



MACQUARIE  
University

# Australian Institute of Health Innovation

ANNUAL REPORT

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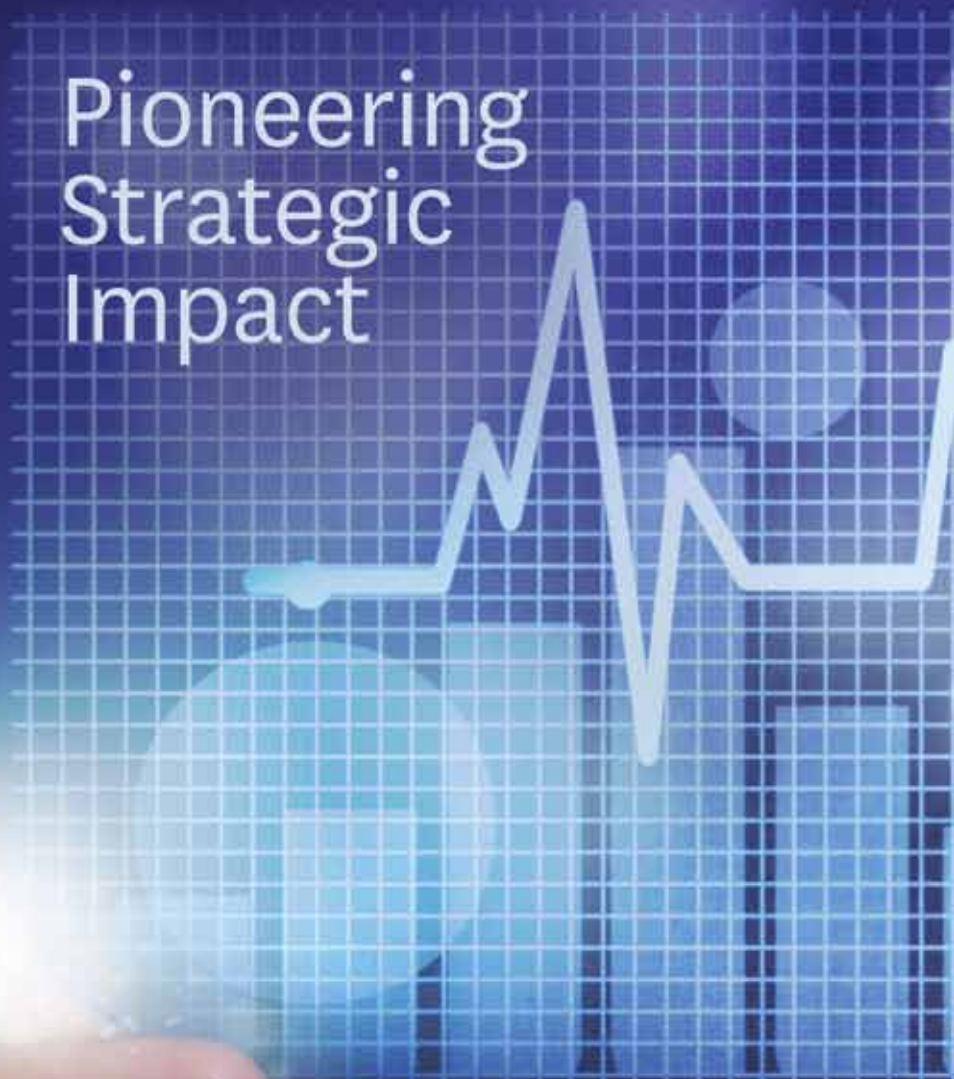
2017

## HEALTH DATA

surgery 0  
clinical test  
medications  
blood pressure  
lab test 52%  
vaccination 82%  
BMI normal



## Pioneering Strategic Impact





patient #06001

gender ♂  
age 23  
HR 95 bpm  
120/60  
ECHO D  
CD PWR<500  
Frq 2.0 MHz  
1800 mm  
AO 100%

**“The world is changing faster than ever before. Politics is more contested. Technology is ubiquitous. The media is in transformation. There are new online models – for education, communication with the world, for reading books, for arranging travel, for making appointments and the like. There are smart phone apps for almost everything.”**

Our core activity is research – studying how healthcare works, and how it can work better – more effectively, more efficiently and more sustainably. This is changing, too. The system we are investigating – not just healthcare in Australia, but in 152 countries – is transforming at the very same time we are investigating it.

There are freshly minted, innovative models of care, the genomics revolution is accelerating, and there’s a shift from measuring throughput to creating value for patients. And then there are new IT systems, the exploitation of big data, and precision medicine, to mention only a few more.

The way we research this moving target is changing in exciting ways, too. New ideas – some, fully blown theories and others, simply novel ways to think about the caring system – are emerging. We are contributing intellectually to many of these. Professor Enrico Coiera and his Centre are looking at how to exploit Artificial Intelligence in medicine, for instance. Professor Johanna Westbrook and her team are doing internationally regarded studies in medication safety in both acute and aged care settings. My own Centre has contributed to book series on resilient healthcare and health reform and its future in global health systems alongside representatives from three-quarters of the world’s countries.

In the pages that follow, we map much of this excitement by describing our research, highlighting articles and presentations that are making a huge difference to health systems and, ultimately, patients’ lives. We document in this report our deep appreciation to our partners and collaborators in Australia and around the world who support this work or collaborate with us to accomplish it.

In doing so, we are acknowledging the enterprise we call the Australian Institute of Health Innovation is a multidimensional, multi-partner, multinational, multi-ideas, multidisciplinary pursuit. It is a complete privilege to work in such a multi-faceted Institute.

On behalf of our Board Chair, Professor Patrick McNeil, and my fellow directors, Professor Enrico Coiera and Professor Johanna Westbrook, we are delighted to record our appreciation to everyone involved in making our studies and projects such a success. We love the opportunities we have to contribute the research that we do with all our collaborators internally and externally, and we hope it shows on every page of this 2017 Annual Report.



A handwritten signature in black ink, appearing to read 'Jeffrey Braithwaite'. The signature is fluid and cursive, written over a white background.

**Professor Jeffrey Braithwaite**  
Founding Director



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Centre for Hospital Management and Information Systems Research (CENTHMIS), established in the Faculty of Medicine, UNSW

1991

CENTHMIS commenced its first ARC grant

1993

Professor Enrico Coiera becomes first Australian to hold a Professorial Chair in Medical Informatics and founds UNSW Centre for Health Informatics (CHI)

CHI begins collaboration with CENTHMIS

1999

CENTHMIS name changed to Centre for Clinical Governance in Research (ClinGov)

Professor Jeffrey Braithwaite appointed as Director of ClinGov

2001

CHI awarded ARC Linkage Grant led by Associate Professor Johanna Westbrook

2003

The Australian Institute of Health Innovation (AIHI) is a research-intensive institute located at Macquarie University.

# Who we are

Proudly supported by the vibrant and rapidly growing Faculty of Medicine and Health Sciences, the Institute conducts world-class research to catalyse performance improvement in healthcare services and systems.

Consistent with the university's research framework – *world-leading research; world-changing impact* – our goal is to create valuable, high-impact research that drives changes in policy, practice and behaviour for the benefit of patients worldwide. We use systems science, human factors and translational approaches to provide innovative, evidence-based solutions of value to policy-makers, system managers, and other stakeholders in the business of healthcare. We also develop tools which enable interoperable evidence gathering, visualisation, analysis, and research automation.

The Institute has been increasingly successful in winning competitive research grants and contracts. Our tally for 2017 reached a high of 27 new grants, fellowships and contracts with a total value of almost \$21 million, adding to an already substantial total of more than \$24 million in funds already under management. We also participate in a further 15 grants administered by other institutions valued at \$42 million.

In 2017 we had 170 staff, researchers, fellows and visiting appointees, and 26 higher-degree research students, of whom 21 were PhD candidates. Our major sources of income are the National Health and Medical Research Council (NHMRC), Macquarie University, the Australian Research Council (ARC) discovery and linkage grants, and commissioned research.

Researchers at AIHI contributed to, or led, the authorship of 317 peer-reviewed outputs in 2017, including two books, 28 book chapters, 158 peer-reviewed journal articles and numerous other publications.





AIHI receives funding for NHMRC Partnership Project Grant: CareTrack Kids

2013

**AIHI relocates to Macquarie University**

2014

AIHI wins largest grant ever awarded to Macquarie University: \$10.7 million NHMRC Partnership Centre for Health System Sustainability

2016

NHMRC Centre of Research Excellence in Implementation Science in Oncology awarded (\$2.5m)  
NHMRC Centre of Research Excellence in Digital Health awarded (\$2.5m)  
NHMRC Partnership Project Grant 'Optimising computerised decision support to transform medication safety' awarded (\$830,546)  
NHMRC Partnership Project Grant 'Creating a culture of safety and respect' awarded (\$1.2m)  
NHMRC Project Grant 'CareTrack Aged' awarded (\$1.2m)  
Professor Jeffrey Braithwaite elected President-Elect, International Society for Quality in Health Care (ISQua)

2017

# AIHI at a glance



**\$21 million**

New research funding awarded in 2017



**\$45 million**

Enterprise value of projects under AIHI management



**67**

Number of research projects under management by AIHI



**\$42 million**

Enterprise value of grants administered elsewhere involving AIHI



**15**

Number of projects administered elsewhere involving AIHI



**27**

Total new projects awarded in 2017



**170**

Researchers, visiting appointees and professional staff



**26**

PHD, Master of Research and Master of Philosophy students



**317**

Peer-reviewed outputs published



**30**

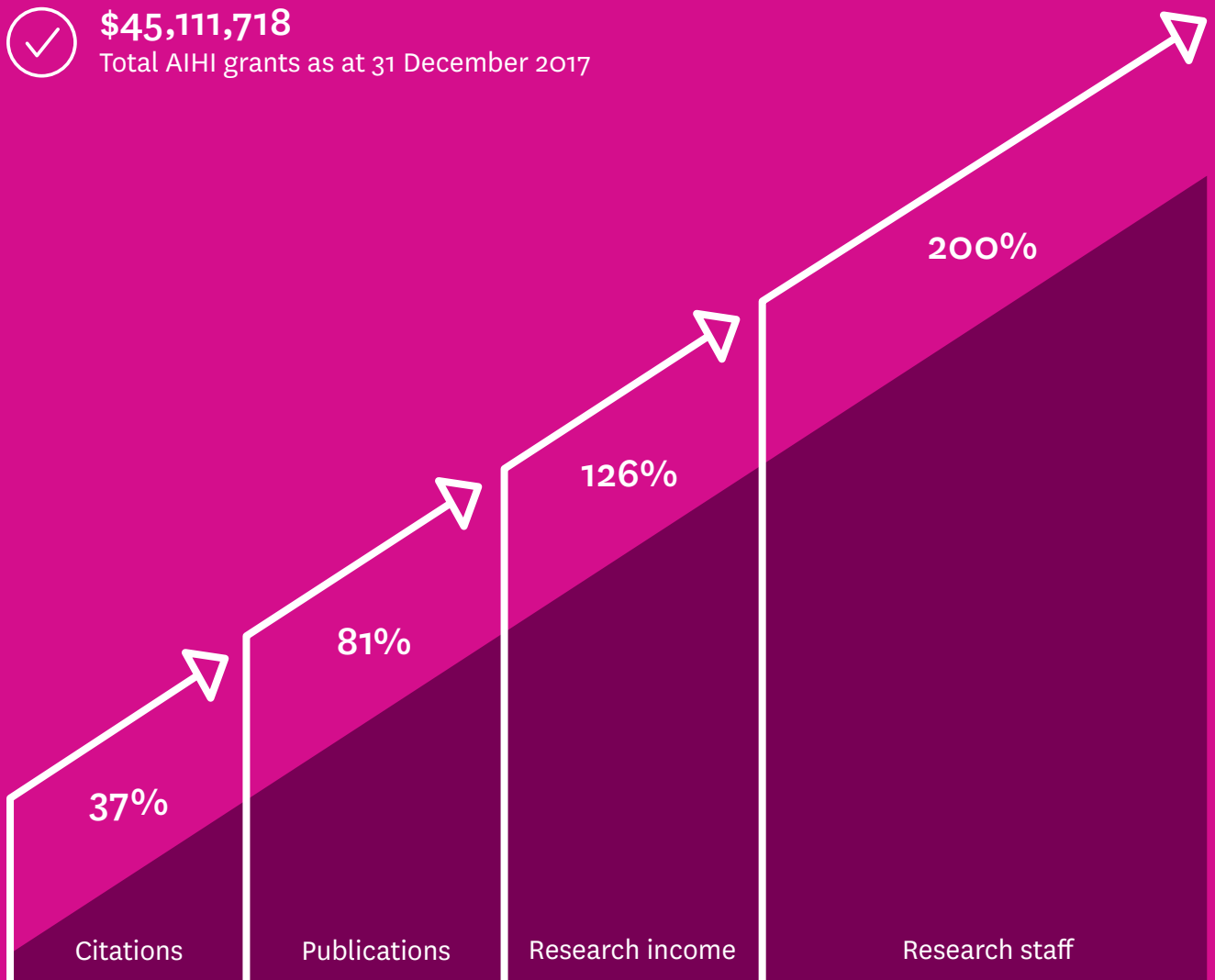
Seminars and engagement events

## KEY NEW PROJECTS FOR 2017

- Two new NHMRC Centres of Research Excellence Grants
- Two new NHMRC Partnership Project Grants
- NHMRC Partnership Centre for Health System Sustainability
- NHMRC Project Grant
- NHMRC Early Career Fellowship

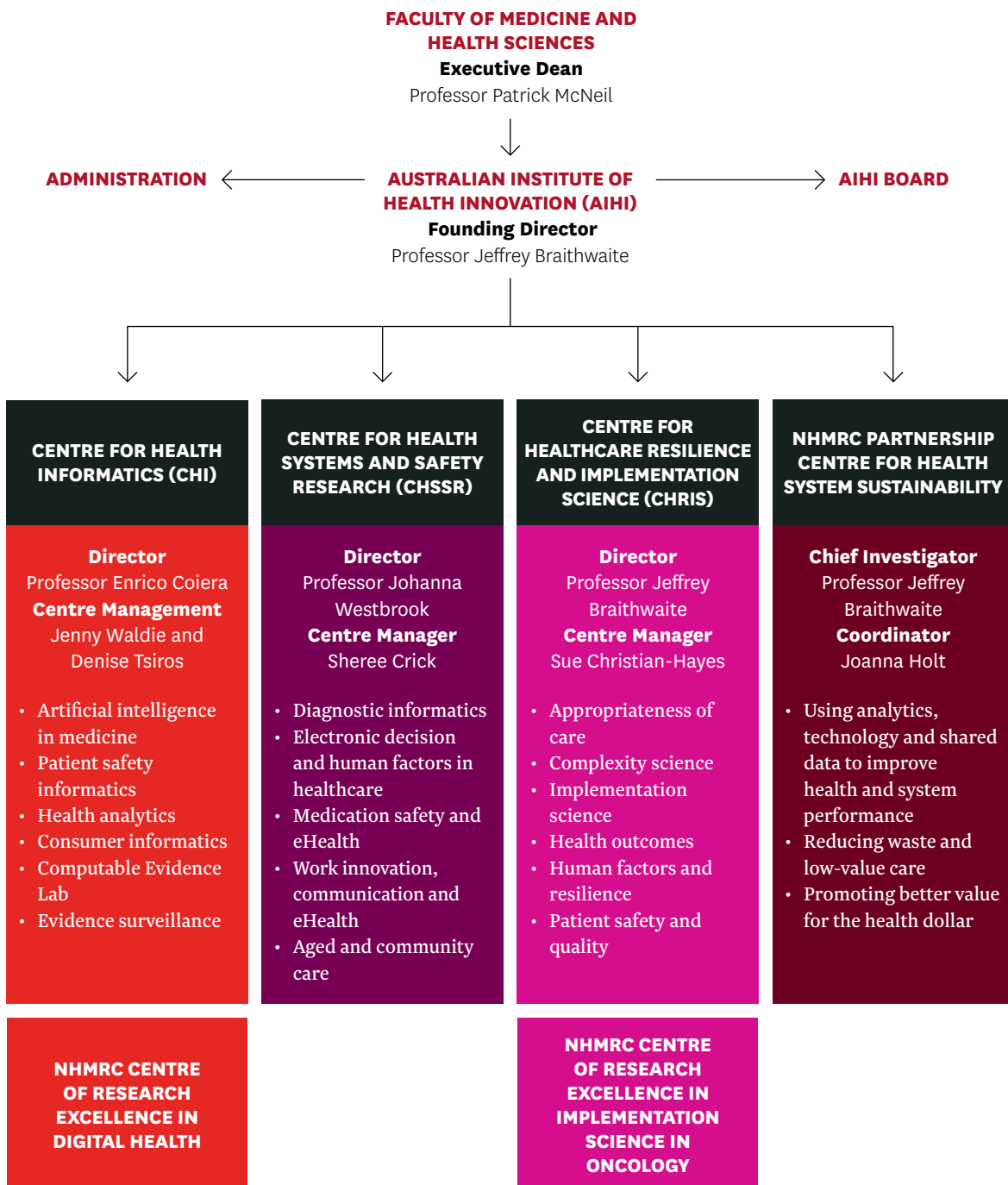


- ✓ **\$20,971,159**  
New grants awarded in 2017
- ✓ **\$24,140,559**  
Grants awarded and under management prior to 2017
- ✓ **\$45,111,718**  
Total AIHI grants as at 31 December 2017



GROWTH OVER THREE YEARS  
TO DECEMBER 2017

# Organisational structure



**Global themes:** Patient safety; Improvement studies; Multidisciplinary teamwork; Behaviour change; International health reform; Digital health.



