42(8):931-9.
70. **Gates PJ**, Meyerson SA, **Baysari MT**, **Westbrook JI**. The prevalence of dose errors among paediatric patients in hospital wards with and without health information technology: a systematic review and meta-analysis. *Drug Safety*. 2019; 42(1):13-25.
71. **Georgiou A**, **Li J**, **Thomas J**, **Dahm M**, **Westbrook JI**. The impact of Health Information Technology on the management and follow-up of test results – a systematic review. *Journal of the American Medical Informatics Association*. 2019; 27(6):678-88.
72. **Georgiou A**, **Magrabi F**. Digital health – preventing patient harm. *Clinical Communiqués*. 2019; 6(3).
73. **Georgiou A**, **Prgomet M**. E-health: developing trust, confidence, quality, and sustainability [Editorial]. *Health Information Management Journal*. 2019; 48(2):59-61.
74. **Georgiou A**, **Sezgin G**, **Li L**, Wilson R, McCaughey EJ, Lindeman R, Vecellio E, **Westbrook JI**. Who gets a laboratory test in hospital, why, and how often? A retrospective observational study of 4 Australian hospitals. *The Journal of Applied Laboratory Medicine*. 2019; 4(3):343-54.
75. **Gimenes FRE**, **Baysari M**, **Walter S**, Moreira LA, Carvalho R, Miasso AI, Faleiros F, **Westbrook JI**. Are patients with a nasally placed feeding tube at risk of potential drug-drug interactions? A multicentre cross-sectional study. *PLoS ONE*. 2019; 14(7):e0220248.
76. Gumbie M, Parkinson B, Cutler H, Gauld N, **Mumford V**. Is reclassification of the oral contraceptive pill from prescription to pharmacist-only cost effective? Application of an economic evaluation approach to regulatory decisions. *PharmacoEconomics*. 2019; 37(8):1049-64.
77. Harvey L, Toson B, Brodaty H, Draper B, Kochan N, Sachdev PS, **Mitchell R**. Injury-related hospitalisation in community-dwelling older people across the cognitive spectrum: a population-based study. *Archives of Gerontology and Geriatrics*. 2019; 83:155-60.
78. Hemsley B, Meredith J, Bryant L, Wilson NJ, Higgins I, **Georgiou A**, Hill S, Balandin S, McCarthy S. An integrative review of stakeholder views on advanced care directives (ACD): barriers and facilitators to initiation, documentation, storage and implementation. *Patient Education and Counselling*. 2019; 102(6):1067-79.
79. **Herkes J**, **Churruca K**, **Ellis LA**, **Pomare C**, **Braithwaite J**. How people fit at work: a systematic review of the association between person-organisation and person-group fit with staff outcomes in healthcare. *BMJ Open*. 2019; 9(5):e026266.
80. **Herkes J**, **Ellis LA**, **Churruca K**, **Braithwaite J**. A cross-sectional study investigating the associations of person-organisation and person-group fit with staff outcomes in mental health care. *BMJ Open*. 2019; 9(9):e030669.

81. **Hibbert P.** Independent investigation needed into hospital failures. *MJA InSight*. 2019; Published Online First: 14 October 2019.
82. **Hibbert P**, Stephens JH, de Wet C, Williams H, Hallahan A, Wheaton GR, Dalton C, **Ting HP**, **Arnolda G**, **Braithwaite J**. Assessing the quality of the management of tonsillitis in Australian children: a population-based sample survey. *Otolaryngology-Head and Neck Surgery*. 2019; 160(1):137-44.
83. **Hibbert P**, **Wiles L**, Cameron I, Kitson A, Reed RJ, **Georgiou A**, Gray L, **Westbrook JI**, **Augustsson H**, **Molloy C**, **Arnolda G**, **Ting P**, **Mitchell R**, **Rapport F**, Gordon S, Runciman W, **Braithwaite J**. CareTrack Aged: the appropriateness of care delivered to Australians living in residential aged care facilities: a study protocol. *The BMJ Open*. 2019; 9:e030988.
84. Ho K, Rahardjo D, Stapelton F, **Wiles L**, **Hibbert P**, White A, Hayen A, Jalbert I. Can the appropriateness of eye care be measured through retrospective patient record review in eyecare practices? The iCareTrack feasibility study. *BMJ Open*. 2019; 9(3):e024298.
85. Ho KC, Stapleton F, **Wiles L**, **Hibbert PD**, Alkhwajah S, White A, Jalbert I. Systematic review of the appropriateness of eye care delivery in eye care practice. *BMC Health Services Research*. 2019; 19(1):646.
86. Hogden A, **Churruca K**, **Rapport F**, Gillatt D. Appraising risk in active surveillance of localised prostate cancer. *Health Expectations*. 2019; 22(5):1028-39.
87. Homaira H, **Wiles LK**, Gardner C, **Molloy C**, **Arnolda G**, **Ting HP**, **Hibbert P**, Boyling C, **Braithwaite J**. Assessing appropriateness of paediatric asthma management: a population-based sample survey. *Respirology*. 2019; (Published Online First: 20 June 2019).
88. Homaira H, **Wiles LK**, Gardner C, **Molloy CJ**, **Arnolda G**, **Ting HP**, **Hibbert PD**, **Braithwaite J**, Jaffe A. Assessing the quality of health care in the management of bronchiolitis in Australian children: a population-based sample survey. *BMJ Quality & Safety*. 2019; 28:817-25.
89. Hughes S, **Rapport F**, Watkins A, Boisvert I, McMahon C, Hutchings H. Study protocol for the validation of a new patient-reported outcome measure (PROM) of listening effort in cochlear implantation: the Listening Effort Questionnaire-Cochlear Implant (LEQ-CI). *BMJ Open*. 2019; 9(7):e028881.
90. Hussain F, Cooper A, Carson-Stevens A, Donaldson L, **Hibbert P**, Hughs T, Edwards A. Diagnostic error in the emergency department: learning from national patient safety incident report analysis. *BMC Emergency Medicine*. 2019; 19:77.
91. **Ijaz K**, Ahmadpour N, Naismith SL, Calvo RA. An immersive virtual reality platform for assessing spatial navigation memory in predementia screening: feasibility and usability study. *JMIR Mental Health*. 2019; 6(9):e13887.
92. **Imai C**, Hall L, Lambert SB, Merollini KMD. Presenteeism among health care workers with laboratory-confirmed influenza infection: a retrospective cohort study in Queensland, Australia. *American Journal of Infection Control*. 2019; 19(2):30741-2.
93. Jayasinghe K, Stark Z, Patel C, Mallawaarachchi A, McCarthy H, Faull R, Chakera A, Sundaram M, Jose M, Kerr P, Wu Y, Wardrop L, Goranitis I, **Best S**, Martyn M, Quinlan C, Mallet AJ. Comprehensive evaluation of a prospective Australian patient cohort with suspected genetic kidney disease undergoing clinical genomic testing: a study protocol. *BMJ Open*. 2019; Published Online First: 5 August 2019.
94. **Kennedy G**, Gallego B. Clinical prediction rules: A systematic review of healthcare provider opinions and preferences. *International Journal of Medical Informatics*. 2019; 123:1-10.
95. **Khalifa M**, Gallego B. Grading and assessment of clinical predictive tools for paediatric head injury: a new evidence-based approach. *BMC Emergency Medicine*. 2019; 19(1):35.
96. **Khalifa M**, **Magrabi F**, Gallego B. Developing a framework for evidence-based grading and assessment of predictive tools for clinical decision support. *BMC Medical Informatics and Decision Making*. 2019; 19(1):207.
97. Kim Y, Ratnam J, Doi T, Morioka Y, Behera S, Tsuzuki A, Minakawa N, Sweijd N, Kruger P, Maharaj R, **Imai C**, Fook Sheng Ng C, Chung Y, Hashizume M. Malaria predictions based on seasonal climate forecasts in South Africa: a time series distributed lag nonlinear model. *Scientific Reports*. 2019; (Accepted 1 November 2019).
98. Klein C, Clutton P, **Dunn AG**. Pathways to conspiracy: the social and linguistic precursors of involvement in Reddit's conspiracy theory forum. *PLoS ONE*. 2019; 14(11):e0225098.