**“We pioneer new approaches to health systems research and implementation; we think strategically and aim for impact. Over three years at Macquarie University, we have grown our research capacity and assets through the acquisition of new grants and increased engagement with stakeholders.”**

PROFESSOR JEFFREY BRAITHWAITE



# Our Board

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**CHAIR**

Professor Patrick McNeil



**MACQUARIE UNIVERSITY**

Professor

Jeffrey Braithwaite



**MACQUARIE UNIVERSITY**

Professor

Enrico Colera



**MACQUARIE UNIVERSITY**

Professor

Lesley Hughes



**NSW HEALTH SYSTEM**

Professor

Patrick Bolton



**NSW HEALTH SYSTEM**

Professor

Chris Cowell



**NSW HEALTH SYSTEM**

Professor

Adam Jaffé



**INDEPENDENT MEMBERS**

Professor

Les White AM



**INDEPENDENT MEMBERS**

Dr Karen Owen



**BOARD SECRETARY**

Ms Joanna Holt



**MACQUARIE UNIVERSITY**  
Professor  
Johanna Westbrook



**MACQUARIE UNIVERSITY**  
Professor  
Cliff Hughes AO



**NSW HEALTH SYSTEM**  
Ms Carrie Marr



**NSW HEALTH SYSTEM**  
Professor  
Sally Redman AO



**NSW HEALTH SYSTEM**  
Professor  
George Rubin



**BOARD SECRETARY**  
Mr Reza Bilimoria

# Our Directors

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## PROFESSOR JEFFREY BRAITHWAITE

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

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 President Elect for the International Society of Quality in Health Care and a member of the World Health Organisation's Global Patient Safety Network.

Professor Braithwaite's wide-ranging research expertise includes the culture and structure of acute settings; leadership, management and change in health sector organisations; quality and safety in healthcare; accreditation and surveying processes in international contexts; and the restructuring of health services. Professor Braithwaite is well known for his promotion of evidence-based practice, and for bringing management and leadership concepts into the clinical arena. His extensive publications (more than 450 refereed contributions) about organisational, social and team approaches to care, have raised the importance of these issues in Australia and internationally. He has presented at or chaired international and national conferences, workshops, symposia and meetings on more than 890 occasions, including 90 keynote addresses. He has been conferred more than 40 international awards or prizes for his teaching and research.

Many of the theories and ideas Professor Braithwaite has researched and helped to formulate are now in common use. His empirical results have exposed the distinctive attitudes of clinical professional groups, the ways clinician-managers enact their leadership responsibilities, the relationships between efficiencies and the structural type of teaching hospitals, the behavioural displays of clinicians in service structures and the status of system-wide patient safety improvement initiatives. He has made many contributions to the way health systems work including his research on resilient healthcare, complexity science and patient safety.

**Twitter: @JBraithwaite1**

## PROFESSOR ENRICO COIERA

**Director, Centre for Health Informatics**

Professor Enrico Coiera is Foundation Professor of Medical Informatics at Macquarie University,

and Director of the AIHI Centre for Health Informatics, a group he co-founded in 2000. He is also the Director of the NHMRC Centre of Research Excellence in Digital Health.

Trained in medicine and with a computer science PhD in Artificial Intelligence (AI), Professor Coiera has a research background in both industry and academia and a strong international research reputation for his work on decision support and communication processes in biomedicine. He is driving the integration of the application of AI in healthcare across the Centre's existing research streams in a decade-long research program.

Professor Coiera spent 10 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 eHealth interventions, including the Healthy.me consumer system, the Quick Clinical search engine, as well as many clinical decision support systems. Healthy.me technologies underpin a new US health start-up, called Healthbanc. His textbook *Guide to Health Informatics*, now in its 3rd edition, is widely used internationally and has been translated into several languages. He also co-authored the seminal 2004 *Journal of the American Medical Informatics Association* (JAMIA) paper, 'Some Unintended Consequences of Information Technology in Health Care: The Nature of Patient Care Information System-related Errors', still the most cited paper in the journal's history.

Professor Coiera has won a number of prestigious awards, including the 2015 International Medical Informatics Association François Grémy Award for Excellence and the 2011 UNSW Inventor of the Year (Information and Communication Technology) for a literature-based computational discovery system.

Professor Coiera was elected Foundation Fellow and first President of the Australasian College of Health Informatics, is a foundation member of the International Academy of Health Sciences Informatics, an International Fellow of the American College of Medical Informatics and has been appointed to several other boards and councils. He has also held editorial positions on international journals and is currently the Associate Editor of the journal *Artificial Intelligence in Medicine*.

**Twitter: @EnricoCoiera**





Professor Enrico Coiera, Professor Johanna Westbrook and Professor Jeffrey Braithwaite

**PROFESSOR JOHANNA WESTBROOK**  
**Director, Centre for Health Systems and Safety Research**

Professor Johanna Westbrook is Director of the AIHI Centre for Health Systems and Safety Research. She 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 particular expertise in the study of medication safety. Professor Westbrook has contributed to theoretical models regarding the design of complex multi-method ICT evaluations.

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. Thus, a core element of Professor Westbrook's research has been developing and applying novel observational and analysis approaches to investigate these processes in a range of health settings. Her research has led to significant advances in our understanding of how clinical information systems deliver (or fail to deliver) expected benefits and has supported translation of this

evidence into policy, practice, and IT system changes. Professor Westbrook has more than 390 publications and been awarded more than \$45 million in research grants.

Professor Westbrook is an elected International Fellow of the American College of Medical Informatics, Fellow of the Australasian College of Health Informatics, and an Associate Editor of the *Journal of the American Medical Informatics Association*. In 2014 she was named Australian ICT professional of the year by the Australian Information Industry Association. In 2016 she was appointed by the Federal Minister for Health to the Board of the Australian Digital Health Agency. She is Chair of the Deeble Institute Advisory Board, Australian Healthcare and Hospitals Association and a member of the Boards of the Sax Institute and the International Medical Informatics Association.

**Twitter: @JWestbrook91**

# Key grants awarded



Implementation Science  
in Oncology  
NHMRC CENTRE OF RESEARCH EXCELLENCE

## NHMRC CENTRE OF RESEARCH EXCELLENCE IN IMPLEMENTATION SCIENCE IN ONCOLOGY – ENERGISING AND TRANSLATING CANCER RESEARCH AND CARE

The Centre of Research Excellence in Implementation Science in Oncology (CRE-ISO), a highly innovative, nationally important centre for excellence in oncology research and care, will be created with NHMRC funding of \$2.5 million over five years.

Centred on care provided at two major Sydney hospitals, projects under the banner of the CRE-ISO will publish ground-breaking research while also guiding the development and implementation of practices based on research findings. In addition, the CRE-ISO will mentor the next generation of implementation scientists.

Under the leadership of Professor Jeffrey Braithwaite, researchers will work side-by-side with clinicians, policy-makers and patients to generate new practical and publishable knowledge; promote its effective transfer; and develop, energise and transform the workforce.

### COLLABORATIVE PARTNERS

- Professor Jeffrey Braithwaite, AIHI, Macquarie University
- Professor Robyn Ward, AM, University of Queensland
- Professor David Currow, Flinders University
- Professor Geoff Delaney, Liverpool Hospital
- Professor Richard Kefford, AM, Macquarie University
- Professor Ian Olver, AM, University of South Australia
- Professor Jonathan Karnon, The University of Adelaide
- Professor Phil Crowe, University of New South Wales
- Associate Professor Winston Liauw, St George Hospital and Community Health Service
- Professor Johanna Westbrook, AIHI, Macquarie University

Grant awarded 2017; project commences 2018.



Digital Health  
NHMRC Centre of Research Excellence in Digital Health

## NHMRC CENTRE OF RESEARCH EXCELLENCE IN DIGITAL HEALTH – LEADING THE WAY

Macquarie University continues to lead the way in digital health research. With the awarding of \$2.5 million by the NHMRC, the Institute will establish the Centre of Research Excellence in Digital Health (CREiDH).

Led by Professor Enrico Coiera and building on the former NHMRC Centre of Research Excellence in eHealth (also led by Coiera), the CREiDH will target major evidence gaps that exist in our understanding of how to successfully implement and monitor digital health in Australia.

The CREiDH brings together the major Australian centres of health informatics research, with the support of the Australian Digital Health Agency and the Australasian College of Health Informatics.

Professor Coiera will lead a team of researchers and front-line service providers working to create safe, efficient and effective digital health services for both clinicians and consumers.

### 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, University of New South Wales
- 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, AIHI, Macquarie University
- Dr Annie Lau, AIHI, Macquarie University

Grant awarded 2017; project commences 2018.





### **CARETRACK AGED – PRIORITISING EVIDENCE-BASED CARE FOR HEALTH AND WELLBEING**

CareTrack Aged is an internationally significant project designed to investigate what proportion of care delivered in Australian residential aged care facilities is in-line with best practice guidelines. It is managed by Peter Hibbert, an internationally recognised expert in studies of this kind.

Funded by an NHMRC Project Grant, CareTrack Aged builds on ground-breaking research published in the Institute's earlier studies of appropriate care (i.e. care that is offered to patients in-line with accepted clinical practice guidelines) for the general population in CareTrack Australia and for Australian children in CareTrack Kids.

Researchers, led by Professor Jeffrey Braithwaite, will focus on 15 conditions that are frequently managed in residential aged care facilities, and will also assess the quality of life of residents, including an examination of older people's emotional and lifestyle needs such as love and friendship, security, enjoyment and control.

### **COLLABORATIVE PARTNERS**

- Professor Jeffrey Braithwaite, AIHI, Macquarie University
- Professor Ian Cameron, University of Sydney
- Professor Alison Kitson, University of Adelaide
- Professor Richard Reed, Flinders University, South Australia
- Professor Andrew Georgiou, AIHI, Macquarie University
- Professor Len Gray, University of Queensland
- Project manager: Peter Hibbert, AIHI, Macquarie University

**Grant awarded 2017; project commences 2018.**

# Introducing our Centres

The unique depth of the Australian Institute of Health Innovation comes from three independent but complementary centres of research:

**1.**

Centre for Health Systems and Safety Research (CHSSR) led by Professor Johanna Westbrook and administered by Ms Sheree Crick

**2.**

Centre for Health Informatics (CHI) led by Professor Enrico Coiera and administered by Ms Jenny Waldie (Business) and Ms Denise Tsiros (Operations)

**3.**

Centre for Healthcare Resilience and Implementation Science (CHRIS) led by Professor Jeffrey Braithwaite and administered by Ms Sue Christian-Hayes

Taken individually, these centres are powerhouses of expert research endeavour, as can be seen in the centre-based reports that follow. They also collaborate extensively. The success of this focused but collaborative model has culminated in the addition of three more centres in 2017:

**4.**

NHMRC Partnership Centre for Health System Sustainability

**5.**

NHMRC Centre of Research Excellence in Digital Health

**6.**

NHMRC Centre of Research Excellence in Implementation Science in Oncology

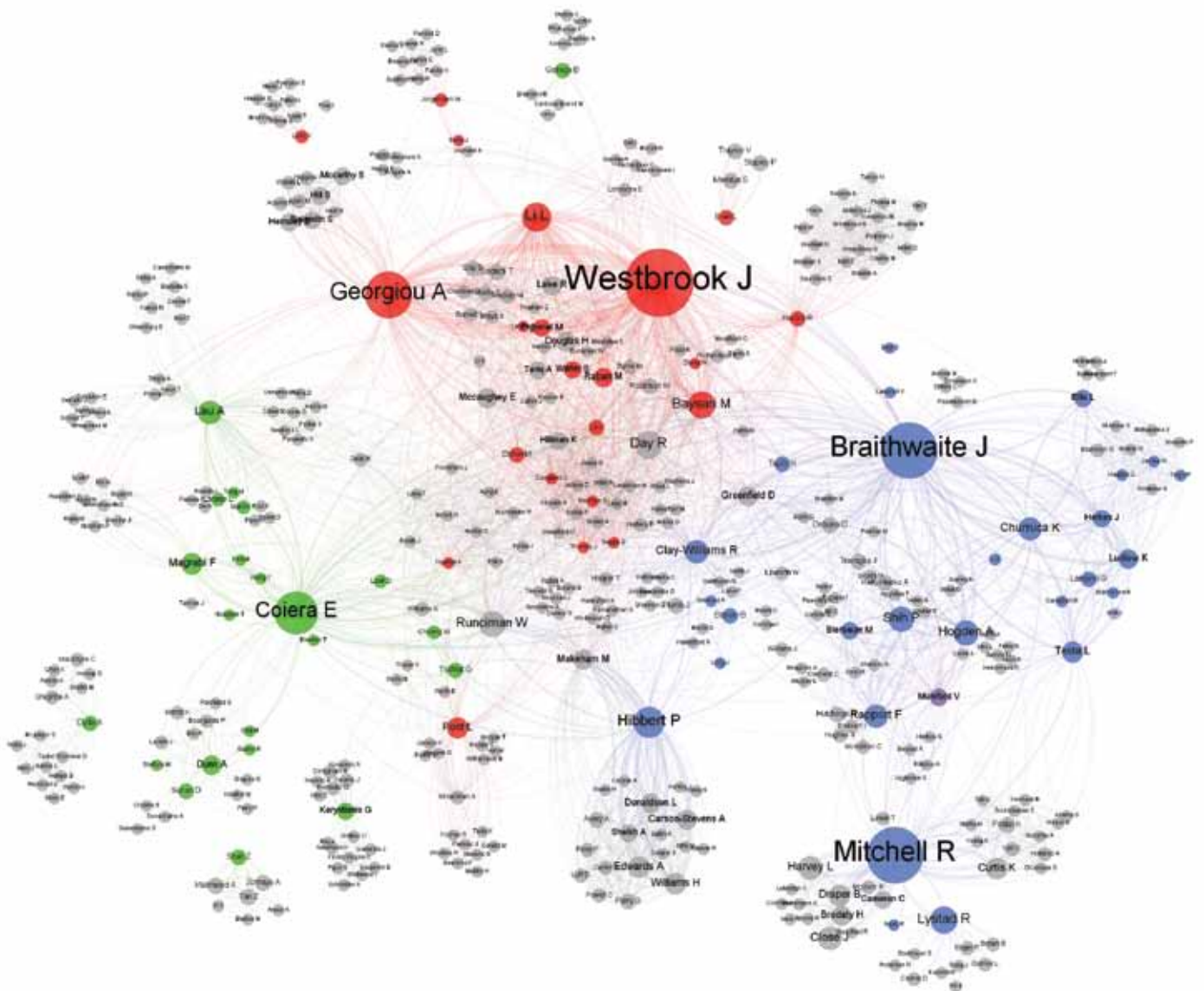
The productivity of each centre is enhanced by a small administrative team who ensure that researchers are appropriately resourced and supported to maximise their research output. Centre administrators work to ensure the smooth running of each individual centre in terms of staff, finances, strategic positioning and communications, while also purposefully combining their strengths for the advancement of the Institute as a whole.

This highly successful structure has enabled the Institute to develop expert communities of practice within a university setting, a pioneering strategy that is conducive to the intermingling of ideas. We attract and nurture highly skilled clinicians, scientists, engineers, epidemiologists, statisticians and analysts who combine their knowledge to focus on novel questions and test new hypotheses. The result is an internationally unique and agile research hub, able to harness the strengths of people from diverse disciplinary backgrounds.



# AIHI CO-AUTHORSHIP 2017

The extent of synergistic networking at AIHI can be visualised in this 2017 co-authorship diagram.