99. **Kocaballi AB, Berkovsky S, Quiroz J, Laranjo L, Tong HL, Rezazadegan D, Briatore A, Coiera E.** Personalization of conversational agents in healthcare: a systematic review. *Journal of Medical Internet Research*. 2019; 21(11):e15360.
100. **Kocaballi AB, Coiera E, Tong HL, White S, Quiroz JC, Rezazadegan F, Willcock S, Laranjo L.** A network model of activities in primary care consultations. *Journal of the American Medical Informatics Association*. 2019; 26(10):1074-82.
101. **Kocaballi AB, Laranjo L, Coiera E.** Understanding and measuring user experience in conversational interfaces. *Interacting with Computers*. 2019; 31(2):192-207.
102. **Koyama AK, Maddox CS, Li L, Bucknall T, Westbrook JI.** Effectiveness of double checking to reduce medication administration errors: a systematic review. *BMJ Quality and Safety*. 2019; Published Online First: 7 August 2019.
103. **Lamprell K, Arnolda G, Delaney G, Liauw W, Braithwaite J.** The challenge of putting principles into practice: resource tensions and real-world constraints in multidisciplinary oncology team meetings. *Asia-Pacific Journal of Clinical Oncology*. 2019; 15(4):199-207.
104. **Lamprell K, Braithwaite J.** Reading between the lines: a five-point narrative approach to online accounts of illness. *Journal of Medical Humanities*. 2019; 40(4):569-90.
105. **Lamprell K, Chin M, Braithwaite J.** "Can I still get a tattoo?" Patients' experiences across the clinical trajectory for metastatic melanoma: a dynamic narrative model of patient journey. *Patient Experience Journal*. 2019; 6(1):87-93.
106. **Lau AY, Staccini P.** Artificial Intelligence in health: new opportunities, challenges, and practical implications. *Yearbook of Medical Informatics*. 2019; 28(1):174-8.
107. Leigh V, Stern C, Elliott R, **Tufanaru C.** Effectiveness and harms of pharmacological interventions for the treatment of delirium in adults in intensive care units after cardiac surgery: a systematic review. *JBI Database of Systematic Reviews and Implementation Reports*. 2019; 17(10):2020-74.
108. Leigh V, **Tufanaru C, Elliott R.** Effectiveness and harms of pharmacological treatments for delirium in adult intensive care patients after cardiac surgery: a systematic review. *Australian Critical Care*. 2019; 32:S3-S4.
109. **Lichtner V, Baysari M, Gates P, Dalla-Pozza L, Westbrook JI.** Medication safety incidents in paediatric oncology after electronic medication management system implementation. *European Journal of Cancer Care*. 2019; 28(6):e13152.
110. **Lind KE, Flug JA.** Sociodemographic variation in use of conservative therapy before MRI of the lumbar spine for low back pain the era of public reporting. *Journal of the American College of Radiology*. 2019; 16(4):560-9.
111. **Lind KE, Gray LC, Raban MZ, Georgiou A, Westbrook JI.** Anti dementia medication use by aged care facility residents with dementia. *International Journal of Geriatric Psychiatry*. 2019; 34(7):1029-40.
112. **Lind KE, Hildreth K, Lindrooth R, Morrato E, Crane LA, Perrailon MC.** Effect of Medicare Part D on ethnoracial disparities in antidementia medication use. *Journal of the American Geriatrics Society (JAGS)*. 2019; 66(9):1760-7.
113. **Lind KE, Hildreth K, Perrailon M.** Persistent disparities in Medicare's annual wellness visit utilization. *Medical Care*. 2019; Published Online First: 3 October 2019.
114. **Lind KE, Jensen AM, Perez-Portillo A, Garg K.** Patient perceptions of CT imaging in a diverse patient sample. *Journal of the American College of Radiology*. 2019; 16(10):1401-8.
115. **Lind KE, Jorgensen M, Gray LC, Georgiou A, Westbrook JI.** Anti-osteoporosis medication use in a high fracture-risk population: contemporary trends in Australian residential aged care facilities. *Health Services Insights*. 2019; 2(12).
116. **Lind KE, Raban MZ, Georgiou A, Westbrook JI.** Duration of antipsychotic use by aged care facility residents with dementia. *Alzheimer Disease and Associated Disorders*. 2019; 33(4):331-8.
117. **Lind KE, Raban MZ, Georgiou A, Westbrook JI.** NSAID use among residents in 68 residential aged care facilities 2014 to 2017: an analysis of duration, concomitant medication use, and high-risk conditions. *Pharmacoepidemiology Drug Safety*. 2019; 28(11):1480-8.
118. **Long JC, Pomare C, Best S, Boughtwood T, North K, Ellis LA, Churruca K, Braithwaite J.** Building a learning community of Australian clinical genomics: a social network study of the Australian Genomic Health Alliance. *BMC Medicine*. 2019; 17(44).

119. **Long JC**, Williams H, Jani S, **Arnolda G**, **Ting HP**, **Molloy CJ**, **Hibbert P**, **Churruca K**, **Ellis LA**, **Braithwaite J**. Assessing the appropriateness of the management of upper respiratory tract infection in Australian children: a population-based survey. *BMJ Open*. 2019; 9(5):e026915.
120. **Long JC**, **Winata T**, Debono D, Kim-Chi PT, Zhu C, Taylor N. Process evaluation of a behaviour change approach to improving clinical practice for detecting hereditary cancer. *BMC Health Services Research*. 2019; 19(1):180.
121. Lowenstein D, **Zheng WY**, Burke R, Kenny E, Sandhu E, Makeham M, **Westbrook JI**, Day R, **Baysari MT**. Do user preferences align with human factors assessment scores of drug-drug interaction alerts? *Health Informatics Journal*. 2019; Published Online First: 11 April 2019.
122. **Ludlow K**, **Braithwaite J**. Reflections from health systems researchers on nursing practices in dementia care. *International Journal of Nursing Studies*. 2019; 96:A3-A6.
123. **Ludlow K**, **Churruca K**, **Ellis LA**, **Mumford V**, **Braithwaite J**. Understanding the priorities of residents, family members and care staff in residential aged care using Q methodology: a study protocol. *BMJ Open*. 2019; 9(3):e027479.
124. **Ludlow K**, **Churruca K**, **Mumford V**, **Ellis LA**, **Testa L**, **Long JC**, **Braithwaite J**. Unfinished care in residential aged care facilities: an integrative review. *The Gerontologist*. 2019; Published Online First: 27 November 2019.
125. Luxton N, Mackenzie R, **Shih P**. Smoking cessation care in cardiothoracic surgery: a qualitative study exploring the views of Australian clinicians. *Heart, Lung & Circulation*. 2019; 28(8):1246-52.
126. **Lyell D**, **Magrabi F**, **Coiera E**. Reduced verification of medication alerts increases prescribing errors. *Applied Clinical Informatics*. 2019; 10(1):66-76.
127. **Lystad RP**, Brown BT. What can science tell us about mortality and survival in Game of Thrones? *The Science Breaker*. 2019; Published Online First: 1 July 2019.
128. **Lystad RP**, Cameron C, **Mitchell RJ**. Excess mortality among adults hospitalised with traumatic brain injury in Australia: a population-based matched cohort study. *Journal of Head Trauma Rehabilitation*. 2019; 34(3):E1-9.
129. **Lystad RP**, Curtis K, Browne G, **Mitchell R**. Incidence, costs, and temporal trends of sports injury-related hospitalisations in Australian children over a 10-year period: a nationwide population-based cohort study. *Journal of Science and Medicine in Sport*. 2019; 22(2):175-80.
130. **Lystad RP**, Tran J, Curtis K, Browne G, **Mitchell R**. Infographic. Sports injury-related hospitalisations in Australian children: incidence, costs and trends. *British Journal of Sports Medicine*. 2019; 53:1434-5.
131. **Magrabi F**, Ammenwerth E, Brender McNair J, De Keizer N, Hyppönen H, Nykänen P, Rigby M, Scott PJ, Vehko T, Wong ZS, **Georgiou A**. Artificial Intelligence in clinical decision support: challenges for evaluating AI and practical implications: a position paper from the IMIA Technology Assessment & Quality Development in Health Informatics Working Group and the EFMI Working Group for Assessment of Health Information Systems. *Yearbook of Medical Informatics*. 2019; 28(1):128-34.
132. Manley BJ, **Arnolda G**, Wright I, Owen LS, Foster JP, Huang L, Roberts CT, Clark TL, Fan W, Fang A, Marshall IR, Pszczola R, P D, Buckmaster A. Nasal high-flow therapy for newborn infants in special care nurseries. *The New England Journal of Medicine*. 2019; 380(21):2031-40.
133. Mannion R, **Braithwaite J**. Where is patient safety research and practice heading? A reply to recent commentaries. *International Journal of Health Policy and Management*. 2019; 8(2):136-7.
134. Marcilly R, Schiro J, Beuscart-Zéphir MC, **Magrabi F**. Building usability knowledge for health information technology: A usability-oriented analysis of incident reports. *Applied Clinical Informatics*. 2019; 10(03):395-408.
135. **Martin P**, **Surian D**, **Bashir R**, Bourgeois FT, **Dunn AG**. Trial2rev: combining machine learning and crowd-sourcing to create a shared space for updating systematic reviews. *JAMIA Open*. 2019; 2(1):15-22.
136. **McMullan RD**, Berle D, Arnáez S, Starcevic V. The relationships between health anxiety, online health information seeking, and cyberchondria: systematic review and meta-analysis. *Journal of Affective Disorders*. 2019; 245:270-8.
137. **McMullan RD**, **Urwin R**, **Sunderland N**, **Westbrook JI**. Observational tools that quantify nontechnical skills in the operating room: a systematic review. *Journal of Surgical Research*. 2019; Published Online First: 7 November 2019.

138. **Mitchell R**, Cameron C, **Lystad RP**, Nielssen O, McMaugh A, Herkes G, Schniering C, Hng T-M. Impact of chronic health conditions and injury on school performance and health outcomes in New South Wales, Australia: a retrospective record linkage study protocol. *BMJ Paediatrics Open*. 2019; 3(1):e000530.
139. **Mitchell R**, Draper B, Brodaty H, Close J, **Ting H**, **Lystad RP**, Harris I, Harvey L, Sherrington C, Cameron ID, **Braithwaite J**. A 11-year review of hip fracture hospitalisations, health outcomes and predictors of access to in-hospital rehabilitation for adults ≥65 years living with and without dementia: a population-based cohort study. *Osteoporosis International*. 2019; (Accepted 5 December 2019).
140. **Mitchell R**, Draper B, Close J, Harvey L, Brodaty H, **Do V**, Driscoll T, **Braithwaite J**. Future hospital service utilisation in older adults living in long-term residential aged care or the community hospitalised with a fall related injury. *Osteoporosis International*. 2019; 30(10):1995-2008.
141. **Mitchell R**, Draper B, Harvey L, Wadolowski M, Brodaty H, Close J. Comparison of hospitalised trends, treatment cost and health outcomes of fall-related hip fracture for people aged ≥65 years living in residential aged care and the community. *Osteoporosis International*. 2019; 30(2):311-21.
142. **Mitchell R**, **Faris M**, **Lystad RP**, **Pulido DF**, Norton G, **Baysari M**, **Clay-Williams R**, **Hibbert PD**, Carson-Stevens A, **Hughes C**. Using the WHO International Classification of Patient Safety Framework to identify incident characteristics and contributing factors for medical or surgical complication deaths. *Applied Ergonomics*. 2019; 82:102920.
143. **Mitchell R**, **Pulido DF**, **Ryder T**, Norton G, Brodaty H, Draper B, Close J, **Rapport F**, **Lystad RP**, Harris I, Harvey L, Sherrington C, Cameron I, **Braithwaite J**. Access to rehabilitation services for older adults living with dementia or in a residential aged care facility following a hip fracture: healthcare professionals' views. *Disability and Rehabilitation*. 2019; Published Online First: 23 July 2019.
144. **Mitchell R**, **Ryder T**. Rethinking the public health model for injury prevention. *Injury Prevention*. 2019; 26(1):2-4.
145. **Mitchell RJ**, **Lystad RP**. Occupational injury and disease in the Australian aquaculture industry. *Marine Policy*. 2019; 99:216-22.
146. **Mumford V**, **Rapport F**, **Shih P**, **Mitchell R**, Bleasel A, Nikpour A, Herkes G, MacRae A, Bartley M, Vagholkar S, **Braithwaite J**. Promoting faster pathways to surgery: a clinical audit of patients with refractory epilepsy. *BMC Neurology*. 2019; 19(1):29.
147. Munn Z, Aromataris E, **Tufanaru C**, Stern C, Porritt K, Farrow J, Lockwood C, Stephenson M, Moola S, Lizarondo L. The development of software to support multiple systematic review types: the Joanna Briggs institute system for the unified management, assessment and review of information (JBI SUMARI). *International Journal of Evidence-Based Healthcare*. 2019; 17(1):36-43.
148. Munn Z, Dias M, **Tufanaru C**, Porritt K, Stern C, Jordan Z, Aromataris E, Pearson A. Adherence of meta-aggregative systematic reviews to reporting standards and methodological guidance: a methodological review protocol. *JBI Database of Systematic Reviews and Implementation Reports*. 2019; 17(4):444-50.
149. **Nguyen A**, **Lind KE**, Day R, **Georgiou A**, **Westbrook JI**. A profile of health status and demographics of aged care facility residents with gout. *Australasian Journal of Ageing*. 2019; Published Online First: 21 August 2019.
150. **Nguyen AD**, Frensham LJ, **Baysari MT**, Carland JE, Day RO. Patients' use of mobile health applications: what general practitioners think. *Family Practice*. 2019; 36(2):214-8.
151. Nicolaisen A, Bogh S, **Churruca K**, **Ellis LA**, **Braithwaite J**, Von Plessen C. Managers' perceptions of the effects of a national mandatory accreditation program in Danish hospitals. A cross-sectional survey. *International Journal for Quality in Health Care*. 2019; 31(5):331-7.
152. Nugus P, Ranmuthugala G, Travaglia J, Greenfield D, Lamothe J, Hogden A, Kolne K, **Braithwaite J**. Advancing interprofessional theory: deliberative democracy as a participatory research antidote to power differentials in aged care. *Journal of Interprofessional Education & Practice*. 2019; 15:100-11.
153. O'Connor AM, **Tsafnat G**, Gilbert SB, Thayer KA, Shemilt I, Thomas J, Glasziou P, Wolfe MS. Still moving toward automation of the systematic review process: a summary of discussions at the third meeting of the International Collaboration for Automation of Systematic Reviews (ICASR). *Systematic Reviews*. 2019; 8(1):57.