# Centre for Health Systems and Safety Research



The Centre for Health Systems and Safety Research (CHSSR) is at the forefront of research into the impact of new information and communications technology (ICT) on the safety, effectiveness and cost-efficiency of healthcare delivery. Fast, accurate information exchange is at the heart of healthcare systems that deliver optimum patient outcomes, and rapid advances in ICT and biomedical technology are transforming the way healthcare is delivered.



Information technology represents a potentially powerful tool for driving system-wide improvements. Consequently, healthcare systems across the globe are making multi-billion-dollar investments based on this promise. Research is required to identify ways in which ICT-enabled processes and systems deliver improved healthcare systems and outcomes, along with any unanticipated risks these systems pose.



CHSSR's internationally recognised health informatics evaluation research team – Australia's largest – uses rigorous and innovative approaches to assess whether health informatics interventions are effective, efficient and, above all, safe. The Centre aims to make a significant contribution, nationally and worldwide, to health informatics, health information management, evaluation methodologies, and patient safety and quality in healthcare. Understanding the effects of technology in healthcare requires a detailed understanding of the complex healthcare delivery process and associated outcomes. The Centre's research incorporates studies measuring multiple dimensions of care delivery, such as decision-making processes, workflow, organisational safety cultures and medical errors.



By forging innovative partnerships with our national and international peers from many disciplines, we can ensure our work can be readily translated to inform ICT systems design and decision-making for better, more cost-effective healthcare.

## CHSSR RESEARCH STREAMS

### DIAGNOSTIC INFORMATICS

Diagnostic testing (laboratory medicine, anatomic pathology and medical imaging) underpins much of our healthcare system, generating information that is crucial to the prevention, diagnosis, prognosis, stratification of risk and treatment of disease. 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. Diagnostic informatics is an integral part of the diagnostic process and crucial to the quality and safety of patient care. It relates to the gathering, integrating, interpreting and communicating of data and information. The work of the Diagnostic Informatics team spans the diagnostic analytical process from researching 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.



**Professor Andrew Georgiou**

**E:** [andrew.georgiou@mq.edu.au](mailto:andrew.georgiou@mq.edu.au)

### ELECTRONIC DECISION SUPPORT AND HUMAN FACTORS IN HEALTHCARE

Understanding and improving the fit between users and their work environment (including IT) ensures that work is safe, productive, and efficient. We apply a broad range of methods, including field observations, interviews and focus groups, simulation, and system analysis of logs, to understand how IT is being used by clinicians, and to identify well designed and poorly designed features of systems. Projects have included exploring the use of mobile technologies by doctors on ward rounds, and evaluating and optimising the design of computerised alerts for prescribers.



**Dr Melissa Baysari**

**E:** [melissa.baysari@mq.edu.au](mailto:melissa.baysari@mq.edu.au)

### MEDICATION SAFETY AND EHEALTH

The growth in medications accompanied by an ageing population with multiple co-morbidities has led to a considerable increase in the complexity of medication-related work. IT has the potential to make medication management safer, more appropriate and also allows large-scale monitoring of use and outcomes. With that expectation, health systems worldwide are making vast investments in IT. But are these systems achieving their desired benefits? Our research is investigating the ways in which IT can reduce medication errors and support improved medication therapy decisions and patient outcomes. We undertake research in hospitals and residential aged care settings using a combination of methodological approaches including human factors methods, big data analytics, epidemiological principles and health economics.



**Professor Johanna Westbrook**

**E:** [johanna.westbrook@mq.edu.au](mailto:johanna.westbrook@mq.edu.au)

### **WORK INNOVATION, COMMUNICATION AND EHEALTH**

Our team continues to advance novel direct observational approaches to investigate factors which enhance and disrupt clinical workflow and communication practices. Recent studies have examined the impact of cognitive load (e.g. interruption and multitasking) on error production and patient safety. Information and communications technologies (ICT) can be used to potentially reduce cognitive load, supporting clinicians in dynamic clinical environments, but research is required to understand how best to design these systems to meet users' needs. ICT also provides the opportunity to reshape the composition of teams who deliver care, and the processes of care delivery. ICT may both enhance and disrupt patterns of work. Our research investigates patterns of clinicians' work, and how ICT influences workflow and workloads. We apply a broad range of methods including direct observational methods, social network analysis and qualitative techniques. Projects include 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. This research covers broad discipline areas such as cognitive psychology, process engineering, communication processes, health informatics and operations research.



**Professor Johanna Westbrook**  
E: [johanna.westbrook@mq.edu.au](mailto:johanna.westbrook@mq.edu.au)

### **AGED AND COMMUNITY CARE**

Delivering care and services to ageing populations is a significant challenge internationally. Communities and health systems are seeking effective ways to plan and manage the health and support services required to enable older citizens to actively engage in society and maintain a high quality of life. ICT can help meet these challenges by offering direct assistance (e.g. telehealth) which promote individuals' engagement and social connection, and through large-scale electronic health record systems, which can enhance the integration and coordination of care across care sectors. As aged care organisations embrace technology and electronic health record systems, our research is focusing on unlocking this valuable data and linking across health datasets in order to answer important questions about care trajectories and outcomes. Further, our work is focused on how IT in this sector can be used to monitor social participation and quality of life as important outcome indicators of community and aged care services, and to be able to assist in monitoring major policy initiatives such as consumer-directed care.



**Professor Johanna Westbrook**  
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**Professor Andrew Georgiou**  
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**“While IT offers many benefits to modern health systems, resources must also be directed to regular monitoring mechanisms that feed into system-wide improvement. We must also invest to quantify how IT is enhancing care for patients and work practices for professionals.”**

PROFESSOR JOHANNA WESTBROOK







	2012	2013	2014	2015	2016	2017	2018	2019	2020
Cardiovascular diseases	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9
Pulmonary disease	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
Diseases of the digestive system	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6
Liver disease	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3
Diseases of the musculoskeletal system	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1
Neurological diseases	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0



- Cardiovascular diseases
- Pulmonary disease
- Diseases of the digestive system
- Liver disease
- Diseases of the musculoskeletal system
- Neurological diseases

## CASE STUDY 1



### **PATHOLOGY TESTING IN GENERAL PRACTICE: HOW TO MAKE THE MOST OF IT?**

Over half of all Australians live with at least one chronic condition; taken collectively, these conditions represent the leading cause of premature death. Prevention and early detection, including pathology-based screening for risk factors, are effective in delaying disease onset and improving patient outcomes. With 97% of general practitioners using clinical software, there is a huge volume of routinely collected electronic data. The analysis of this data holds the potential to transform and benefit patient care.

The Diagnostic Informatics team has partnered with Outcome Health and Primary Health Networks in Victoria to analyse data relating to two million Australian patients.

The team will investigate the types of pathology tests ordered by general practitioners and assess indicators of the potential value of those tests in specific circumstances. Analysis of the data will be used to benchmark pathology testing, determine whether clinical guidelines around frequency and intervals between testing are being adhered to, and to measure the impact of testing on patient care. This research is critically important to inform evidence-based practice, reduce unnecessary testing, and improve Australian healthcare through the early detection and monitoring of chronic disease.

#### **For further information, please contact:**

**Professor Andrew Georgiou**

**E:** [andrew.georgiou@mq.edu.au](mailto:andrew.georgiou@mq.edu.au)

## CASE STUDY 2

**WHAT IS THE TRUE COST TO FAMILIES OF HAVING A CHILD IN HOSPITAL?**

Having a child in hospital introduces a range of unexpected pressures and costs to a family. Parents are often highly involved in the child's care, taking time off work to be with them in hospital, liaising with multiple clinicians and arranging support services. While this is a common scenario, few studies have attempted to assess the non-medical, out-of-pocket (OOP) costs associated with a child's admission. The absence of data means that cost-effectiveness studies of interventions designed to impact paediatric admissions include health system costs but not costs incurred by families. The aim of our study was to estimate the non-medical OOP costs for these families.

We surveyed 225 parents of paediatric inpatients in an Australian public paediatric teaching hospital.

We measured costs associated with time taken off work to care for both the child in hospital and for other dependents, in addition to travel, meals, accommodation and incidental expenses during the child's stay.

We found that on average, per patient day, parents took 1.12 days off work, and spent 0.61 nights away from home. Parents spent \$89 per day on travel, and \$36 on meals and accommodation. Total costs were \$589 per patient day with higher costs correlated with living in remote areas and a greater distance from the hospital.

These results demonstrate the considerable time and financial resources expended by families when caring for a child in hospital.

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# Centre for Health Informatics

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The Centre for Health Informatics (CHI) explores the way digital technologies can be created and used to transform healthcare delivery. It is world renowned for its pioneering work in areas such as clinical decision-making, technology safety, consumer eHealth, analytics, and computational epidemiology. In 2017, we added a new stream to the mix, focusing specifically on new applications of Artificial Intelligence (AI) in healthcare.



The Centre had a very successful year, being awarded a NHMRC grant of \$2.5 million to establish the Centre of Research Excellence in Digital Health (CREiDH), and with total grants and industry income for the year in excess of \$3,980,000. The CREiDH developed and launched a new Australasian Health Informatics Fellowship Program in conjunction with the Australasian College of Health Informatics. The four year Fellowship Program is designed to prepare individuals for leadership roles in the health informatics workforce and has met with exceptionally strong support from industry, academia, the health sector and government. We have also completed development of a new clinical research repository which will make Macquarie University Hospital data available in a controlled manner for approved research purposes.





## CHI RESEARCH STREAMS

### ARTIFICIAL INTELLIGENCE IN MEDICINE

In 2017, CHI made a strategic decision to create a new cross-centre program focusing on the development and application of AI in healthcare. The team has been seeded with several existing staff members, in addition to new staff. A Postdoctoral Research Fellow (Interaction Design) has been recruited and we have initiated recruitment action for several other team members. We have been invited to present our AI vision at national and international conferences, and to advise professional groups on the potential impact of AI on the future of their sectors in an AI-enabled world.

The AI program will draw together several existing strands of our work with the goal of developing AI-enabled assistants for clinicians and consumers, in a decade long research program.

The first application domain will be in primary care, with a view to supporting physicians during the patient consultation. We intend to draw heavily on our prior work in IT safety, so that AI systems are safe to use. Our projects developing data-driven analytics and automating systematic reviews will also provide functionality to the AI as it supports clinician and consumer tasks.



**Professor Enrico Coiera**  
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### PATIENT SAFETY INFORMATICS

Ensuring that patients are not harmed while under care is one of the eternal challenges of health services research. Our Patient Safety Informatics stream is examining how health service delivery can be made safer through the effective use of IT or digital health. We are also investigating the risks to patients posed by current and future digital health technologies. Our work is used worldwide by healthcare organisations, government departments, patient safety agencies and industry.

In 2017 we began to investigate the clinical safety risks of AI. Notable achievements over the past year include a keynote address at the Scandinavian Conference on System and Software Safety by Associate Professor Magrabi; the Best Student Paper awarded to Jessica Chen at the Health Informatics Conference, the national conference for health informatics, digital health and eHealth; and the use of our work by the International Organization for Standardization as the basis for a new technical specification to improve reporting about the safety of health software (ISO/TS 20405).



**Associate Professor  
Farah Magrabi**  
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### HEALTH ANALYTICS

As researchers of health data analytics for clinical decision support, we are concerned with two main tasks to support personalised delivery of care: prediction (to guide diagnosis, prevention and prognosis) and causal inference (to guide treatment recommendations).

Although most proposed clinical prediction instruments have been validated, very few have been implemented and analysed for their post-implementation impact. Moreover, there are very few standards against which new tools can be benchmarked. During 2017, we conducted a systematic review of clinicians' perspectives on clinical prediction rules and began developing tools to translate into clinical practice. We also developed a new evidence-based framework to grade and assess predictive tools for clinicians.

Research on causal inference analytics is still in the pre-implementation stage. Traditional approaches to the generation and synthesis of data relating to the efficacy and safety of therapies cannot cope with the increasing demand for personalised information. In 2017 we proposed a new way of evaluating causal inference estimates from data and conducted a comprehensive evaluation of existing off-the-shelf methods as applied in four published comparative effectiveness studies from two major healthcare databases in the United States.



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**COMPUTABLE EVIDENCE LAB**

The Computable Evidence Lab researches, develops and tests software tools that help clinicians make effective, safe and evidence-based decisions. The team focuses on developing tools that automate evidence synthesis from multiple sources such as the literature, clinical records, genetics and other sources. Automating evidence synthesis requires a combination of analytical tools and techniques including natural language processing, machine learning, and statistics arranged in workflows that allow machines to automatically update the syntheses as evidence updates.

In 2017, we developed technology to routinely capture patient clinical data in real-time for research and quality assurance purposes in partnership with Macquarie University Hospital and the Australian National Data Service. The technology, dubbed Piano, is now also used by four external research groups at Bond University, Western Norway University of Applied Sciences in Bergen, and Macquarie University’s Hearing Hub, as well as by the Institute’s CHSSR team. The Faculty of Medicine and Health Sciences at Macquarie University has also pledged funding to provide Piano as part of the research infrastructure it offers its researchers.



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**EVIDENCE SURVEILLANCE**

The Evidence Surveillance stream uses machine learning and network science to develop new methods and tools in clinical research informatics and public health informatics. In 2017, the team grew with the addition of a Research Fellow, a Postdoctoral Research Fellow and a PhD candidate. The team’s work was published in *Vaccine* and accepted by the *Journal of the American Medical Association* for publication in 2018; and presented at workshops and lectures on research integrity, misinformation, conspiracy beliefs, and in support of early career researchers for Australia’s Science Channel.

The team’s research continues to focus on the impact of competing financial interests on the integrity of clinical evidence; the development of new tools for improving the efficiency of systematic reviews; and using social media data to understand how health information in the media influences decision-making and shapes health outcomes in the community.



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**CONSUMER INFORMATICS**

The Consumer Informatics stream investigates new approaches to improve consumer health and patient engagement using digital technology. The team designs digital interventions for patients and families (e.g. mobile apps) and applies rigorous methodology to evaluate their impact on health outcomes across a variety of healthcare areas (e.g. chronic disease management, preventive health, mental wellbeing). We are also researching how consumers use social media for health purposes and how social network interventions impact health outcomes.

In 2017, we implemented and tested an intervention using Healthy.me involving the use of social networking and activity-tracking devices that promote the social comparison of weight and physical activity, to evaluate whether mechanisms of social influence can lead to changes in those outcomes.

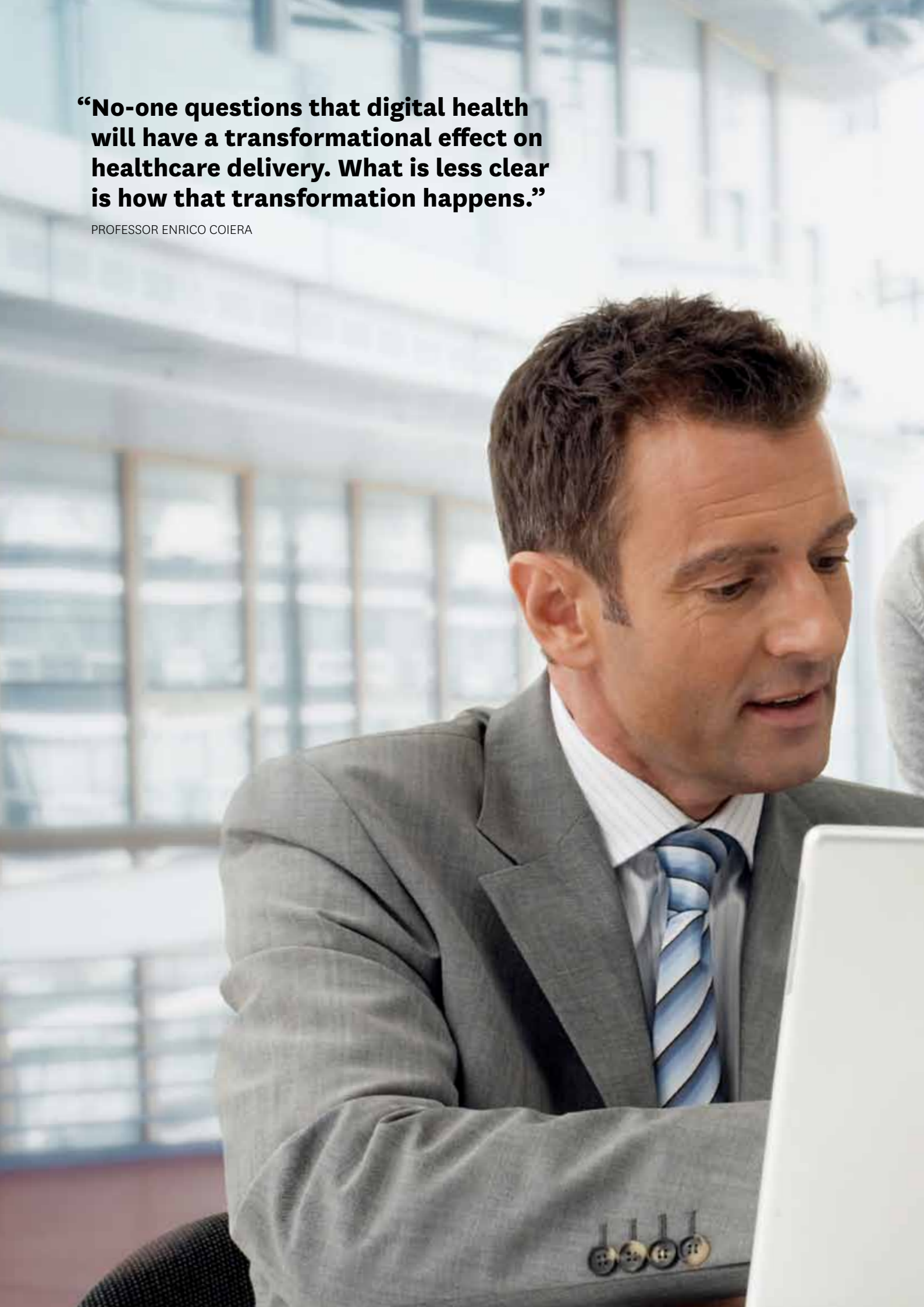
We also commenced research into redesigning patient experiences in health services. Our initial work involves observing and documenting the tasks or ‘work’ that patients routinely need to carry out to manage their health at home. These observational studies will allow us to design new methods to support patients as they navigate the health system.