154. O'Connor AM, **Tsafnat G**, Thomas J, Glasziou P, Gilbert SB, Hutton B. A question of trust: can we build an evidence base to gain trust in systematic review automation technologies? *Systematic Reviews*. 2019; 8(1):143.
155. Parkinson B, Gumbie M, Cutler H, Gauld N, **Mumford V**, Haywood P. Cost-effectiveness of reclassifying triptans in Australia: application of an economic evaluation approach to regulatory decisions. *Value in Health*. 2019; 22(3):292-302.
156. Patel NU, **Lind KE**, Garg K, Crawford D, Werahera PN, Pokharel SS. Assessment of PI-RADS v2 categories \geq 3 for diagnosis of clinically significant prostate cancer. *Abdominal Radiology*. 2019; 44(2):705-12.
157. Piper N, Bajic M, Selvardurai H, Robinson P, **Zurynski Y**, Fitzgerald D. Cystic Fibrosis: frequently asked questions. Question 13: can we predict the need for lung transplantation in children with cystic fibrosis? *Paediatric Respiratory Reviews*. 2019; 30:30-3.
158. **Pomare C, Churruca K, Ellis LA, Long JC, Braithwaite J**. A revised Model of Uncertainty in Complex Healthcare Settings (MUCH-S): a scoping review. *Journal of Evaluation in Clinical Practice*. 2019; 25(2):176-82.
159. **Pomare C, Churruca K, Long JC, Ellis LA, Braithwaite J**. Organisational change in hospitals: a qualitative case-study of staff perspectives. *BMC Health Services Research* 2019; (Accepted 31 October 2019).
160. **Pomare C, Churruca K, Long JC, Ellis LA, Gardiner B, Braithwaite J**. Exploring the ripple effects of an Australia hospital redevelopment: a protocol for a longitudinal, mixed-methods study. *BMJ Open*. 2019; 9(7):e027186.
161. **Pomare C, Long JC, Churruca K, Ellis L, Braithwaite J**. Social network research in health care settings: design and data collection. *Social Networks*. 2019; Published Online First: 14 December 2019.
162. Prentice B, Moloney S, Hort J, **Hibbert P, Molloy C, Wiles LK, Arnolda G, Ting HP, Braithwaite J, Jaffe A**. Assessing the adherence to guidelines in the management of croup in Australian children: a population-based sample survey. *International Journal for Quality in Health Care*. 2019; Published First Online: 28 October 2019.
163. **Prgomet M, Li J, Li L, Georgiou A, Westbrook JI**. The impact of electronic meal ordering systems on hospital and patient outcomes: a systematic review. *International Journal of Medical Informatics*. 2019; 129:275-84.
164. Price A, Ogollah R, Sujin K, Barker K, Benedetto E, Smith S, **Smith J**, Galloway J, Ellis B, Rees JA, Glyn-Jones S, Beard D, Fitzpatrick R, Hill J. Determining responsiveness and meaningful changes for the Musculoskeletal Health Questionnaire (MSK-HQ) for use across musculoskeletal care pathways. *BMJ Open*. 2019; 9(10):e025357.
165. **Punyalack W, Hardie R-A, Li L, Li J, Campbell C, Badrick T, Georgiou A**. High risk results – the evidence for total serum calcium alert thresholds. *Pathology*. 2019; 51:S18.
166. **Raban MZ, Walter SR**, Pont LG, Cheung L, Strumpman D, **Westbrook JI**. The potential impact of an electronic medication management system on safety critical prescribing errors in an emergency department. *Journal of Pharmacy Practice and Research*. 2019; 49(2):108-15.
167. **Rapport F, Auton E**, Cartmill J, **Braithwaite J**, Shih P, **Hogden A, Clay-Williams R**. Fit for purpose? Organisational productivity and workforce wellbeing in workspaces in Hospital (FLOURISH): a multimethod qualitative study protocol. *BMJ Open*. 2019; 9(4):e027636.
168. **Rapport F, Auton E**, Warren C, **Braithwaite J**. Addressing clinical equipoise for hearing devices: the qualitative COACH (q-COACH) study protocol for Australian stakeholder involvement in the design of a randomised controlled trial. *BMJ Open*. 2019; 9(9):e030100.
169. **Rapport F**, Clement C, Seagrove AC, Alrubaiy L, Hutchings HA, Williams JG. Patient views about the impact of ulcerative colitis and its management with drug treatment and surgery: a nested qualitative study within the CONSTRUCT trial. *BMC Gastroenterology*. 2019; 19(166).
170. **Rapport F, Hibbert P, Baysari M, Long JC, Seah R**, Zheng WY, Jones C, Preece K, **Braithwaite J**. What do patients really want? An in-depth examination of patient experience in four Australian hospitals. *BMC Health Services Research*. 2019; 19(38).
171. **Rapport F**, Shih P, **Faris M**, Nikpour A, Herkes G, Bleasel A, **Kerr M, Clay-Williams R, Mumford V, Braithwaite J**. Determinants of health and wellbeing in refractory epilepsy and surgery: the Patient Reported, Implementation science (PRIME) model. *Epilepsy & Behavior*. 2019; 92:79-89.

172. **Rapport F, Smith A**, Cust A, Mann G, Watts C, Gyorki DE, Henderson M, Hong A, Kelly W, Long GV, Mar V, Morton RL, Saw RPM, Scolyer RA, Spillane A, Thompson J, **Braithwaite J**. General practitioners' involvement in diagnosing, treating and referring patients with suspected or confirmed primary cutaneous melanoma: a qualitative study. *British Journal of General Practice (BJGP)*. 2019; (Accepted 17 December 2019).
173. Reis M, Boisvert I, Beedell E, **Mumford V**. Auditory training for adult Cochlear Implant users: a survey and cost analysis study. *Ear and Hearing*. 2019; 40(6):1445-56.
174. Rogers W, Robertson M, Ballantyne A, Blakely B, Catsanos M, **Clay-Williams R**, Fiatarone-Singh M. Compliance with ethical standards in the reporting of donor sources and ethics review in peer-reviewed publications involving organ transplantation in China: a scoping review. *BMJ Open*. 2019; 9(2):e024473.
175. **Schuler T**, Kipritidis J, Eade T, Hruby G, Kneebone A, Perez M, Grimberg K, Richardson K, Evill S, Evans B. Big data readiness in radiation oncology: an efficient approach for re-labelling radiotherapy structures with their TG-263 standard name in real-world data sets. *Advances in Radiation Oncology*. 2019; 4(1):191-200.
176. Scott IA, Cook D, **Coiera EW**, Richards B. Machine learning in clinical practice: prospects and pitfalls. *Medical Journal of Australia*. 2019; 211(5):203-5.
177. Scott PJ, Brown AW, Adedeji T, Wyatt JC, **Georgiou A**, Eisenstein EL, Friedman CP. A review of measurement practice in studies of clinical decision support systems 1998 – 2017. *Journal of the American Medical Informatics Association*. 2019; 26(10):1120-8.
178. Seah R, Draper B, **Mitchell R**. Hospitalisation due to assault injury across different age groups, 2010-2014: a population based study in New South Wales, Australia. *Asia Pacific Journal of Public Health*. 2019; 31(1):39-50.
179. Seah R, Holland A, Curtis K, **Mitchell R**. Hospitalised burns in children ≤16 years old: a 10-year population-based study in Australia. *Journal of Paediatrics and Child Health*. 2019; 55:1084-90.
180. **Sezgin G, Li L**, Wilson R, **Westbrook JI**, Lindeman R, Vecellio E, **Georgiou A**. Laboratory test use and repeat testing for inpatients of age 80 and over in Australia: a retrospective observational study. *The Journal of Applied Laboratory Medicine*. 2019; 4(2):143-51.
181. **Shah Z, Dunn AG**. Event detection on Twitter by mapping unexpected changes in streaming data into a spatiotemporal lattice. *IEEE Transactions on Big Data*. 2019; (Accepted 16 October 2019).
182. **Shah Z, Martin P, Coiera E**, Mandl KD, **Dunn A**. Modeling spatiotemporal factors associated with sentiment on Twitter: synthesis and suggestions for improving the identification of localized deviations. *Journal of Medical Internet Research*. 2019; 21(05):e12881.
183. Shah Z, **Surian D, Dyda A, Coiera E**, Mandl KD, **Dunn AG**. Automatically appraising the credibility of vaccine-related web pages shared on social media: a Twitter surveillance study. *Journal of Medical Internet Research*. 2019; 21(11):e14007.
184. Sharmin S, Kypri K, **Wadolowski M**, Bruno R, Khanam M, Aiken A, Hutchinson D, Najman JM, Slade T, McBride N, Attia J, Mattick RP. Parent characteristics associated with approval of their children drinking alcohol from ages 13 to 16 years: prospective cohort study. *Australian and New Zealand Journal of Public Health*. 2019; 42(4):347-53.
185. Shen T, You Y, Arunachalam S, Fontes A, **Liu S**, Gupta V, Parratt J, Wang C, Barnett M, Barton J. Differing structural and functional patterns of optic nerve damage in multiple sclerosis and neuromyelitis optica spectrum disorder. *Ophthalmology*. 2019; 126(3):445-53.
186. Shih P, **Francis-Auton E**, Nikpour A, Herkes G, Bleasel A, **Rapport F**. Enhancing quality of life among epilepsy surgery patients: Interlinking multiple social and relational determinants. *Epilepsy & Behavior*. 2019; 102:e106721.
187. **Siette J, Georgiou A, Westbrook JI**. Observational cohort study investigating cognitive outcomes, social networks and wellbeing in older adults: a study protocol. *BMJ Open*. 2019; 9:e029495.
188. Stark Z, Boughtwood T, Philips P, Christodoulou J, Hansen D, **Braithwaite J**, Newson A, Gaff C, Sinclair A, North K. Australian Genomics: a federated model for integrating genomics into healthcare. *American Journal of Human Genetics*. 2019; 105:7-14.
189. Stark Z, Nisselle A, McClaren B, Lynch F, **Best S, Long JC**, Martyn M, Patel C, Schlapbach LJ, Barnett C, Theda C, Pinner J, Dinger M, Lunke S, Gaff C. Attitudes of Australian health professionals towards rapid genomic testing in neonatal and paediatric intensive care. *European Journal of Human Genetics*. 2019; 27:1493-501.

190. Steel J, **Georgiou A**, Balandin S, Worrall L, Hill S, Worrall L, Hemsley B. A content analysis of documentation of communication disability in hospital progress notes: diagnosis function and patient safety. *Clinical Rehabilitation*. 2019; 33(5):943-56.
191. **Steffens M, Dunn AG**, Wiley KE, Leask J. How organisations promoting vaccination respond to misinformation on social media: a qualitative investigation. *BMC Public Health*. 2019; 19(1348).
192. Sturman D, Wiggins MW, Auton JC, Loft S, Helton WS, **Westbrook JI, Braithwaite J**. Control room operators' cue utilization predicts cognitive resource consumption during regular operational tasks. *Frontiers in Psychology*. 2019; 10(1967).
193. Sujan M, **Braithwaite J**, Hollnagel E, Anderson J, Furniss D. Resilient Health Care as the basis for teaching patient safety – A Safety-II critique of the World Health Organisation patient safety curriculum. *Safety Science*. 2019; 118:15-21.
194. **Sunderland N, Westbrook JI**, Urwin R, Knights Z, Taitz J, Williams H, **Wiles L, Molloy C, Hibbert P, Ting HP, Churruka K, Arnolda G, Braithwaite J**. Appropriate management of acute gastroenteritis in Australian children: a population-based study. *PLOS One*. 2019; 14(11):e0224681.
195. **Surian D, Kim V**, Menon R, **Dunn AG**, Sintchenko V, **Coiera E**. Tracking a moving user in indoor environments using Bluetooth low energy beacons. *Journal of Biomedical Informatics*. 2019; 98:103288.
196. Tannous P, Fisceletti M, Wood N, Gunasekera H, **Zurynski Y**, Biggin A, Kilo T, Hayes E, Munns C. Safety and effectiveness of stoss therapy in children with vitamin D deficiency. *Journal of Paediatrics and Child Health*. 2019; 56(1):81-9.
197. Taylor N, **Best S**, Martyn M, **Long JC**, North KN, **Braithwaite J**, Gaff C. A transformative translational change programme to introduce genomics into healthcare: a complexity and implementation science study protocol. *BMJ Open*. 2019; 9(3):1-15.
198. **Testa L, Seah R, Ludlow K, Braithwaite J, Mitchell R**. Models of care that avoid or improve transitions to hospital services for residential aged care facility residents: an integrative review. *Geriatric Nursing*. 2019; Published Online First: 12 March 2019.
199. **Thomas J, Dahm M, Li J, Westbrook JI, Georgiou A**. A comparative study of the utilisation of an electronic test-result management system in emergency and intensive care settings. *Health Informatics Journal*. 2019; Published Online First: 3 December 2019.
200. **Tong HL, Coiera E, Tong W, Wang Y, Quiroz JC, Martin P, Laranjo L**. Efficacy of a mobile social networking intervention in promoting physical activity: quasi-experimental study. *JMIR mHealth and uHealth* 2019; 7(3):e12181.
201. **Tran Y, Lamprell K, Nic Giolla Easpaig B, Arnolda G, Braithwaite J**. What information do patients want across their cancer journeys? A network analysis of cancer patients' information needs. *Cancer Medicine*. 2019; 8(1):155-64.
202. Trivedi P, **Lind KE**, Borgstede J, Rochon P, Hong K, Duszak R, Ryu R. Comparative cost-effectiveness analysis of dialysis access maintenance interventions by provider specialty [Abstract published in journal supplement]. *Journal of Vascular and Interventional Radiology*. 2019; 30(3):S115-S6.
203. **Van Dort BA, Baysari MT**, Carland JE, Stocker SL, Braithwaite HE, Fernon AR, Day RO. Education to improve vancomycin use – the perspectives of educators and education recipients. *Internal Medicine Journal*. 2019; Published Online First: 18 June 2019.
204. **Wabe N**, Lee A, Wechalekar M, McWilliams L, Proudman S, Wiese M. Factors associated with medication adherence in a longitudinal study of rheumatoid arthritis patients. *International Journal of Clinical Practice*. 2019; e13375.
205. **Wabe N, Li L, Dahm M**, Lindeman R, Yimsung R, Clezy K, **Georgiou A**. The timing of respiratory virus molecular testing in emergency departments and its association with patient care outcomes: a retrospective observational study across six Australian hospitals. *BMJ Open*. 2019; 9(8):e030104.
206. **Wabe N, Li L**, Lindeman R, Yimsung R, **Dahm MR**, Clezy K, McLennan S, **Westbrook JI, Georgiou A**. The impact of rapid molecular diagnostic testing for respiratory viruses on outcomes for emergency department patients. *Medical Journal of Australia*. 2019; 210(7):316-20.
207. **Wabe N, Li L**, Lindeman R, Yimsung R, McLennan S, **Dahm M**, Clezy K, **Georgiou A**. Impact of rapid molecular diagnostic testing of respiratory viruses on outcomes of adults hospitalised with respiratory illness: a multicentre quasi-experimental study. *Journal of Clinical Microbiology*. 2019; Published Online First: 12 December 2018.
208. Walsh L, Hemsley B, Allan M, **Dahm M**, Balandin S, **Georgiou A**, Hill S. Assessing the information quality and usability of My Health Record within a health literacy framework: what's changed since 2016? *Health Information Management Journal*. 2019; Published Online First: 1 August 2019.