**Dr Annie Lau**  
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**“No-one questions that digital health will have a transformational effect on healthcare delivery. What is less clear is how that transformation happens.”**

PROFESSOR ENRICO COIERA









## CASE STUDY 1

### TRAINING THE NEXT GENERATION OF HEALTH INFORMATICS LEADERS

In 2017 the NHMRC Centre of Research Excellence in eHealth, led by Professor Enrico Coiera, launched a new Fellowship by Training Program in conjunction with the Australasian College of Health Informatics (ACHI). This program will train the next generation of leaders in the health informatics workforce.

As part of the program, PhD candidates are required to complete:

- a health informatics research PhD at an Australian or New Zealand university
- two six-month paid work placements at an approved host organisation
- a supplementary learning program comprising master classes, journal clubs and an annual colloquium

The Fellowship Program Manager, Ms Leanne Bamford-Barnes, works closely with ACHI President Dr Chris Pearce and the ACHI Academic Convenor Dr Juanita Fernando to design and manage the program. A Governance Board consisting of representatives from

industry, government, academia and the ACHI Council, provides strategic consultation for the program.

A comprehensive marketing and stakeholder engagement strategy was implemented to create awareness of the program and to drive candidate applications. Seven PhD candidates, from across five universities in Australia and New Zealand, were enrolled in the program in 2017. These candidates come from a diverse range of disciplines and research domains, reflecting the multidisciplinary scope of health informatics. A second intake of candidates is scheduled for February 2018.

In 2018, the program will continue to be positioned as Australasia's premier health informatics training initiative to develop leadership capability in the health informatics workforce. Ongoing engagement and consultation with industry and government will take place to create paid opportunities for program candidates.

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## CASE STUDY 2

### CLINICAL DATA SHARING DRIVING IMPROVEMENTS IN PATIENT CARE

Our research partnership with Macquarie University Hospital (MUH), supported in part by Macquarie University and the Australian National Data Services (ANDS), has enabled us to develop new research infrastructure to allow the use of routinely collected electronic patient record data for research and quality assurance purposes. We have also developed associated pathways for data governance and ethics approval for the use of such data.

MUH opened in 2010 and is Australia's first digital hospital. MUH systems capture patient clinical data in real-time. MUH is wholly owned and operated by Macquarie University, facilitating direct collaboration between AIHI and the Hospital.

We have now also started work, in collaboration with the Australian Hearing Hub, Australian Hearing, The Shepherd Centre and the Royal Institute for Deaf and Blind Children, to provide a similar research data system for hearing loss and hearing-impaired people. This national system will use our technology to connect hundreds of clinics across Australia with the leading hearing researchers in Australia, symbiotically improving research capacity as well as care for the hearing impaired.

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# Centre for Healthcare Resilience and Implementation Science



Translating research into practice is at the heart of our endeavours in the Centre for Healthcare Resilience and Implementation Science (CHRIS). While we have an international reputation for critical thinking and deep analysis, our starting point is always the patient. We strive to improve outcomes for the individual while acknowledging the complex and fluid environment in which health systems operate. The challenges presented by ageing populations, stressed budgets, increasing waste, technological advances and a global economy all come into play.



Our approach is highly collaborative, pioneering new ways to organise, manage and evaluate healthcare across the full spectrum of services; develop the skills of early career health researchers; grow our international reputation for leadership and expertise in health organisation management and healthcare quality; and develop education, training and mentoring activities in support of governance and a resilient, sustainable health system.



We work on complex problems, adopting evidence and translating this into practice to improve delivery systems and design new models of care for health systems of the future, in Australia and worldwide. We are leaders in the study of complexity science, human factors, resilience in the healthcare setting, implementation science, patient safety, appropriateness of care and international health reform.

## CHRIS RESEARCH STREAMS

### APPROPRIATENESS OF CARE

The Appropriateness of Care stream aims to determine the level of evidence-based care delivered by the healthcare system. Our CareTrack Kids program – funded by an NHMRC Partnership Grant and begun in 2014 – has been studying healthcare delivered to Australian children. According to our findings, adherence to quality of care indicators is on average 60% across 17 common childhood conditions, ranging from a high of 89% for autism to 44% for tonsillitis.

As with our earlier CareTrack study on the level of evidence-based care delivered to adults in Australia, which has received 176 citations in less than six years, CareTrack Kids has highly significant findings and policy impact. Our research has identified where the main variations and gaps in care exist and will allow evidence-based priorities to be set at a national level. CareTrack Kids also highlights the limitations of most of the literature which covers only a few conditions and/or only a few centres which are not representative of ‘usual’ care delivered to patients.

This suite of research will be further enhanced by the CareTrack Aged study commencing 2018.



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### COMPLEXITY SCIENCE

The Complexity Science stream is based on the observation that healthcare is an example par excellence of a complex adaptive system (CAS). The healthcare system has an impressive range of diverse stakeholders (citizens, taxpayers, politicians, policy-makers, providers, managers, clinicians, patients and consumer groups), spans the public and private sectors and delivers care across many settings and through varied types of organisations (public health settings, community centres, hospitals, residential care facilities, and family or general practices, for example). CAS characteristics such as interdependencies between agents, social influences, and the tendency for groups to self-organise and evolve through sense-making, provide a useful approach to tackling intractable problems in patient safety and quality of care.

Projects include consideration of the Australian Genomic Health Alliance as a CAS as they foster translation of genomic medicine into practice; an examination of the associations between organisational culture and patient outcomes; an application of two social-psychological theories (Broken Windows Theory, Pace-of-Life Hypothesis) to the hospital context and an examination of their utility in understanding relationships between organisational culture and patient care delivery; a review of safety culture assessment methods and tools; and a conceptualisation of mental health services as a CAS, with a particular focus on Australia’s Headspace initiative.



**Professor Jeffrey Braithwaite**  
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### HEALTH OUTCOMES

Examining health outcomes following healthcare treatment can provide a unique understanding of where improvements can be made in healthcare policy and clinical practice. The Health Outcomes stream is conducting large-scale, population-based cohort studies in the areas of paediatric trauma, older people and their care transitions between the health and aged care systems, self-harm among older people, mortality risk following hip fracture, access to hip fracture rehabilitation for older people with dementia, health outcomes following injury for urban and rural residents, and healthcare trajectories and health outcomes of individuals living with epilepsy. Through examining different features associated with an increased risk of poor health outcomes, this stream is developing recommended strategies that aim to improve health outcomes and inform policy.



**Associate Professor  
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## HUMAN FACTORS AND RESILIENCE

Even with widespread implementation of processes to protect patients from harm in hospitals, anticipated improvements in patient safety have not materialised; indeed, protective measures frequently consume resources that could otherwise be used to increase patient throughput. The mission of the Human Factors and Resilience stream is to develop processes that contribute to safety in ways that support rather than hamper patient flow. We are pioneering a new approach to understanding the many variables that underpin the delivery of high-quality care despite the challenges posed by large complex interacting networks of health professionals, stretched budgets and rapid technological change.

Highlights from 2017 include a NSW Health Early-Mid Career Fellowship grant to investigate resilient healthcare approaches to improving safety in New South Wales public hospital emergency departments; completed data collection at 32 hospitals for the Deepening our Understanding of Quality in Australia (DUQuA) project; the development of a collaborative Functional Resonance Analysis Method (FRAM) research network in Australia and New Zealand following our workshops with Danish expert Jeanette Hounsgaard; funding via an MQ ReStart Grant to translate the MQ Surgical Innovation Identification Tool into practice; and the development of a new model of Clinical Governance for the Royal Australasian College of Medical Administrators.



**Dr Robyn Clay-Williams**

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## IMPLEMENTATION SCIENCE

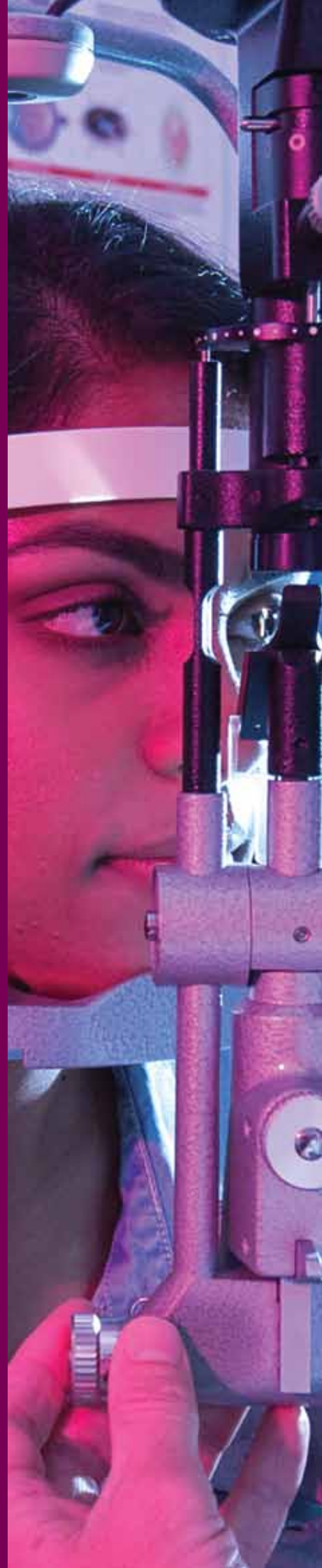
Exploring how the social, emotional and physical determinants of ill-health interplay with the latest and best health services research is the focus of the Implementation Science stream. Concentrating on the translation of research outcomes from health services research into practice, we promote the uptake of findings into routine healthcare contexts, policy documents and organisational development. The stream is linked to the new MD Program at the Faculty of Medicine and Health Sciences to ensure rigorous qualitative methods are embedded into research and medicine modules.

Highlights from 2017 include the assessment of service use for complex epilepsy in New South Wales leading to publications in *BMJ Open* and *Epilepsy and Behaviour*; the reporting of patient and healthcare professional perceptions of risk in breast cancer leading to publications in *Qualitative Health Research* and the latest *Handbook of Research Methods in Health and Social Sciences*. Grants have been awarded by Cochlear Ltd for research into adults over 50 years with hearing health problems; by St Vincent's Health Australia for research into organisational patient-centred care practices; and by the Australian Commission on Safety and Quality in Health Care for the evaluation of sentinel events reporting.



**Professor Frances Rapport**

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**“With an emphasis on translational research, we promote a highly collaborative approach, pioneering new ways to organise, manage and evaluate healthcare across the full spectrum of services.”**

PROFESSOR JEFFREY BRAITHWAITE







**ENGAGE WITH US**

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.

## CASE STUDY 1



### **WHAT IS THE EFFECT OF CHRONIC ILL-HEALTH ON SELF-HARM FOR OLDER AUSTRALIANS?**

Incidents of intentional self-harm and suicide in older people have been increasing. Many older people have multiple chronic health conditions, and a growing number have dementia. Despite this, little is known about the impact of chronic health conditions, including dementia, on intentional self-harm in older people.

Research by Associate Professor Rebecca Mitchell's team examined the associations between 21 chronic health conditions among those hospitalised for intentional self-harm, compared to those hospitalised for other reasons; and then compared the health outcomes of older people who self-harm, with and without dementia. The health outcomes examined were hospital length of stay, 28-day hospital readmission, and mortality at 12-months following hospitalisation.

There were 12,111 hospitalisations for intentional self-harm among people aged 50 years and older during 2003-2012 in New South Wales compared to 474,158 non-self-harm injuries. Compared to non-self-harm hospitalisations, patients hospitalised for self-harm were more likely to have mental health conditions such as depression, schizophrenia-related psychoses, bipolar and anxiety disorders; neurological and nervous

system disorders; diabetes; malignancies; chronic lower respiratory disease; liver disease; tinnitus and pain.

Of these hospitalisations for intentional self-harm among people aged 50 years and older, 427 (4%) had dementia. Compared to people without dementia, those with dementia had double the hospitalisation rate for self-harm, higher 12-month mortality rates, increased 28-day readmission, and a longer length of hospital stay.

This research has provided evidence that older people who experience some chronic health conditions, particularly tinnitus, pain, malignancy, and diabetes, may be at increased risk of self-harm, even after adjusting for mental health conditions, number of comorbidities, and alcohol and drug dependency. The risk of hospitalisation for self-harm was doubled for older individuals living with dementia, who also experienced poorer health outcomes, compared to those without dementia.

The results of this research highlight the need for interventions targeting behavioural and psychological symptoms of dementia and other chronic health conditions to reduce the risk of self-harm.

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## CASE STUDY 2

**WHY DO PEOPLE WITH REFRACTORY EPILEPSY WAIT YEARS FOR SURGERY?**

Fifty million people worldwide live with epilepsy. In Australia alone, there are 250,000 people with the disease, equating to one in 25 people who will have epilepsy in their lifetime. Of these, approximately one third will have a complex and chronically debilitating form of the condition called refractory epilepsy. In refractory epilepsy, people are unresponsive to at least two anti-epileptic drugs, leaving them with uncontrolled seizures, a greatly reduced quality of life and, in many cases, psychological and social problems.

Professor Frances Rapport and Dr Patti Shih are running a wide-ranging program of research examining the implications of this devastating disease for people's health and wellbeing. They are interested in the time gap that exists between being first diagnosed with epilepsy and receiving brain surgery as a refractory epilepsy patient – which is frequently the most appropriate treatment for patients when drugs are unable to reduce or eradicate seizures.

In the United States the average interval between first diagnosis and surgery is 22 years, during which time patients attempt to manage their symptoms with drugs and other therapies. This impacts not only on the cost of services and use of healthcare professionals' time, but it also has a dramatic effect on patients and their families and friends, often to the detriment of relationships, socialisation and work opportunities.

This research will examine the reasons why this gap in service provision exists, and will explore possible solutions, looking at ways we can improve clinical consultations with more patient-centred approaches to care and influence patients' quality of life for longer-term benefits to patients, their families and society at large.

**For further information, please contact:****Professor Frances Rapport****E:** frances.rapport@mq.edu.au

# NHMRC Centres of Research Excellence: a decade in digital health



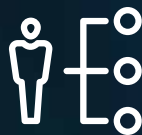
2017 saw the next era of digital health research begin. The NHMRC awarded \$2.5 million to the Centre of Research Excellence in Digital Health (CREiDH) which will run from 2018 to 2022. The CREiDH will build on the work of the CRE in e-Health that ran for five years up to 2017, led by Professor Enrico Coiera with investigators from Macquarie University, University of NSW, University of Sydney, Bond University, and University of South Australia. This team was joined by investigators from CSIRO and Melbourne University in successfully rebidding for the new CREiDH.



The major target for both CREs has been evidence gaps in the safety and quality of clinical and consumer e-health systems. They also contribute to national e-health policy and build national capacity in e-health research to meet current and emerging national health priorities.



Since the inception of the CREs, we have already developed new tools including TechWatch, Healthy.me and Quick Clinical to support self-management and new ways of collaboratively engaging with health services to improve patient outcomes.