209. **Walter SR**, Dunsmuir WTM, **Westbrook JI**. Inter-observer agreement and reliability assessment for observational studies of clinical work. *Journal of Medical Bioinformatics*. 2019; Published Online First: 22 October 2019.
210. **Walter SR, Raban MZ, Westbrook JI**. Visualising clinical work in the emergency department: understanding interleaved patient management. *Applied Ergonomics* 2019; 79:45-53.
211. Walton V, Hogden A, **Long JC**, Johnson J, Greenfield D. Clinicians' perceptions of rounding processes and effectiveness of clinical communication. *Journal of Evaluation in Clinical Practice*. 2019; 1(11).
212. Walton V, Hogden A, **Long JC**, Johnson J, Greenfield D. How do interprofessional healthcare teams perceive the benefits and challenges of interdisciplinary ward rounds. *Journal of Multidisciplinary Healthcare*. 2019; 12:1023-32.
213. Walton V, Hogden A, **Long JC**, Johnson JK, Greenfield D. Patients, health professionals, and the health system: influencers on patients' participation in ward rounds. *Patient Preference and Adherence*. 2019; 13:1415-29.
214. Ward J, Guy RJ, Rumbold AR, McGregor S, Wand H, McManus H, **Dyda A**, Garton L, Hengel B, Silver B, Taylor-Thomson D, Knox J, Donovan B, Law MG, Maher L, Fairley CK, Skov S, Ryder N, Moore E, Mein J, Reeve C, Chee D, Boffa J, Kaldor J. Strategies to improve control of sexually transmissible infections in remote Australian Aboriginal communities: a stepped-wedge, cluster-randomised trial. *The Lancet*. 2019; 7(11):PE1553-E63.
215. Watterson A, Jeebhay M, Neis B, **Mitchell R**, Cavalli L. The neglected millions: the global state of aquaculture workers' occupational safety, health and well-being. *Occupational and Environmental Medicine*. 2019; (Accepted 3 November 2019).
216. Webb E, Neeman T, Gaida J, Bowden F, **Mumford V**, Bissett B. Impact of Compression Therapy on Cellulitis (ICTOC) in adults with chronic oedema: a randomised controlled trial protocol. *BMJ Open*. 2019; 9(8):e029225.
217. Wenzell LA, White JA, **Sarkies MN**, Morris ME, Carey L, Williams C, Taylor N, Martin J, Baradoel A, Haines T. How do health professionals prioritize clinical areas for implementation of evidence into practice? A cross-sectional qualitative study. *International Journal of Evidence Based Healthcare* 2019. 2019; (Accepted 8 December 2019).
218. **Westbrook JI, Baysari MT**. Nudging hospitals towards evidence-based decision-support for medications. *Medical Journal of Australia*. 2019; 210(6):S22-S4.
219. **Westbrook JI, Li L**, Shah S, Lehnborn EC, **Prgomet M**, Schofield B, Cresswell K, Slee A, Coleman JJ, McCloughan L, Sheikh A. A cross-country time and motion study to measure the impact of electronic medication management systems on the work of hospital pharmacists in Australia and England. *International Journal of Medical Informatics*. 2019; 129:253-9.
220. **Wiles L**, de Wet C, Dalton C, Murphy E, Harris M, **Hibbert P, Molloy C, Arnolda G, Ting HP, Braithwaite J**. The quality of preventive care for pre-school aged children in Australian general practice. *BMC Medicine*. 2019; Published Online First: 6 December 2019.
221. **Wiles L**, Hopper TD, **Hibbert PD, Molloy C**, White L, Jaffe A, Cowell CT, Harris MF, Runciman WB, Schmiede A, Dalton C, Hallahan AR, Dalton S, Williams H, Wheaton G, Murphy E, **Braithwaite J**. Clinical indicators for common paediatric conditions: processes, provenance and products of the CareTrack Kids study. *PLoS ONE*. 2019; 14(1):e0209637.
222. Williams H, Donaldson L, Noble S, **Hibbert P**, Watson R, Kenkre J, Edwards A, Carson-Stevens A. Quality improvement priorities for safer out-of-hours palliative care: lessons from a mixed-methods analysis of a national incident-reporting database. *Palliative Medicine*. 2019; 33(3):346-56.
223. Williams H, Noble S, Edwards A, Kenkre J, **Hibbert P**, Donaldson L, Carson-Stevens A. Designing safer services for patients needing palliative care in GP out of hours services: a national analysis of patient safety data to identify priorities for systems improvement. *BMJ Support & Palliative Care*. 2019; 33(3):346-56.
224. Wilson M, **Tran Y**, Wilson I, Kurrle S. Development of the Australian ageing semantic differential, a new instrument for measuring Australian medical student attitudes towards older people. *Australasian Journal on Ageing*. 2019; 38:e67-e74.
225. **Yin K, Laranjo L, Tong HL, Lau AY, Kocaballi AB, Martin P**, Vagholkar S, **Coiera E**. Context-aware systems for chronic disease patients: scoping review. *Journal of Medical Internet Research*. 2019; 21(6):e10896.

226. You Y, Joseph C, Wang C, Gupta V, **Liu S**, Yiannikas C, Chua BE, Chitranshi N, Shen T, Dheer Y. Demyelination precedes axonal loss in the transneuronal spread of human neurodegenerative disease. *Brain*. 2019; 142(2):426-42.
227. Zornitza S, Dolman L, Manolio TA, Ozenbergfer B, Hill SL, Caulfield MJ, Levy Y, Glazer D, Wilson J, Lawler M, Boughtwood T, **Braithwaite J**, Goodhand O, Birney EB, North KN. Integrating genomics into healthcare: a global responsibility. *The American Journal of Human Genetics*. 2019; 104(1):13-20.
228. **Zurynski Y**, Breen C, Altman L, Woolfenden S, Ging J. Care coordination for children with medical complexity results in savings for the healthcare system and for families. *International Journal of Integrated Care*. 2019; 19(4):615.
229. **Zurynski Y, Churruca K, Arnolda G**, Dalton S, **Ting HP, Hibbert PD, Molloy C, Wiles LK**, de Wet C, **Braithwaite J**. Quality of care for acute abdominal pain in children. *BMJ Quality and Safety*. 2019; Published Online First: 27 November 2019.
230. **Zurynski Y**, Grover CJ, Jalaludin B, Elliott EJ. Vitamin K deficiency bleeding in Australian infants 1993-2017: an Australian Paediatric Surveillance Unit study. *BMJ*. 2019; Published Online First: 19 September 2019.
- FULL CONFERENCE PAPER (11)**
1. **Berkovsky S**, Taib R, Koprinska I, Wang E, Zeng Y, Li J, Kleitman S. Detecting personality traits using eye-tracking data. *CHI Conference of Human Factors in Computing Systems*; 4 May 2019; Scotland UK. 2019.
 2. Brown K, **Zurynski Y**, Altman L. Families as Partners: co-design of a localised model of care for children with medical complexity living in rural Australia and evaluation using the Paediatric Integrated Care Survey (PICS). *ICIC19 -19th International Conference on Integrated Care*; 1-3 April 2019; San Sebastian, Spain. 2019.
 3. Jabin MSR, **Magrabi F, Hibbert P**, Schultz T, Runciman W. Identifying clusters and themes from incidents related to health information technology in medical imaging as a basis for improvements in practice. *IEEE International Conference on Imaging Systems and Techniques (IST)*; 8-10 December 2019; Abu Dhabi, UAE. 2019.
 4. Jabin MSR, Mandel C, Schultz T, **Hibbert P, Magrabi F**, Runciman W. Identifying and characterizing the 18 steps of medical imaging process workflow as a basis for targeting improvements in clinical practice. *IEEE International Conference on Imaging Systems & Techniques (IST)*; 8-10 December 2019; Abu Dhabi, UAE. 2019.
 5. Lehnbohm EC, **Baysari MT, Westbrook JI**. Pharmacists' expectations and perceptions of electronic medication management. Lessons from Australia. *Proceedings of the 17th Scandinavian Conference on Health Informatics*; 12-13 November 2019; Oslo, Norway. 2019.
 6. Markandeya M, Abeyratne U, **Sharan RV**, Hukins C, Duce B, McCloy K. Severity analysis of upper airway obstructions: Oesophageal pressure versus snoring sounds. *2019 IEEE Biomedical Circuits and Systems Conference (BioCAS)*; 17-19 October 2019; Nara, Japan. 2019.
 7. McCloy K, **Sharan RV**, Abeyratne UR, Duce B, Hukins C, Swarnkar VR. Using polysomnographic data to investigate symptom clusters associated with cognitive decline in patients with obstructive sleep apnea. *2019 IEEE Biomedical Circuits and Systems Conference (BioCAS)*; 17-19 October 2019; Nara, Japan. 2019.
 8. Swarnkar VR, Abeyratne UR, Duce B, **Sharan RV**, Hukins C, McCloy K. Night-time brain inter-hemispheric asynchrony in sleep apnea patients carry information on neuropsychological impairment. *2019 IEEE Biomedical Circuits and Systems Conference (BioCAS)*; 17-19 October 2019; Nara, Japan. 2019.
 9. Taib R, Yu K, **Berkovsky S**, Wiggins M, Bayl-Smith P. Social engineering and organisational dependencies in phishing attacks. *21st International Conference on Human-Computer Interaction*; 26-31 July 2019; Orlando, Florida. 2019. p. 564-84.
 10. Yu K, **Berkovsky S**, Taib R, Zhou J, Chen F. Do I trust my machine teammate? An investigation from perception to decision. *International Conference on Intelligent User Interfaces (IUI)*; 16-20 March 2019; Los Angeles, USA. 2019.
 11. **Zurynski Y**, Breen C, Altman L, Woolfenden S, Ging J. Care coordination for children with medical complexity results in savings for the healthcare system and for families. *ICIC19 -19th International Conference on Integrated Care*; 1-3 April 2019; San Sebastian, Spain. 2019.

AIHI grants awarded or under management in 2019

Title	Funding source	Investigators	Total awarded
NHMRC			
NHMRC Partnership Centre in Health Systems Sustainability (Includes partner funds from WA Health, Bupa, NSW Health)	NHMRC	Braithwaite J Coiera E Westbrook J Glasziou P Karnon J Scott A Buchbinder R	\$8,750,000.00
NHMRC Centre of Research Excellence in Digital Health	NHMRC	Coiera E Glasziou P Runciman W Hansen D Liaw S Magrabi F Sintchenko V Verspoor K Gallego Luxan B Lau A	\$2,498,649.00
NHMRC Centre of Research Excellence in Implementation Science in Oncology (CRE-ISO)	NHMRC	Braithwaite J Ward R Curren D Delaney G Kefford R Olver I Karnon J Liauw W Westbrook J	\$2,495,783.00
NHMRC Partnership Project: A dashboard of predictive analytics and decision support to drive care quality and person-centred outcomes in aged care (Includes partner funds from Anglicare and Sydney North PHN)	NHMRC	Westbrook J Georgiou A Lord S Gray L Day R Ratcliffe J Baysari M Braithwaite J	\$1,836,150.30

Title	Funding source	Investigators	Total awarded
Medical Research Future Fund (MRFF) Keeping Australians Out of Hospital	NHMRC	Braithwaite J Westbrook J Day R Levesque J Mitchell R Rapport F Cutler H Tran Y Clay-Williams R	\$1,505,612.00
NHMRC Partnership Project: Creating a culture of safety and respect: a controlled, mixed methods study of the effectiveness of a behavioural accountability intervention to reduce unprofessional behaviours (Includes partner funds from St Vincent's Health Australia)	NHMRC	Westbrook J Braithwaite J Day R Middleton S Scott D Rapport F Mitchell R Baysari M Li L Taylor N	\$1,225,978.00
NHMRC Project Grant: CareTrack Aged: appropriate care delivered to Australian living in residential aged care	NHMRC	Braithwaite J Cameron I Kitson A Reed R Georgiou A Gray L	\$1,157,721.70
NHMRC Partnership Project: Delivering safe and effective test result communication, management and follow-up (Including partners funds from South Eastern Area Laboratory Service)"	NHMRC	Georgiou A Westbrook J Greenfield D Horvath A Wakefield D Li L Hillman K	\$1,133,359.00
NHMRC Partnership Project: Delivering safe and effective care for children in hospital with eHealth systems (Including partners funds from Sydney Children's Hospitals Network, eHealth NSW, NSW Office of Kids and Families)"	NHMRC	Westbrook J Georgiou A Day R O'Brien T Karnon J Dalla-Pozza L Cowell C Li L Baysari M Ambler G	\$1,082,805.00

Title	Funding source	Investigators	Total awarded
NHMRC Project Grant: Enabling personalised cohort studies from large repositories of clinical practice data	NHMRC	Gallego Luxan B Shah N Verspoor K Liaw S	\$520,967.50
NHMRC Project Grant: New methods for tracking the influence and geospatial clustering of vaccine misinformation	NHMRC	Dunn A Leask J	\$476,648.00
NHMRC Early Career Fellowship: Optimising eHealth systems to improve medication safety and patient outcomes	NHMRC	Raban M	\$347,952.00
NHMRC Centre of Research Excellence: Protecting the public from emerging infectious diseases	NHMRC	Sorrell T Sintchenko V Cheng A Gilbert G Holmes E Howden B Smith D Coiera E Iredell J Jones C	\$87,004.00
NHMRC Project Grant: Preventing chronic disease in patients with low health literacy using e-health and teamwork in primary health care	NHMRC	Harris M Stocks N Nutbeam D Zwar N Karnon J Denney-Wilson E Noakes M Liaw S Lau A	\$79,564.00
OTHER			
Coupling Results Data from ClinicalTrials.gov and Bibliographic Databases to Accelerate Evidence Synthesis	National Library of Medicine	Bourgeois F Dunn A Mandl K	\$599,505.00
Person, tumor and system-focussed knowledge to drive better outcomes in melanoma	University of Sydney	Braithwaite J Rapport F	\$589,707.00
Murdoch Children's Research Institute Placement Agreement	Murdoch Children's Research Institute	Braithwaite J	\$525,000.00
Enhancing patient outcomes through evaluation of the appropriateness and quality use of pathology in general practice	Commonwealth Department of Health	Georgiou A Westbrook J Li L Pont L Pearce C Reinhart N	\$522,824.00

Title	Funding source	Investigators	Total awarded
Health implementation research strategy/Towards understanding complexity	Australian Genomics Health Alliance	Braithwaite J Long J Taylor N	\$365,868.00
Using a life course approach to examine the influence of individual and psychosocial characteristics on individual trajectories through the health and aged care systems	NSW Health	Mitchell R	\$360,939.00
Productive safety in the Emergency Department (ED): developing ED safety capacity when responding to high patient demand and unexpected events	NSW Health	Clay-Williams R	\$360,929.00
Redesigning patient experience in health service navigation using digital technology	NSW Health	Lau A	\$360,541.00
PSRACS participation in the CareTrack Aged research, a NHMRC-funded Project Grant	Victoria Department of Health and Human Services	Braithwaite J Hibbert P Wiles L	\$357,603.00
Paediatric Precision Oncology Implementation Science	Children's Cancer Institute Australia	Rapport F Braithwaite J Long J O'Brien T Tyrrell V	\$293,840.00
Evaluation of the Delirium Clinical Care Standard	NSW Health	Mumford V	\$293,506.00
Developments that support innovation in aged care: Ageing well - A social participation and engagement tool to enhance consumer choice and the delivery of quality, person-centred community aged care services.	Commonwealth Department of Health	Georgiou A Westbrook J Jorgensen M Siette J	\$265,976.00
Mackenzie's Mission	Australian Genomics Health Alliance	Braithwaite J Long J Best S	\$250,000.00
Health System Sustainability	Independent Hospital Pricing Authority	Braithwaite J	\$240,103.33
Active Implementation of Australian Consensus Guidelines for the effective delivery of ethical services to patients with Mitochondrial Disorders	Mitochondrial Foundation Board	Christodoulou J Braithwaite J Long J Best S	\$238,685.00
Independent file review to monitor the minor injury definition and threshold in the new CTP scheme	State Insurance Regulatory Authority	Mitchell R Braithwaite J Hibbert P	\$173,997.00
LifeSpan: An implementation evaluation	The Black Dog Institute	Zurynski Y Ellis L Long J	\$165,264.00

Title	Funding source	Investigators	Total awarded
The impact of electronic clinical systems on medication safety and workload in oncology	Cancer Institute NSW	Westbrook J Baysari M Mumford V Li L	\$160,000.00
Behavioural and Attitudinal Responses to Cochlear Implantation in Australia and the UK	Cochlear Ltd	Rapport F Hogden A	\$160,000.00
From bedside to the bench: Bringing Macquarie University Hospital data to researchers	Australian National Data Service	Tsafnat G	\$160,000.00
Evaluation of My Health Record and Healthdirect Australia after hours GP helpline	Healthdirect	Westbrook J Baysari M Koyama A Nguyen A Van Dort B	\$149,181.00
Data analysis and evaluation of the clinical outcomes of the electronic National Residential Medication Chart trial	Commonwealth Department of Health	Westbrook J Lind K Nguyen A Gates P Raban M	\$116,015.00
WOMBAT iOS development (DVCR and MQ IT funded)	Macquarie University	Westbrook J	\$100,000.00
Sydney North Health Network Digital Test Beds Evaluation	Sydney North Health Network	Georgiou A Jorgensen M Siette J Nguyen A	\$89,991.00
Systematic Review Automation Pipeline Pilot Study	U.S. National Institute of Environmental Health Sciences (NIEHS)	Tsafnat G	\$80,256.00
Impact of chronic illness and injury on school performance	Macquarie University	Mitchell R	\$77,639.00
Comparison of outcomes with hearing aids and cochlear implants in adults with moderately severe to profound bilateral sensorineural hearing loss (COACH study): Qualitative arm.	Cochlear Ltd	Rapport F Hogden A Boisvert I	\$72,480.00
Perceived improvement in quality of care	University of Wollongong	Mitchell R Wadolowski M Goodenough B Watts J	\$69,614.05
Epidemiology of sepsis in Australian hospitals	Australian Commission on Safety and Quality in Health Care	Li L Rathnayake K Sunderland N Westbrook J	\$69,353.00