In 2017, the CRE team developed and launched the Australasian Health Informatics Fellowship Program in conjunction with the Australasian College of Health Informatics. The program is designed to support a health informatics pathway, preparing individuals for leadership roles in the health informatics workforce.



**Digital Health**

NHMRC Centre of Research Excellence in Digital Health



**e-health**

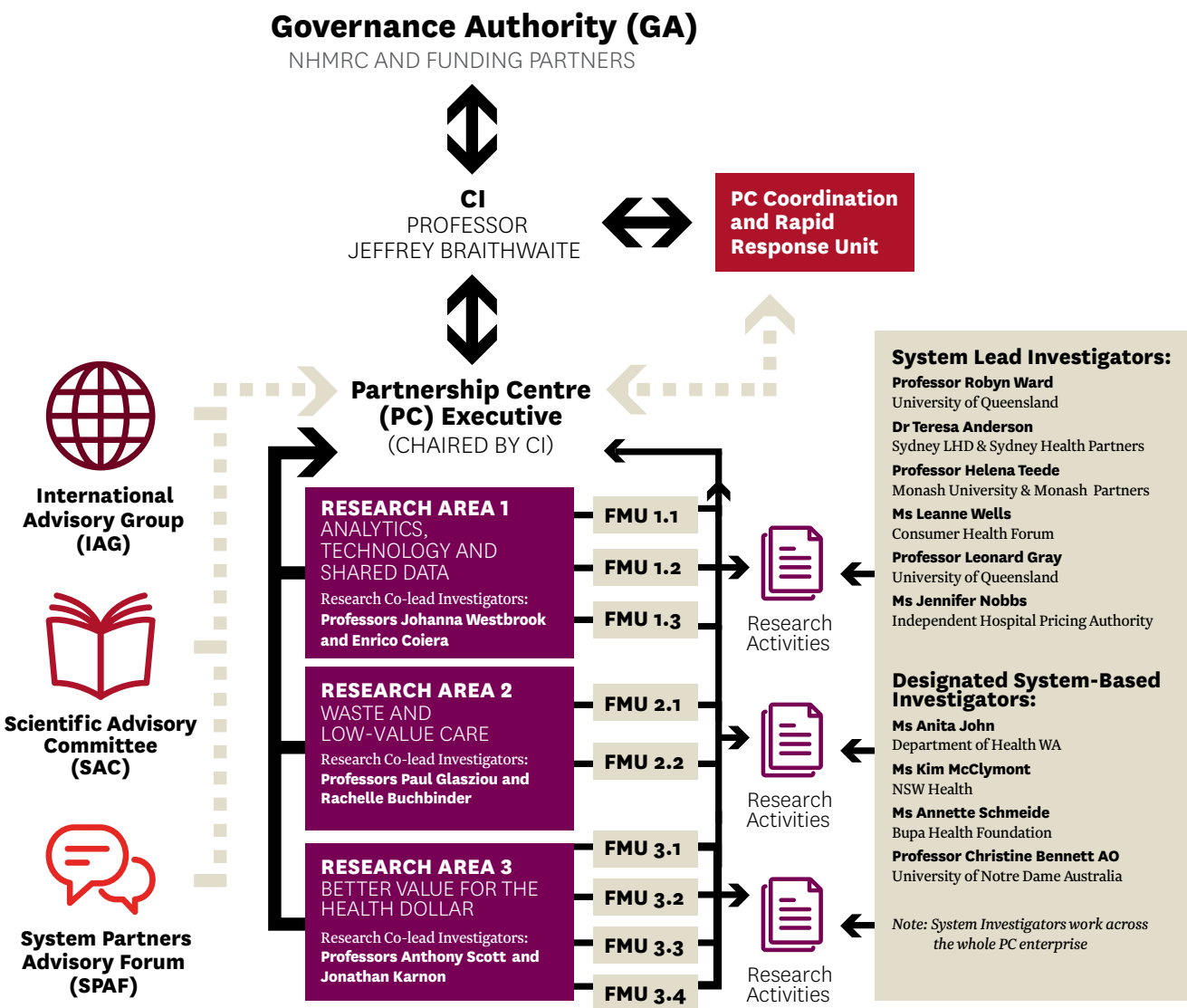
NHMRC Centre of Research Excellence in e-health



# NHMRC PARTNERSHIP CENTRE FOR HEALTH SYSTEM SUSTAINABILITY

On Saturday 3 December 2016, the Minister for Health and Aged Care announced that AIHI was successful in its bid to become the administering institution for Australia’s third National Health and Medical Research Council (NHMRC) Partnership Centre. This \$10.75 million grant will support a far-reaching five-year research program to develop an implementable set of interventions to strengthen the sustainable performance of Australia’s healthcare system.

For this Partnership Centre, the NHMRC worked with its funding partners – Bupa Health Foundation, NSW Ministry of Health, Department of Health, Western Australia and the University of Notre Dame Australia – to develop the expression of interest and ensure the Centre was resourced for success. These funding partners form the Governance Authority and each nominates a system-based investigator to participate in the research team. The structure of the Partnership Centre is represented below.



The partnership model of the Centre ensures that academics and system partners work together to design the research, conduct the investigations and translate the outcomes to expedite early adoption in policy and practice.

In early 2017, the Partnership Centre’s Coordinator, Ms Joanna Holt, began work with the Chief Investigator, Professor Braithwaite, and the investigation team to develop a workplan. Ms Holt also worked with the Centre’s partners to negotiate funding agreements. Public engagement began in March 2017, with the Centre holding a national symposium on health system sustainability, alongside a consumer forum aligned to ensure that consumers had a strong voice in the design and conduct of health services research conducted by AIHI and the Centre.

The entire investigation team subsequently met in June 2017 to discuss and refine their research plans in readiness for review and approval by the Governance Authority. The annual workplan was subsequently approved and provides for nine streams of research within three overarching themes.

During the second half of 2017, the Partnership Centre executed funding agreements with the NHMRC and each one of the funding partners as well as a multi-institutional agreement with each of the seven participating universities.

**OVERARCHING THEMES**

**Research Area 1**

Using Analytics, Technology and Shared Data to Improve Health and System Performance

**Research Area 2**

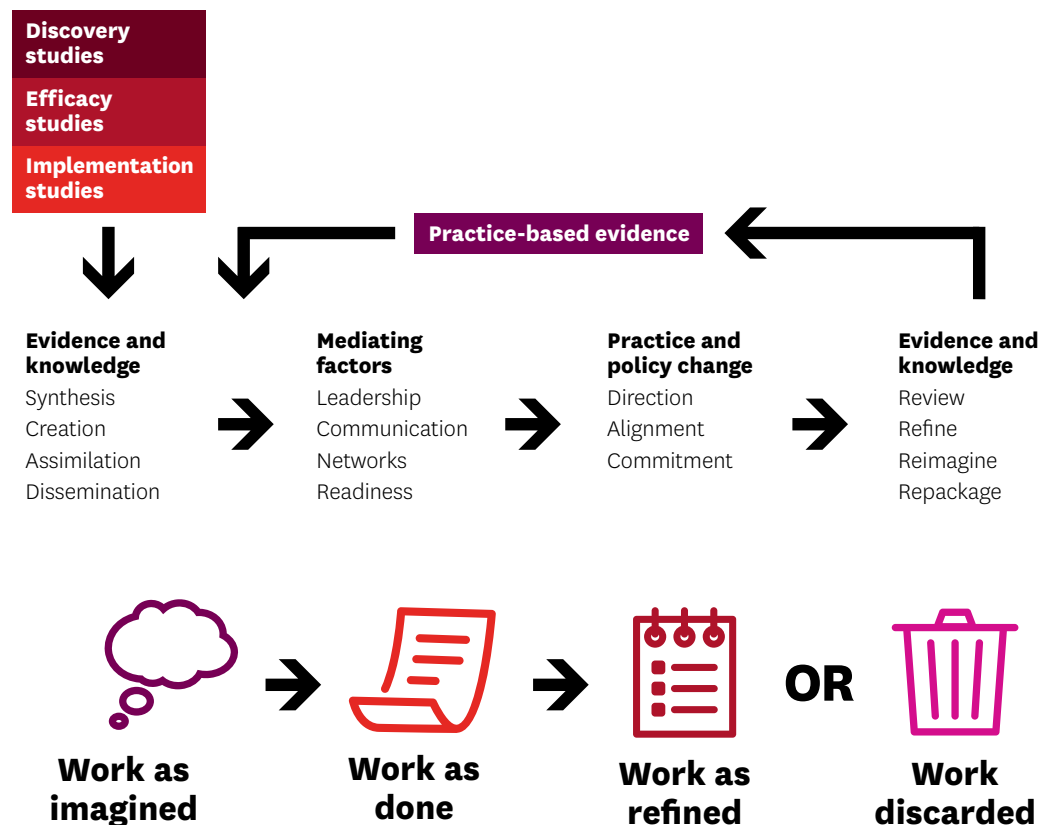
Reducing Waste and Low-value Care

**Research Area 3**

Promoting Better Value for the Health Dollar

The topic of health system sustainability is broad and challenging, often involving outcomes that can only be measured over the longer term. However, it provides an exciting array of collaborative research opportunities that are being eagerly taken up through the participating universities and multiple system partners in all states and territories of Australia.

Our vision is that the Centre’s research findings significantly influence the evolution of a resilient healthcare system that is affordable, cost-effective and delivers improved health outcomes for all Australians.



# AUSTRALIAN INSTITUTE OF HEALTH INNOVATION

## Our Partners

The Australian Institute of Health Innovation highly values all our collaborative relationships. Our partners come from a range of sectors including government, industry, health services and research institutions and we engage with the community through clinical trials and advocacy groups. A full list of our national and international collaborative partners can be found on our website at [aihi.mq.edu.au](http://aihi.mq.edu.au)

**The Institute would like to thank the following organisations for funding new and continuing research projects during 2017:**

Australian Commission on Safety and Quality in Health Care

Australian Defence Force

Australian Research Council

Bupa Health Foundation Australia

Cancer Institute NSW Premier's Award

Children's Health Queensland Hospital and Health Service

Clinical Excellence Commission

Cochlear Ltd

Government of South Australia: SA Health

Government of Western Australia: Department of Health

Independent Hospital Pricing Authority

Macquarie University

Motor Neurone Disease Research Institute of Australia

Murdoch Children's Research Institute

National Health and Medical Research Council

New South Wales Kids and Families

New South Wales Ombudsman

NSW Ministry of Health

Royal North Shore Hospital

Sax Institute

St Vincent's Health Australia

Sydney Children's Hospital Network

Telethon Institute Population Health Research Network

Townsville Hospital and Health Service

University of New South Wales

University of Notre Dame Australia

University of Sydney





# Our Publications

## EDITED BOOKS

1. **Braithwaite J**, Mannion R, Matsuyama Y, Shekelle P, Whittaker S, Al-Adawi S, editors. *Health Systems Improvement Across the Globe: Success stories from 60 countries*. Abingdon, UK: Taylor & Francis; 2017.
2. **Braithwaite J**, Wears RL, Hollnagel E, editors. *Resilient Health Care Vol 3. Reconciling Work-as-Imagined and Work-as-Done*. Farnham, Surrey, UK: Ashgate Publishing; 2017.

## BOOK CHAPTERS

1. **Braithwaite J**, Clay-Williams R, Hunte C, Wears RL. Understanding resilient clinical practices in emergency department ecosystems: can this help with reconciling work-as-imagined and work-as-done? In: **Braithwaite J**, Wears R, Hollnagel E, editors. *Resilient Health Care Vol 3. Reconciling Work-as-Imagined and Work-as-Done*. Farnham, Surrey, UK: Ashgate Publishing; 2017.
2. **Braithwaite J**, Hillman K, Pain C, **Hughes CF**. Australia: two decades of evolving a patient safety system: an Australian story of reducing harm to deteriorating patients. In: **Braithwaite J**, Mannion R, Matsuyama Y, Shekelle P, Whittaker S, Al-Adawi S, editors. *Health Systems Improvement Across the Globe: Success Stories from 60 Countries*. Abingdon, UK: Taylor & Francis; 2017, 373-8.
3. **Braithwaite J**, Mannion R, Matsuyama Y, Shekelle P, Whittaker S, Al-Adawi S, **Ludlow K**, **James W**. Introduction. In: **Braithwaite J**, Mannion R, Matsuyama Y, Shekelle P, Whittaker S, Al-Adawi S, editors. *Health Systems Improvements Across the Globe: Success Stories from 60 Countries*. Abingdon, UK: Taylor and Francis; 2017, lxix-xcv.
4. **Braithwaite J**, Mannion R, Matsuyama Y, Shekelle P, Whittaker S, Al-Adawi S, **Ludlow K**, **James W**. Discussion and conclusion. In: **Braithwaite J**, Mannion R, Matsuyama Y, Shekelle P, Whittaker S, Al-Adawi S, editors. *Health Systems Improvement Across the Globe: Success Stories from 60 Countries*. Abingdon, UK: Taylor and Francis; 2017, 439-50.
5. **Braithwaite J**, Wears R, Hollnagel E. Preface. In: **Braithwaite J**, Wears R, Hollnagel E, editors. *Resilient Health Care Vol 3. Reconciling Work-as-Imagined and Work-as-Done*. Farnham, Surrey, UK: Ashgate Publishing, 2017, vii-ix.
6. **Braithwaite J**, Wears R, Hollnagel E. Part 1: Problems and issues. In: **Braithwaite J**, Wears R, Hollnagel E, editors. *Resilient Health Care Vol 3. Reconciling Work-as-Imagined and Work-as-Done*. Farnham, Surrey, UK: Ashgate Publishing; 2017, 1-2.
7. **Braithwaite J**, Wears R, Hollnagel E. Part 2: Applications. In: **Braithwaite J**, Wears R, Hollnagel E, editors. *Resilient Health Care Vol 3. Reconciling Work-as-Imagined and Work-as-Done*. Farnham, Surrey, UK: Ashgate Publishing; 2017, 57-59.
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53. Harvey L, Toson B, **Mitchell R**, Brodaty H, Draper B, Close J. Incidence, timing and impact of comorbidity on second hip fracture: a population based study [Abstract]. *Australian and New Zealand Society of Geriatric Medicine Annual Scientific Meeting*; 10-12 May 2017; Rotorua, New Zealand. 2017.
54. **Herkes J, Churruca K, Ellis L, Braithwaite J**. Survey development in a haphazard research landscape: making a mark by developing a tool for person-environment fit [Abstract and Poster]. *NEWMAC Humanities Postgraduate Conference*; 17 July 2017; Sydney, Australia. 2017.
55. **Herkes J, Churruca K, Ellis L, Braithwaite J**. Trailblazing a new method to measure person-environment fit: forging a new understanding of 'fitting' into your workplace [Abstract]. *NEWMAC Humanities Postgraduate Conference*; 17 July 2017; Sydney, Australia. 2017.
56. **Herkes J, Churruca K, Ellis L, Braithwaite J**. Person-organisation and person-group fit and staff outcomes in health care: systematic literature review [Abstract]. *NEWMAC Humanities Postgraduate Conference*; 17 July 2017; Sydney, Australia. 2017.
57. **Herkes J, Churruca K, Ellis L, Braithwaite J**. The association between fitting in at work and staff outcomes [Abstract and Poster]. *EnCourAge Symposium*; 27 October 2017; Macquarie University, Australia. 2017.
58. **Hibbert P**. Making sense of patient safety. *Australian Council of Nursing Practitioners Symposium*; 25 May 2017; Adelaide, Australia. 2017.
59. **Hibbert P**, Thomas M, Deakin A, **Runciman B, Braithwaite J**. How effective and sustainable are root cause analysis (RCA) investigations. *Suncorp, Sydney*; 5 September 2017; Sydney, Australia. 2017.
60. **Hogden A, Churruca K, Shih P, Rapport F**. Communicating risk in active surveillance of prostate cancer: hearing the patients' voice [Abstract and E-Poster]. *34th International Society for Quality in Healthcare (ISQua) Conference: Learning at the System Level to Improve Healthcare Quality and Safety*; 1-4 October 2017; London, UK. 2017.
61. **Hogden A**, James N, Power E, Vucic S. Patients' perspectives of multidisciplinary home-based telehealth for amyotrophic lateral sclerosis [Abstract and Poster]. *28th International Symposium on ALS/MND*; 8-10 December 2017; Boston, USA. 2017.
62. Hughes S, Hutchings H, Boisvert I, MacMahon C, **Rapport F**. CI recipients' perspectives of listening effort: establishing the content validity for a new patient reported outcome measure [Abstract]. *Audiology Cymru*; 23 June 2017; Swansea, UK. 2017.
63. Hughes S, Hutchings H, Peters S, Boisvert I, MacMahon C, **Rapport F**. A systematic review and narrative synthesis of the measurement properties of PROMs used to assess listening effort in hearing loss [Poster]. *British Society of Audiology Annual Conference*; 29-30 June 2017; Harrogate, UK. 2017.
64. Hughes S, Hutchings H, **Rapport F**, MacMahon C, Boisvert I. Qualitative data in support of the FUEL: perceived listening effort in cochlear implantation [Abstract and Poster]. *4th International Conference on Cognitive Hearing Science for Communication (CHSCOM17)*; 18-21 June 2017; Linköping, Sweden. 2017.
65. Jansen K, Hagen D, **Pont LG**, Ruths S. Efficacy and safety of palliative drug treatment in dying patients—a systematic review [Abstract and Poster]. *Nordic Congress of General Practice*; 16-20 June 2017; Reykjavik, Iceland. 2017.
66. Jansen K, Hagen D, **Pont LG**, Ruths S. Evidence base for palliative drug treatment in the last days of life—a systematic review [Abstract and Poster]. *EAPC 2017—15th World Congress of the European Association for Palliative Care*; 18-20 May 2017; Madrid, Spain. 2017.
67. Johnson A, **Clay-Williams R**, Lane P. Using the right tool for the job in a Resilient Healthcare System: Creating value through a Framework for better care [Abstract]. *6th Resilient Health Care Meeting*; 14-16 August 2017; Vancouver, Canada. 2017.
68. **Jorgensen M, Georgiou A, Siette J, Westbrook JI**. Service use needs and outcomes in community aged care [Abstract]. *Australian Association of Gerontology & Aged and Community Services Regional Conference*; 6-7 April 2017; Cessnock, Australia. 2017.
69. **Jorgensen M, Pont L, Georgiou A, Siette J, Westbrook J**. Information Technology-enabled innovation in residential and community aged care services [Abstract]. *ITAC 2017*; 20-21 November 2017; Gold Coast, Australia. 2017.
70. **Jorgensen M, Siette J, Georgiou A, Warland A, Westbrook J**. How do community care services