Title	Funding source	Investigators	Total awarded
Person-centred care evaluation project	St Vincent's Health Australia	Rapport F Hibbert P Baysari M Braithwaite J Long J	\$67,513.00
Sepsis Analysis and Epidemiological Interpretation	Australian Commission on Safety and Quality in Health Care	Li L	\$63,049.00
Review of the Southern Adelaide Local Health Network Continuous Improvement Program	Southern Adelaide Local Health Network	Hibbert P Braithwaite J Gardner C Wiles L Clay-Williams R	\$62,256.00
Incident Management Systems - A national approach to enhance patient safety	Australian Commission on Safety and Quality in Health Care	Hibbert P Braithwaite J Clay-Williams R Blakely B	\$56,036.00
Research on approaches for clinical governance of consumer digital health	Healthdirect	Magrabi F Coiera E	\$54,657.00
MindSEIS: Resilience, Mindfulness and Medication Safety with Electronic Systems	European Commission H2020 MSCA International Fellowship	Lichtner V Westbrook J	\$53,346.00
Trauma Journey Day of Difference	University of Sydney	Mitchell R	\$50,085.00
Evaluating social engagement services for older adults in community care: Role of social networks in cognitive decline	Dementia Australia Research Foundation Limited	Siette J	\$50,000.00
MQ Restart Grant	Macquarie University	Siette J	\$50,000.00
Macquarie MINDS: Monitoring of injury and psychosocial health outcomes, career trajectories and continuing education, LiveD experiences and Social connectedness	Macquarie University	Lystad R Peters L Johnstone M Ellis L	\$49,994.00
Preventing patient harm in hospitals: automatic real-time detection of adverse drug events using datasets from electronic clinical information systems	Macquarie University	Li L	\$49,806.00
Electronic medication management systems in residential aged care facilities – a literature scan	Australian Commission on Safety and Quality in Health Care	Raban M	\$44,544.50

Title	Funding source	Investigators	Total awarded
iConnect: Capturing social interactions using wearable technology in residential aged care	Macquarie University	Siette J	\$43,875.00
Townsville Hospital and Health Services SPUR Project	Townsville Hospital and Health Service	Clay-Williams R Lane P Johnson A	\$40,000.00
Personalised anticoagulant therapy for patients with acute coronary syndrome	Macquarie University	Wendling T Gallego Luxan B Coiera E	\$40,000.00
Evaluation of a hospital based optometry clinic model	Centre for Eyecare UNSW	Blakely B Long J Clay-Williams R Braithwaite J	\$38,027.00
IT Safety at Telstra Health	Telstra Health	Magrabi F	\$37,188.00
List of validated patient reported outcome measures	Australian Commission on Safety and Quality in Health Care	Ellis L Churruca K Pomare C	\$36,243.00
Evaluation of Community Connections Program	Enrich Living Services	Siette J	\$34,595.00
Development of national guidance for classifying health IT related incidents	Australian Commission on Safety and Quality in Health Care	Magrabi F Baysari M	\$34,125.00
Evaluation of a peer support program at the Townsville Hospital	Townsville Hospital and Health Service	Clay-Williams R Austin E Ellis L Blakely B Lane P	\$26,343.00
Effectiveness of mental health EMRs on usability, uptake and clinician and patient safety and quality outcomes	Sax Institute	Zurynski Y Clay-Williams R Ellis L	\$26,000.00
Scoping barriers and finding solutions to research knowledge translation and implementation into the Australian health care system	Research Australia	Zurynski Y Braithwaite J Holt J	\$25,272.00
The lived experience of post-surgical following resective surgery for refractory epilepsy: a phenomenological study	Macquarie University	Shih P	\$25,000.00
An evaluation of the literature on assessing safety and quality culture in an organisation	Australian Commission on Safety and Quality in Health Care	Hogden A Ellis L Churruca K Bierbaum M	\$23,095.00

Title	Funding source	Investigators	Total awarded
Safety audit of Communicare	Telstra Health	Magrabi F	\$20,250.00
Improving outcomes from high risk surgery: patient-centred advanced care planning	Townsville Hospital and Health Service	Clay-Williams R Senthuran S Lane P	\$20,000.00
Trialling the revised Macquarie surgical innovation identification tool (MSIIT) in five Australian Hospitals: Phase One	Macquarie University	Blakely B	\$19,980.00
Understanding the impact of dementia on rehabilitation following hip fractures to improve health outcome for older people	Macquarie University	Mitchell R	\$19,973.85
Improving long-term health outcomes for Australians with traumatic brain injury	Macquarie University	Lystad R	\$19,916.00
Case studies on patient reported outcome measures	Australian Commission on Safety and Quality in Health Care	Ellis L Churruca K Mahmoud Z	\$17,352.00
IT safety workshops	Telstra Health	Magrabi F	\$16,938.00
Research plan for the validity and reliability testing of two patient safety culture surveys	Australian Commission on Safety and Quality in Health Care	Tran Y Ellis L Churruca K	\$16,494.50
Review of the Child Death Register	Ombudsman New South Wales	Mitchell R	\$15,045.00
Evaluation of a family support collaborative using a social network approach	The University of New South Wales	Long J	\$15,000.00
Investigating a new and innovative approach to using the Work Observation Method By Activity Timing (WOMBAT) tool: a proof of concept study in paediatric oncology	Macquarie University	Prgomet M	\$14,000.00
CMCRC Supervisors Research Support Allowance-Gallego Luxan, B	Capital Markets Cooperative Research Centre	Gallego Luxan B	\$10,000.00
Establishing the role of social networks in older adults in residential aged care	Macquarie University	Siette J	\$10,000.00
Patient work conducted by individuals with type 2 diabetes and chronic co-morbidities: a mixed-method, multi-staged, observational study	Macquarie University	Lau A	\$10,000.00

Title	Funding source	Investigators	Total awarded
National injury prevention strategy - Literature Review	NSW Families and Child Services	Hunter K Ivers R Clapham K Curtis K Keay L Vallmuur K Brown M Mitchell R Scott D Cullent P	\$6,000.00
Social factors associated with the intention and use of e-cigarettes	Macquarie University	Amin S	\$5,000.00
A framework for evaluating and improving the efficiency of the systematic review endeavour	Macquarie University	Bashir R	\$4,651.86
Grand total funding			\$31,788,660.59
Grants awarded			85



Engage with us

VISIT US

Level 6, 75 Talavera Road
North Ryde NSW 2113 Australia

T: +61 (2) 9850 2400

E: aihi@mq.edu.au

aihi.mq.edu.au

FOLLOW US ON TWITTER

[@AIHI_MQ](https://twitter.com/AIHI_MQ) | [@PCHSS_AIHI](https://twitter.com/PCHSS_AIHI) | [@JBraithwaite1](https://twitter.com/JBraithwaite1) | [@EnricoCoiera](https://twitter.com/EnricoCoiera) | [@JWestbrook91](https://twitter.com/JWestbrook91)

Join us

Work, partner or study with us and make a difference to health systems globally. We conduct world-class research with national and international research communities, governments, policy-makers, providers of health services, clinicians, patients and the community.



**AUSTRALIAN INSTITUTE
OF HEALTH INNOVATION
Macquarie University**

Level 6, 75 Talavera Road
North Ryde NSW 2113 Australia

E: aihi@mq.edu.au

T: +61 2 9850 2400

aihi.mq.edu.au

*Heal.
Learn.
Discover.*