- impact residential aged care entry? [Abstract]. *AAG National Conference*; 8-10 November 2017; Perth, Australia. 2017.
71. **Jorgensen M, Siette J, Georgiou A, Westbrook JI.** Demonstrating the value of providing care to clients in their own home [Abstract]. *Australian Institute of Health Innovation Consumer symposium*; 14 March 2017; Sydney, Australia. 2017.
  72. Kyng T, **Li L**, Bilgin A. Financial and statistical literacy for retirement housing decisions in Australia [Abstract]. *The International Association for Statistical Education*; 11- 14 July 2017; Rabat, Morocco. 2017.
  73. Kuziemyk C, **Georgiou A, Li L, Dahm M.** Understanding the collaboration spaces of diagnostic errors [Poster]. *Australian Diagnostic Error in Medicine conference*; 24-25 May 2017; Melbourne, Australia. 2017.
  74. **Li J, Thomas J, Dahm M, I WJ, Georgiou A.** How does health information technology impact on the safety of test result follow-up? Preliminary findings from a systematic review [Abstract and Poster]. *Australasian Diagnostic Error in Medicine Conference*; 24-25 May 2017; Melbourne, Australia. 2017.
  75. **Ludlow K, Mumford V, Makeham M, Braithwaite J, Greenfield D.** The effects of hearing loss on person-centred care in residential aged care: a synthesis of research evidence [Abstract and Poster]. *2nd EnCourAge Symposium, Macquarie University*; 27 October 2017; Macquarie University, Australia. 2017.
  76. Lukaszyc C, Harvey L, Sherrington C, Close JCT, Coombes J, **Mitchell R.** Fall-related injury hospitalisations for Aboriginal and Torres Strait Islander people aged 50+ in New South Wales, Australia [Abstract]. *15th World Congress on Public Health*; 3-7 April 2017; Melbourne, Australia. 2017.
  77. **Lystad R, P,** Cameron C, **Mitchell R.** Mortality risk among adults hospitalised with hip fracture: a population-based matched cohort study [Abstract]. *Australian Injury Prevention Network*; 13-15 November 2017; Ballarat, Australia. 2017.
  78. **Lystad RP,** Soligard T, Engebretsen L. Epidemiology of taekwondo injuries in the Olympic Games [Abstract]. *6th International Symposium for Taekwondo Studies*; 29-30 June 2017; Muju, South Korea. 2017.
  79. **Magrabi F.** Human factors issues in digital health and their effects on patient safety. *Human Factors and Ergonomics Society of Australia (HFESA)*; 26-29 November 2017; Wollongong, Australia. 2017.
  80. **Mitchell R,** Cameron C, McClure R. Examining health service use for patients 12 months pre and post an injury hospitalisation: a population-based matched cohort [Poster]. *34th International Society for Quality in Healthcare (ISQua) Conference: Learning at the System Level to Improve Healthcare Quality and Safety*; 1-4 October 2017; London, UK. 2017.
  81. **Mitchell R,** Curtis K, **Braithwaite J.** Comparisons of health outcomes of injured young people hospitalised with and without comorbidities: a population-based study [Poster]. *34th International Society for Quality in Healthcare (ISQua) Conference: Learning at the System Level to Improve Healthcare Quality and Safety*; 1-4 October 2017; London, UK. 2017.
  82. **Mitchell R,** Curtis K, **Braithwaite J.** Comparison of health outcomes of young people hospitalised with an injury who have and do not have a chronic health condition [Abstract]. *Australian Injury Prevention Network*; 13-15 November 2017; Ballarat, Australia. 2017.
  83. **Mitchell R,** Curtis K, Foster K. Childhood injury in Australia: a ten year review of the characteristics and health outcomes of injury-related hospitalisations [Abstract]. *15th International Conference for Emergency Nursing*; 11-13 October 2017; Sydney, Australia. 2017.
  84. **Mitchell R,** Curtis K, Foster K. A ten year review of child injury hospitalisations, health outcomes and costs in Australia [Abstract]. *Australian Injury Prevention Network*; 13-15 November 2017; Ballarat, Australia. 2017.
  85. **Mumford V, Baysari M, Kalinin D, Raban M, McCullagh C, Karnon J, Westbrook JI.** Measuring the impact of a child's stay in hospital on the wider family network [Abstract and Poster]. *34th International Safety and Quality (ISQua) Conference: Learning at the System level to Improve Healthcare Quality and Safety*; 1-4 October 2017; London, UK. 2017.
  86. **Mumford V, Baysari M, Kalinin D, Raban M, McCullagh C, Karnon J, Westbrook JI.** Measuring the financial and productivity burden of paediatric hospitalisation on the wider family network [Abstract]. *98th Australian Conference of Health Economists, Australian Health Economics Society*; 21-22 September 2017; Sydney, Australia. 2017.
  87. **Mumford V, Braithwaite J.** Health services accreditation: what is the evidence that the benefits justify the costs? [Invited presentation]. *State Employed Physician Organization Conference – Hospital Accreditation*; 7-9 September 2017; Jerusalem, Israel. 2017.
  88. **Mumford V, Braithwaite J.** Do hospitals with higher accreditation scores have a lower *Staphylococcus aureus* bacteraemia rate? [Invited speaker]. *State Employed Physician Organization Conference – Hospital Accreditation*; 7-9 September 2017; Jerusalem, Israel. 2017.
  89. **Mumford V, Kuhl M, Hughes C, Braithwaite J, Westbrook JI.** Evaluating interventions to reduce

- delirium in acute care [Abstract]. *34th International Safety and Quality (ISQua) Conference: Learning at the System level to Improve Healthcare Quality and Safety*; 1-4 October 2017; London, UK. 2017.
90. **Mumford V**, Kulh MA, **Westbrook JI**, **Braithwaite J**. Improving care for older acute inpatients: an economic evaluation of the delirium clinical care standard [Abstract]. *34th International Society for Quality in Healthcare (ISQua) Conference: Learning at the System Level to Improve Healthcare Quality and Safety*; 1-4 October 2017; London, UK. 2017.
91. **Mumford V**, **T BM**, **Kalinin D**, **Raban M**, McCullagh C, Karnon J, **Westbrook JI**. Measuring the non-medical out-of-pocket costs for families with a child in hospital [Abstract]. *2nd EnCourAge Symposium, Macquarie University*; 27 October 2017; Sydney, Australia. 2017.
92. **Nguyen AD**, **Baysari MT**, Fernon A, Wong MX, Frensham LJ, Day RO. Patient involvement in the development of a gout self-management mobile app [Abstract]. *Human Factors and Ergonomics Society of Australia (HFESA) Conference*; 26-29 November 2017; Wollongong, Australia. 2017.
93. **Nguyen AD**, **Baysari MT**, Fernon A, Wong MX, Stocker S, Day RO. Missing feature of health app development: patients [Poster]. *Combined Australian Rheumatology Association and New Zealand Rheumatology Association Annual Scientific Meeting*; 20-23 May 2017; Auckland, New Zealand. 2017.
94. **Nguyen AD**, **Baysari MT**, Fernon A, Wong MX, Day RO. Missing feature of health app development: patients [Abstract]. *Informatics for Health Conference*; 24-26 April 2017; Manchester, UK. 2017.
95. **Nguyen AD**, **Baysari MT**, Frensham LJ, Fernon A, Wong MX, **Lau AYS**, **Martin P**, **Westbrook JI**, Tariq A, Kannangara DRW, Day RO. Importance of patient involvement in mobile health app development [Abstract]. *St Vincent's Postdoc Symposium*; Sydney, Australia. 2017.
96. **Nguyen AD**, **Baysari MT**, Frensham LJ, Fernon A, Wong MX, **Lau AYS**, **Martin P**, **Westbrook JI**, Tariq A, Kannangara DRW, Day RO. Missing feature of health app development: patients [Abstract]. *St Vincent's Campus Research Week*; 11-15 September 2015; Sydney, Australia. 2017.
97. **O'Brien A**, **Gallego Luxan B**. Defining and measuring potentially preventable hospital readmissions. *10th Health Services & Policy Research Conference, HSRAANZ 2017*; 1-3 November 2017; Gold Coast, Australia. 2017.
98. Plueckhahn T, **Bierbaum M**, Roth F, McNamara C, Ramsey I, Corsini N. Challenges to uptake of cancer education resources by rural aboriginal health workers: the cancer healing messages flipchart experience [Abstract]. *13th Behavioural Research in Cancer Conference*; 4 May 2017; Victoria, Melbourne. 2017.
99. **Pomare C**, **Churruca K**, **Ellis LA**, **Long J**, **Braithwaite J**. Mental health care professionals: collaborating in the face of uncertainty [Abstract and Poster]. *EnCourAge Symposium*; 27 October 2017; Macquarie University, Australia. 2017.
100. **Pomare C**, **Long J**, **Churruca K**, **Ellis LA**, **Braithwaite J**. How do mental health care professionals collaborate during times of uncertainty: a social network analysis [Abstract and Poster]. *The Australian Social Network Analysis Conference*; 28-29 November 2017; University of Sydney, Australia. 2017.
101. **Pont L**, **Raban M**, **Siette J**, **Mitchell R**, **Georgiou A**, **Westbrook JI**. Antipsychotics are forever? De-prescribing of antipsychotics in residential aged care [Abstract]. *International Society for Pharmaceutical Engineering Conference*; 29 October-1 November; San Diego, USA. 2017.
102. **Pont LG**, **Georgiou A**, **Jorgensen M**, **Raban M**, **Westbrook JI**. Polypharmacy and medication use in Australian residential aged care [Abstract]. *AAG National Conference*; 8-10 November 2017; Perth, Australia. 2017.
103. **Pont LG**, **Raban MZ**, **Georgiou A**, **Westbrook JI**. Medicine use profiles in residential aged care: can they inform policy and guide practice? [Abstract and Poster]. *33rd International Conference on Pharmacoepidemiology and Therapeutic Risk Management*; 26-30 August 2017; Montreal, Canada. 2017.
104. **Pont LG**, **Raban MZ**, **Siette J**, **Mitchell R**, **Georgiou A**, **Westbrook JI**. Antipsychotics are forever? De-prescribing of antipsychotics in residential aged care [Abstract and Poster]. *33rd International Conference on Pharmacoepidemiology and Therapeutic Risk Management*; 26-30 August 2017; Montreal, Canada. 2017.
105. **Clay-Williams R**, **Hibbert P**, Travaglia J, **Braithwaite J**. Positioning the medical administrator in the clinical governance system. *Royal Australasian College of Medical Administrators Winter Forum*; 15 June 2017; Melbourne, Australia. 2017.
106. **Rapport F**, **Baysari M**, **Hibbert P**, **Long J**, **Zheng WY**, **Seah R**, **Braithwaite J**. Person-centred Care Evaluation Project. *St Vincent's Health Australia Conference, Sydney*; 4 December 2017; Sydney, Australia. 2017.
107. **Rapport F**, Khanom A, Doel MA, **Seah R**, **Shih P**, **Bierbaum M**, Cartmill J. Patient safety in breast cancer treatment and care pathways [E-Poster]. *International Patient Safety Conference*; 1-2 December 2017; Mumbai, India. 2017.
108. **Rapport F**, Khanom A, **Shih P**, **Bierbaum M**. Journeys through healthcare: improving risk management in breast cancer for person centred,



- safe and high-quality care [Poster]. *34th International Society for Quality in Healthcare (ISQua) Conference: Learning at the System Level to Improve Healthcare Quality and Safety*; 1-4 October 2017; London, UK. 2017.
109. **Rapport F**, Khanom A, **Shih P**, **Bierbaum M**. Journeys through healthcare: improving risk management in breast cancer for person centred, safe and high-quality care [E-Poster]. *International Patient Safety Conference*; 1-2 December 2017; Mumbai, India. 2017.
110. **Rapport F**, Khanom A, **Shih P**, **Hogden A**. Safe and effective transitions from hospital to the community: perceptions of breast cancer patients [Abstract and Poster]. *34th International Society for Quality in Health Care (ISQua) Conference: Learning at the System Level to Improve Healthcare Quality and Safety*; 1-4 October 2017; London, UK. 2017.
111. **Rapport F**, Khanom A, **Shih P**, **Hogden A**. Safe and effective transitions from hospital to the community: perceptions of breast cancer patients [Abstract and E-Poster]. *International Patient Safety Conference*; 1-2 December 2017; Mumbai, India. 2017.
112. Rigby M, **Magrabi F**, Singh H, Sheikh A. Ensuring health IT system safety and integrity—an avoided responsibility [Abstract]. *34th International Society for Quality in Healthcare (ISQua) Conference: Learning at the System Level to Improve Healthcare Quality and Safety*; 1-4 October 2017; London, England. 2017.
113. Sands MB, Kodsí A, Messum S-J, Rhodes H, Murray N, **Gallego Luxan B**. Validation of the Hospital One-year Mortality Risk (HOMR) tool in a respiratory outreach population [Abstract]. *6th International Conference on Advance Care Planning and End of Life Care*; 6-9 September 2017; Alberta, Canada. 2017.
114. Shapiro GK, **Surian D**, **Dunn AG**, Perry R, Kelaher M. Opposition to HPV vaccination on Twitter. [abstract]. *Canadian Association for Health Services and Policy Research Conference*; 24-26 May 2017; Toronto, Canada. 2017.
115. **Shih P**, **Hogden A**, **Bierbaum M**, **Rapport F**. Patients' self-management of breast cancer risk: gaining control in clinical and nonclinical contexts [Abstract and Poster]. *34th International Society for Quality in Healthcare (ISQua) Conference: Learning at the System Level to Improve Healthcare Quality and Safety*; 1-4 October 2017; London, UK. 2017.
116. **Siette J**, **Georgiou A**, **Jorgensen M**, O'Donnell CJ, **Westbrook JI**. Social engagement instruments and person-centred community aged care services [Abstract]. *AAG National Conference*; 8-10 November 2017; Perth, Australia. 2017.
117. **Siette J**, **Georgiou A**, **Jorgensen M**, **Westbrook JI**. Measuring social engagement to improve the lives of community care clients [Abstract]. *Australian Association of Gerontology & Aged and Community Services Regional Conference*; 6-7 April; Cessnock, Australia. 2017.
118. **Siette J**, **Jorgensen M**, **Georgiou A**, **Westbrook JI**. Social engagement among older Australians receiving community care [Poster]. *Australian Institute of Health Innovation Consumer symposium*; 14 March 2017; Sydney, Australia. 2017.
119. Taylor N, **Clay-Williams R**, **Ting P**, **Hogden E**, **Winata T**, Li Z, **Braithwaite J**. Care pathway quality in public hospitals: overview of findings from the Deepening our Understanding of Quality in Australia (DUQuA) Project. [Abstract and Presentation]. *Royal Australasian College of Medical Administrators Conference 2017*; 19-20 October 2017; Melbourne, Australia. 2017.
120. **Thomas J**, **Dahm M**, **Li J**, **Westbrook JI**, **Georgiou A**. A qualitative investigation of workflows in the processing and communication of pathology laboratory results [Abstract and Poster]. *Australasian Diagnostic Error in Medicine Conference*; 24-25 May; Melbourne, Australia. 2017.
121. Trickett A, Lindeman R, **Li L**, Youngson J, Elwood N. Effect of cryopreservation methodology on neutrophil and platelet engraftment in unrelated donor cord blood transfusion [Abstract]. *International Society for Cellular Therapy Annual Meeting*; 3-6 May 2017; London.
122. **Walton V**, **Hogden A**, Johnson J, Greenfield D. Interdisciplinary communication: exploring clinician and patient perceptions of roles during rounds [Abstract and Poster]. *34th International Society for Quality in Healthcare (ISQua) Conference: Learning at the System Level to Improve Healthcare Quality and Safety*; 1-4 October 2017; London, UK. 2017.
123. **Westbrook JI**, **Li L**, **Kim T**, **Baysari MT**. Medication administration practices on the weekend versus weekdays?: a direct observational study of 227 paediatric nurses [Abstract]. *34th International Society for Healthcare (ISQua) Conference: Learning at the System Level to Improve Healthcare Quality and Safety*; 1-4 October 2017; London, UK. 2017.
124. Yates L, **Dahm M**. Rapport, empathy and professional identity in intercultural medical interactions: some challenges for multilingualism [Abstract]. *15th International Pragmatics Conference*; 16-21 July 2017; Belfast, Northern Ireland. 2017.
125. **Zheng WY**. Evaluation of a human factors assessment tool for computerised medication alerts [Abstract]. *Human Factors and Ergonomics Society of Australia Annual Conference*; 26-29 November; Wollongong, Australia. 2017.

**REPORT**

**Braithwaite J**, **Churruca K**, **Ellis LA**, **Long J**, **Clay-Williams R**, **Damen N**, **Herkes J**, **Pomare C**, **Ludlow K**. Complexity science in healthcare – aspirations, approaches, applications and accomplishments: A white paper 2017.

# Our staff

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The Institute is always proud to welcome leading and emerging minds into our team. We have people from diverse backgrounds – academic, industry, clinical and professional – all working collaboratively to improve healthcare globally. The size and expertise of our research team increases year on year.

In 2017, the Institute comprises five Professors, two Associate Professors, nine Senior Research Fellows, 13 Research Fellows, 25 Postdoctoral Research Fellows and 62 professional and other staff members, with roles ranging from Business Managers, Computer Systems Officers, Research Nurse Surveyors, Statisticians and Research Assistants. There are 26 higher degree students enrolled in 2017 (including 21 PhD candidates). In addition, 53 external academics enjoy visiting, honorary or conjoint status with us.



5

Professors

53

External academics

2

Associate Professors

26

Higher degree students enrolled in 2017 (including 21 PhD candidates)

9

Senior Research Fellows

13

Research Fellows

62

Professional and other staff members



Biographies and Google Scholar profiles for all our staff are available on the website: [aihi.mq.edu.au](http://aihi.mq.edu.au)



Publishing and presenting research is a competitive endeavour. We contribute to national and international publications, conferences and grant rounds, consistently securing awards, prizes and fellowships. In 2017, there were major successes.

# Awards

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Professor  
Jeffrey Braithwaite



Professor  
Enrico Coiera



Professor  
Johanna Westbrook



Associate Professor  
Rebecca Mitchell



Associate Professor  
Terry Hannan



Dr Stephanie Best



Dr Brette Blakely



Dr Kate Churruca



Dr Louise Ellis



Dr Blanca Gallego  
Luxan



Dr Anne Hogden



Dr Mikaela Jorgensen



Dr Annie Lau



Ms Jessica Chen



Ms Jessica Herkes

**Associate Professor Rebecca Mitchell:** Received Health Services Research Award for the Australian and New Zealand Hip Fracture Registry for the Australian and New Zealand Hip Fracture Registry Steering Group

**Dr Annie Lau:** Recognised as one of the best consumer informatics articles listed in 2016 IMIA *Yearbook of Medical Informatics* – ‘Why didn’t it work?’

**Dr Blanca Gallego Luxan:** With colleagues, awarded Health Services and Policy Research Best Paper at 10th Health Services and Policy Research Association of Australia & New Zealand Conference

**Dr Brette Blakely:** Conferred the EnCouRage Publication Award for her publication: Blakely B., Williams, J., Mayes, C., Kerridge, I., and Lipworth, W. ‘Conflicts of interest in Australia’s IVF industry: An empirical analysis and call for action’. *Human Fertility* doi: 10.1080/14647273.2017.139266

**Dr Mikaela Jorgensen:** Awarded the inaugural Jeff Cheverton Memorial Scholarship established by the Australian Healthcare and Hospitals Association together with Brisbane North and North Western Melbourne Primary Health Networks

**Dr Stephanie Best:** Awarded Best Paper – Health Management and Organisation at the 31st Annual Australian & New Zealand Academy of Management Conference: ‘Professional Identity: Friend or Foe to Integrated Care’

**Dr Stephanie Best:** Secured an excellence in teaching award from Swansea University, UK

**Ms Jessica Chen:** Awarded 2017 Branko Cesnik Award for Best Student Academic Scientific Paper at Health Informatics Conference 2017

**Ms Jessica Herkes, Dr Kate Churruca, Dr Louise Ellis, Professor Jeffrey Braithwaite:** Awarded best poster presentation at the NEWMAC Humanities Postgraduate Conference, Macquarie University. ‘Survey development in a haphazard research landscape: Making a mark by developing a tool for person-environment fit’

**Professor Enrico Coiera, Professor Johanna Westbrook and Visiting Fellow Associate**

**Professor Terry Hannan:** Elected to inaugural class of International Academy of Health Sciences Informatics (Geneva, Switzerland)

**Professor Jeffrey Braithwaite and Dr Anne Hogden:** Received an honourable mention for the Peter Reizenstein Award at the International Society for Quality in Health Care’s 34th international conference: Learning at the System Level to Improve Healthcare Quality and Safety, UK, for their paper: Hinchcliff, R., Greenfield, D., Hodgen, A., Sarrami-Forouchani, P., Travaglia, J. and Braithwaite, J. ‘Lever for change: An investigation of how accreditation programs can promote consumer engagement in healthcare’. *International Journal for Quality in Health Care*, 28(5): 561-565

**Professor Jeffrey Braithwaite:** Most tweeted conference session award at the International Society for Quality in Health Care’s conference, UK. Braithwaite, J., Bates, D., Klazinga, N. and Slawomirski, L.

# New board and committee memberships

## **Professor Jeffrey Braithwaite**

- President Elect, International Society for Quality in Health Care
- International member, Partners at Care Transitions – Pact: Scientific Steering Group
- Member, National Institute for Health Research Funded project with Leeds University, UK
- International member, International Ergonomics Association's 2018, International Scientific Committee, Florence, Italy

## **Professor Johanna Westbrook**

- Treasurer, International Medical Informatics Association, elected by the General Assembly
- Chair, Australian Digital Health Safety and Quality Governance Committee
- Member, NHMRC Antimicrobial Resistance Targeted Call (Medical Research Future Funds) Review Panel
- Member, NHMRC Partnership Project Review Panel

## **Professor Enrico Coiera**

- Member Artificial Intelligence in Medicine (AIMed) North American Advisory Board
- Faculty, Artificial Intelligence in Medicine (AIMed) Conference
- Elected Member, Macquarie University Academic Senate
- Member, Macquarie University Research and Research Training Committee

## **Professor Andrew Georgiou**

- Member, Scientific Program Committee for Context Sensitive Health Informatics Conference (Hong Kong)

## **Associate Professor Melissa Baysari**

- Member, Clinical Excellence Commission's Human Factors Advisory Committee



**Dr Robyn Clay-Williams**

- Member, Therapeutic Goods Administration Statutory Advisory Committee on Medical Devices
- Member, NSW Clinical Excellence Commission Root Cause Analysis Safety Committee
- Member, Macquarie University’s Health Research Ethics Committee

**Mr Peter Hibbert**

- Member, South Australian Health Women’s and Children’s Hospital Local Health Network Clinical Safety and Quality Committee
- Member, Australian Council on Healthcare Standards, Patient Safety Awards Committee

**Dr Reidar Lystad**

- Member, World Federation of Chiropractic, Public Health Committee

**Dr Ling Li**

- Member, Therapeutic Good Administration Advisory Committee on Vaccines

**Dr Maria Dahm**

- Member, Australasian Diagnostic Error Conference Advisory Committee
- Member, Health Services Research Association of Australia and New Zealand’s Conference Advisory Committee







# Fellowships

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**Professor Enrico Coiera** and **Professor Johanna Westbrook**, and Visiting Fellow **Terry Hannon** elected as Fellows of the International Academy of Health Sciences Informatics (Geneva, Switzerland)

**Professor Jeffrey Braithwaite** conferred as a Fellow of the Australian Academy of Health and Medical Sciences (FAHMS)

**Associate Professor Rebecca Mitchell** awarded a NSW Early-Mid Career Fellowship: Factors that influence older individuals transitioning between hospital and aged care services

**Dr Annie Lau** awarded a NSW Health Early-Mid Career Fellowship: Redesigning patient experiences in health service navigation using digital technology

**Dr Magda Raban** secured an NHMRC Early Career Fellowship: Optimising eHealth systems to improve medication safety and patient outcomes

**Dr Robyn Clay-Williams** awarded a NSW Early-Mid Career Fellowship: Safety in complex systems: Developing processes to improve productive safety in the Emergency Department

**Dr Stephanie Best** conferred as a Senior Fellow of the Higher Education Academy (UK)

**Dr Virginia Mumford** awarded a NSW Health Early-Mid Career Fellowship: Evaluate implementation of the Delirium Clinical Care Standard

**Professor Gregory Alexander**, University of Missouri (USA), spent four months with CHSSR on a Fulbright Fellowship

**Professor Stephen Meuthing**, Cincinnati Children's Hospital, Ohio (USA), spent a month with CHRIS on a Fulbright Fellowship for his work in paediatrics

# Seminars

Throughout the year, Institute researchers and visiting academics present their work at the AIHI Seminar Series. These public sessions are attended by staff, external academics, students, clinicians and industry representatives and play an important role in the Institute's mission to disseminate knowledge that will build better health systems worldwide. We are pleased to present a few of the most popular of the 30 sessions held during 2017. A list of all our seminars can be found on the AIHI website.

## **A NEW INFORMATICS GEOGRAPHY**

**Speaker: Professor Enrico Coiera**

Director, Centre for Health Informatics, AIHI

With over three decades of experience in health informatics, Enrico Coiera has a deep understanding of the benefits and pitfalls of communication and IT in healthcare settings. At this seminar, he spoke about why IT is often challenging, which IT endeavours are more likely to succeed, and how to predict the best role that technology can play in different tasks and settings.

## **BEING WILLING TO SEE THINGS CLEARLY: LEADERSHIP LESSONS FOR QUALITY IMPROVEMENT**

**Speaker: Professor Paul Levy**

Honorary Professor, Macquarie University

Author, speaker and corporate advisor Paul Levy attracted a big audience and was viewed more than 160 times on YouTube when he spoke on the topic of leadership. Paul presented the view that there are just a few core competencies that are essential for organisations that wish to enhance the quality and safety of patient care. These include reducing unwarranted clinical variation; understanding types of cognitive errors; crew resource management; elements of a just culture; and the value of transparency. Paul presented a leadership agenda to support the development and implementation of these core competencies.

## **THE ECONOMICS OF PATIENT SAFETY: OECD REPORT ON A VALUE-BASED APPROACH TO REDUCING PATIENT HARM**

**Speaker: Luke Slawomirski**

Health Economist, OECD Health Division, Paris

High-profile health economist Luke Slawomirski presented a report prepared for the World Health Organization's 2nd Global Ministerial Summit on Patient Safety, Bonn in March 2017. The report estimated the health, financial and economic costs of patient harm across the globe. It then examined how patient harm can be minimised effectively and efficiently, informed by a snapshot survey of eminent academic and policy experts in patient safety.

## **SCALE UP SYSTEMS FOR FASTER MORE WIDESPREAD TAKE-UP OF IMPROVEMENTS IN HEALTHCARE: RESEARCH AND DEVELOPMENT CHALLENGES AND SOLUTIONS**

**Speaker: Professor John Øvretveit**

Karolinska Institutet, Sweden, Visiting Professor AIHI

Research shows that improvements to clinical practice and organisation can be effective for patient assessment, treatment and more efficient operation of departments and primary care centres. Less is known about the methods that are effective for enabling busy personnel to change their daily practice to adopt such improvements. Implementation research shows local adaptation of improvement-changes are necessary, but how? And are they effective? In this seminar John Øvretveit discussed the conditions and infrastructures necessary for effective scale up and how to assess change-readiness and capability.



The Institute will have a postgraduate cohort of more than 38 students in 2018.

# Australasian researchers of the future

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**The Institute offers a dynamic capacity-building postgraduate program consisting of:**



**Master of Research  
Year 1 (MRes1)**

Studying with AIHI provides unique access to the expertise and experience of an internationally recognised pool of researchers who support and supervise students across a broad range of disciplines including computer science, medical sciences, health services research, mathematics, law, business, biostatistics, psychology, and engineering. Our postgraduate program places a strong emphasis on academic and professional development. Past doctoral candidates have progressed to senior roles in academia, health services and industry, both locally and internationally.

All AIHI postgraduate candidates are provided with opportunities to stay up-to-date with leading trends in health services research. They work with two or more experienced supervisors and are encouraged to interact with researchers and students across AIHI and Macquarie University. Our candidates are also advantaged by having access to the respected AIHI Seminar Series where AIHI researchers and visiting scholars present their work.



**Master of Philosophy  
(MPhil)**

In 2017, two students completed their PhD studies with AIHI. Supervised by Professor Jeffrey Braithwaite and Professor Johanna Westbrook, Dr Klay Lamprell's thesis was titled 'Meta-narratives in the melanoma patient journey: a medical humanities approach to understanding patients' experiences'.

Dr George Larcos was supervised by Professor Johanna Westbrook, Professor Andrew Georgiou and Dr Mirela Prgomet. His thesis was titled 'Enhancing safety in nuclear medicine in Australia: a multi-method investigation of risks, incidences and work-processes'.



**Master of Research  
Year 2 (MRes2)**



**PhD  
(Doctor of Philosophy)**

## HDR CASE STUDIES



### USING RESEARCH TO REFOCUS

**George Larcos**

Winner of the 2017 Macquarie University Dean's Award for Research Excellence

As a specialist nuclear medicine physician, I have a great job. I get to help other doctors diagnose and treat a variety of illnesses on a daily basis. After working in the discipline for over three decades I realised that there are some things that we can do a little better. One of these involves mistakes in which the wrong procedure is undertaken, or an incorrect patient studied. Whilst issues of patient safety and quality receive much attention in general medicine, this is not necessarily the case in nuclear medicine. I decided that the best way to draw attention to the problem and develop some solutions was by doing a PhD via a series of publications.

I was fortunate that I had the support of the Institute and a great set of supervisors in Professors Johanna Westbrook and Andrew Georgiou, and Dr Mirela Prgomet. I learned a lot, published in top quality journals and gained a great deal of personal satisfaction.

Undoubtedly, I'm a better researcher as a result of the process. Attaining a PhD has also opened up the opportunity to work with Australian statutory authorities in radiation protection and make an impact at a national level.

So, you want to make a difference? Do a PhD at AIHI.



### LIFE AFTER A PHD

**Klay Lamprell**

My background as a journalist and editor has been a great foundation for academia. Innate curiosity, a passion for investigation and a love of written expression have served my transition into the pursuit of empirical knowledge. There are new rules of engagement certainly, but it seems you can teach an old-ish dog new tricks.

My PhD examined dimensions of patient experience over time, focusing on people with melanoma. The study involved two research projects: an analysis of over 200 written autobiographical stories of melanoma patient journeys published on the websites of melanoma support organisations, and an ethnographic study of seven people with advanced and metastatic melanoma. I used thematic and literary analysis to examine the data.

I'm now working at the Institute's NHMRC Centre for Research Excellence in Implementation Science in Oncology as a Postdoctoral Research Fellow. It's an exciting opportunity to research and write about the impact of cancer care from a different perspective. I'm exploring the work of the multidisciplinary teams that review patients' cases, refine diagnoses and formulate recommendations for treatment.

# AIHI grants awarded and under management

## GRANTS AWARDED TO AIHI IN 2017\*

\*as at 31 December 2017

TITLE	INVESTIGATORS	FUNDING SOURCE	FUNDING SCHEME	TOTAL AWARDED
<b>NHMRC</b>				
Centre for Research Excellence in Digital Health (CREiDH)	<b>E Coiera</b> P Glasziou W Runciman D Hansen S Liaw <b>F Magrabi</b> F Sintchenko K Verspoor <b>B Gallego Luxan</b> <b>A Lau</b>	NHMRC	CRE	\$2,498,649
Centre for Research Excellence in Implementation Science in Oncology (CRE-ISO)	<b>J Braithwaite</b> R Ward D Currow G Delaney R Kefford J Karnon P Crowe W Liauw <b>J Westbrook</b>	NHMRC	CRE	\$2,495,783
CareTrack Aged: appropriate care delivered to Australians living in residential aged care	<b>J Braithwaite</b> I Cameron A Kitson R Reed <b>A Georgiou</b>	NHMRC	Project	\$1,157,721
Health System Sustainability	<b>J Braithwaite</b> <b>E Coiera</b> <b>J Westbrook</b> P Glasziou R Buchbinder A Scott J Karnon	NHMRC	Partnership Centre	\$10,749,751
Creating a culture of safety and respect: a controlled, mixed methods study of the effectiveness of a behavioural accountability intervention to reduce unprofessional behaviours	<b>J Westbrook</b> <b>J Braithwaite</b> R Day S Middleton D Scott <b>F Rapport</b> <b>R Mitchell</b> <b>M Baysari</b> <b>L Li</b> <b>N Taylor</b>	NHMRC	Partnership Projects	\$1,225,978

TITLE	INVESTIGATORS	FUNDING SOURCE	FUNDING SCHEME	TOTAL AWARDED
Optimising computerised decision support to transform medication safety and reduce prescriber burden	<b>M Baysari</b> <b>L Li</b> <b>J Westbrook</b> R Day S Hilmer	NHMRC	Partnership Projects	\$830,546
Optimising eHealth systems to improve medication safety and patient outcomes	<b>M Raban</b>	NHMRC	ECF	\$322,952
<b>OTHER</b>				
Enhancing the effectiveness, appropriateness, and sustainability of blood product management - a data analytics approach	<b>A Georgiou</b> <b>J Westbrook</b> T Cobain L Li E Vecellio	Australian and New Zealand Society of Blood Transfusion (ANZSBT)	Research Fund	\$16,700
Clinical Safety Review - Review of allergy and ADR incidents associated with clinical information systems	<b>M Baysari</b> <b>F Magrabi</b> <b>P Hibbert</b> T Schultz <b>WY Zheng</b>	Australian Commission on Safety and Quality in Health Care (ACSQHC)	Contract	\$169,296
Analysis and interim classification of adverse event data pertaining to the use of Electronic Medication Management (EMM) Systems	<b>M Baysari</b> <b>M Raban</b> <b>WY Zheng</b> <b>J Westbrook</b>	ACSQHC	Contract	\$38,630
An evaluation of the literature on assessing safety and quality culture in an organisation	<b>A Hogden</b> <b>L Ellis</b> <b>K Churruca</b> <b>M Bierbaum</b>	ACSQHC	Contract	\$23,095
Qualitative analysis of consultation data from a national survey of sentinel patient safety events	<b>F Rapport</b> <b>A Hogden</b>	ACSQHC	Contract	\$15,120
CMCRC PhD Scholarship	<b>A O'Brien</b>	Capital Markets Cooperative Research Centre (CMCRC)	Scholarship	\$50,000
Centre for Eye Care	<b>B Blakely</b> <b>J Long</b> <b>R Clay-Williams</b> <b>J Braithwaite</b>	Centre for Eyecare UNSW	Contract	\$38,027

TITLE	INVESTIGATORS	FUNDING SOURCE	FUNDING SCHEME	TOTAL AWARDED
Behavioural and attitudinal responses to cochlear implantation in Australia and the UK	<b>F Rapport</b> <b>A Lau</b> C McMahon I Boisvert S Hughes	Cochlear Ltd	Contract	\$160,000
Ageing well - A social participation and engagement tool to enhance consumer choice and the delivery of quality, person-centred community aged care services	<b>A Georgiou</b> <b>J Westbrook</b> <b>M Jorgensen</b> <b>J Siette</b>	Australian Government Department of Health	Dementia and Aged Care Services Fund (DACS)	\$265,976
Enhancing patient outcomes through evaluation of the appropriateness and quality use of pathology in general practice	<b>A Georgiou</b> <b>J Westbrook</b> <b>L Li</b> <b>L Pont</b> C Pearce N Reinhart	Australian Government Department of Health	Quality Use of Pathology Program	\$522,824
Macquarie Minds: Monitoring of injury and psychosocial health outcomes, career trajectories and continuing education, lived experiences and social connectedness	<b>R Lystad</b> L Peters M Johnstone <b>L Ellis</b> <b>R Mitchell</b> <b>J Braithwaite</b> V Wuthrich J Amin CM Cameron	Macquarie University	MQ Research Seeding Grant (MQRSG)	\$49,274
The lived experience of post-surgical patients following resective surgery for refractory epilepsy: A phenomenological study	<b>P Shih</b> <b>F Rapport</b> A Nikpour A Bleasal G Herkes	Macquarie University	MQRSG	\$25,000
Trialling the revised Macquarie surgical innovation identification tool (MSIIT) in five Australian Hospitals: Phase One	<b>B Blakely</b>	Macquarie University	MQ Re-start Grants (MQRS)	\$19,980
Better Evidence for earlier identification and Surgical intervention for RefracTory epilepsy (The BEST Study): A one year pilot study	<b>F Rapport</b> <b>R Mitchell</b> A Bleasel A Nikpour S Vagholkar G Herkes	Macquarie University	MQ Safety Net (MQSN) Scheme	\$20,008
Understanding the impact of dementia on rehabilitation following hip fracture to improve health outcomes for older people	<b>R Mitchell</b>	Macquarie University	MQSN Scheme	\$19,974
Genetic testing for Motor Neurone Disease in Australia: barriers, facilitators and costs	A Crook D Rowe <b>A Hogden</b> <b>V Mumford</b> I Blair K Williams	Motor Neurone Disease Research Institute of Australia (MNDRIA)	MNDRIA	\$41,818
Expression of Interest Advice and the design review of the NSW Child Death Register	<b>R Mitchell</b>	NSW Ombudsman	Contract	\$15,044



TITLE	INVESTIGATORS	FUNDING SOURCE	FUNDING SCHEME	TOTAL AWARDED
Better Evidence for earlier identification and Surgical intervention for RefracTory epilepsy (The BEST Study): Epidemiological evidence assessment	<b>F Rapport</b> <b>R Mitchell</b> A Bleasel A Nikpour S Vagholkar G Herkes	Royal North Shore Hospital	Neurology Fund Grant	\$11,500
Person-centred care evaluation project	<b>F Rapport</b> <b>P Hibbert</b> <b>M Baysari</b> <b>J Long</b> <b>J Braithwaite</b>	St Vincent's Health Australia	Contract	\$67,513
Towards understanding complexity project	<b>J Braithwaite</b> <b>J Long</b> C Gaff	Murdoch Children's Research Institute	Genomics Secondary Funding Agreement TCR	\$120,000
<b>TOTAL AWARDED IN 2017</b>				<b>\$20,971,159</b>

## GRANTS AWARDED TO AIHI PRIOR TO 2017 AND UNDER MANAGEMENT

TITLE	INVESTIGATORS	FUNDING SOURCE	FUNDING SCHEME	TOTAL AWARDED
<b>NHMRC</b>				
Centre for Research Excellence in e-health	<b>E Coiera</b> P Glasziou ST Law V Sintchenko W Runciman	NHMRC	CRE	\$2,499,870
<b>PARTNERS</b> • South Eastern Area Laboratory Services / NSW Health Pathology • Australian Commission on Safety and Quality in Health Care	<b>F Magrabi</b> <b>B Gallego Luxan</b>			
Implementation of Genomic Sequencing into Clinical Practice	<b>J Braithwaite</b> <b>N Taylor</b> C Gaff	Murdoch Children's Research Institute	Genomics Secondary Funding Agreement TCR	\$240,000
The appropriateness of healthcare delivered to Australian Children: CareTrack Kids	<b>J Braithwaite</b> A Jaffe L White C Cowell M Harris	NHMRC	Partnership	\$1,263,318
<b>PARTNERS</b> • Sydney Children's Hospital Network • eHealth NSW • NSW Kids and Families	<b>PARTNERS</b> • BUPA Health Foundation • The Sydney Children's Hospital Network • NSW Kids and Families • SA Department of Health • Children's Health Queensland • Clinical Excellence Commission			\$120,000 \$120,000 \$120,000 \$120,000

TITLE	INVESTIGATORS	FUNDING SOURCE	FUNDING SCHEME	TOTAL AWARDED
Delivering safe and effective test result communication, management and follow-up <b>PARTNERS</b> • South Eastern Area Laboratory Services / NSW Health Pathology • Australian Commission on Safety and Quality in Health Care	<b>A Georgiou</b> <b>J Westbrook</b> D Greenfield A Horvath D Wakefield <b>L Li</b> K Hillman	NHMRC	Partnership Project	\$1,133,359
Delivering safe and effective care for children in hospital with eHealth systems <b>PARTNERS</b> • Sydney Children's Hospital Network • eHealth NSW • NSW Kids and Families	<b>J Westbrook</b> <b>A Georgiou</b> R Day T O'Brien J Karnon L Dalla-Pozza C Cowell <b>L Li</b> <b>M Baysari</b> G Ambler	NHMRC	Partnership Project	\$1,082,806
Creating safe, effective systems of care: the translational challenge	<b>J Braithwaite</b> <b>J Westbrook</b> <b>E Coiera</b> W Runciman R Day K Hillman	NHMRC	Program	\$10,855,710
Enabling personalised cohort studies from large repositories of clinical practice data	<b>B Gallego Luxan</b>	NHMRC	Project	\$520,968
New methods for tracking the influence and geospatial clustering of vaccine misinformation	<b>A Dunn</b>	NHMRC	Project	\$476,648
Preventing chronic disease in patients with low health literacy using e-health and teamwork in primary health care	N Stocks J Karnon D Nutbeam E Denney-Wilson M Noakes <b>A Lau</b>	NHMRC	Project	\$48,522
Improving quality use of medicines in residential aged care	<b>L Pont</b>	NHMRC	TRIP Fellowship	\$175,303
<b>ARC</b>				
The nature and potential adverse consequences of interruptions and multi-tasking in safety critical work environments	<b>J Westbrook</b> <b>J Braithwaite</b> W Dunsmuir	ARC	Discovery	\$462,628
Development of an evaluation model for assessing the effectiveness of ICT to integrate services and improve service performance and client experience	<b>J Westbrook</b> <b>A Georgiou</b>	ARC	Linkage	\$914,044
<b>OTHER</b>				
Downtime management best practices for clinical safety in digital health record systems	<b>F Magrabi</b>	ACSQHC	Service Contract	\$37,950
From bedside to the bench: Bringing Macquarie University Hospital data to Researchers	<b>E Coiera</b>	Australian National Data Service (ANDS)	Research Contract	\$160,000

TITLE	INVESTIGATORS	FUNDING SOURCE	FUNDING SCHEME	TOTAL AWARDED
Developing methods to improve systematic reviews using clinical trial registries	<b>A Dunn</b>	Boston Children's Hospital Agency for Healthcare Research and Quality	RO3	\$14,969
The appropriateness of healthcare delivered to Australian Children: CareTrack Kids	<b>J Braithwaite</b> <b>L White</b> C Cowell A Jaffe W Runciman G Wheaton H Williams <b>P Hibbert</b> T Hunt N Hannaford	BUPA	Grant	\$400,000
CMCRC PhD Scholarship	<b>A O'Brien</b>	Capital Markets Cooperative Research Centre (CMCRC)	Scholarship	\$25,000
Analysis and optimisation of the St. John's Hospital sepsis alert pilot	<b>L Li</b> <b>J Westbrook</b>	Clinical Excellence Commission	Contract	\$47,060
Excellence in Translational Cancer Research	<b>N Taylor</b>	Cancer Institute NSW Premier's Award	Award	\$20,000
Real-time application of large-scale clinical hearing rehabilitation data	<b>B Gallego Luxan</b>	Hearing IRC Partner with National Acoustic Laboratories	Research	\$27,500
Scientific information management and literature-based evaluations for the National Toxicology Program (NTP)	<b>G Tsafnat</b>	ICF Incorporated, LLC	Contract	\$142,933
Preventing patient harm in hospitals: automatic real time detection of adverse drug events using datasets from electronic clinical information systems	<b>L Li</b>	Macquarie University	MQ Research Development Grant (MQRDG)	\$49,806
Personalised anticoagulant therapy for patients with acute coronary syndrome	<b>T Wendling</b>	Macquarie University	MQRDG	\$40,000
Preventing patient harm from digital health through early detection	<b>F Magrabi</b>	Macquarie University	MQSN Scheme	\$20,000
Genomics and Implementation Science	<b>N Taylor</b> C Gaff <b>J Braithwaite</b>	Macquarie University	PhD + 3 year scholarship	\$200,000
Improving the way environmental health evidence is collected, synthesised and disseminated	<b>G Tsafnat</b>	National Institute of Environmental Health Sciences (NIEHS), National Toxicology Program (NTP)	Contract	\$66,250
Using a life course approach to examine the influence of individual and psychosocial characteristics on individual trajectories through the health and aged care systems	<b>R Mitchell</b>	NSW Health	Early-Mid Career Fellowship 2017	\$360,939
Safety in complex systems: developing processes to improve productive safety in the Emergency Department	<b>R Clay-Williams</b>	NSW Health	Early-Mid Career Fellowship 2017	\$360,929

TITLE	INVESTIGATORS	FUNDING SOURCE	FUNDING SCHEME	TOTAL AWARDED
Redesigning patient experiences in health service navigation using digital technology	<b>A Lau</b>	NSW Health	Early-Mid Career Fellowship 2017	\$360,541
Evaluate implementation of the Delirium Clinical Care Standard	<b>V Mumford</b>	NSW Health	Early-Mid Career Fellowship 2017	\$293,506
Population Health and Health Services Research Support Program Round 4	<b>J Braithwaite</b>	NSW Health	Research	\$1,000,000
Unwarranted clinical variation following hospitalised injury in young people in NSW	<b>R Mitchell</b>	NSW Kids and Families	Contract	\$69,076
Proof of Concept - Whether national data linkage can be conducted in Australia and cross-border healthcare use identified - demonstration project looking at hospitalised injury morbidity and mortality	<b>R Mitchell</b>	Telethon Institute PHRN	Contract	\$127,550
Emerging systems management safety review	<b>F Magrabi</b>	Telstra Corporation	Contract	\$10,875
Townsville Hospital and Health Service SPUR Training	<b>R Clay-Williams</b>	Townsville Hospital and Health Service	Contract	\$40,000
Improving outcomes from high risk surgery	<b>R Clay-Williams</b>	Townsville Hospital and Health Service	Contract	\$20,000
Evaluation of negotiating skills training	<b>R Clay-Williams</b>	Townsville Hospital and Health Service	Contract	\$10,000
Evaluation of a family support collaborative using a social network approach	<b>J Long</b>	University of NSW	Contract	\$15,000
Hospitalised injury in NSW: a geographical comparison	<b>R Mitchell</b>	University of Sydney	Contract	\$35,500
Trauma Journey Day of Difference	<b>R Mitchell</b>	University of Sydney	Contract	\$31,999
<b>TOTAL AWARDED PRIOR TO 2017</b>				<b>\$24,140,559</b>
<b>NEW GRANTS AWARDED IN 2017</b>				<b>\$20,971,159</b>
<b>GRANTS AWARDED AND UNDER MANAGEMENT PRIOR TO 2017</b>				<b>\$24,140,559</b>
<b>TOTAL AIHI GRANTS AS AT 31 DECEMBER 2017</b>				<b>\$45,111,718</b>







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Study with us and make a difference to the Australian health system. We conduct world-class research with national and international research communities, governments, policy-makers, providers of health services, clinicians, patients and the community.

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