The vision of AIHI is to ‘Lead in health system innovation through world-class research, generating, disseminating and translating research knowledge that can improve health systems’

- PROFESSOR JEFFREY BRAITHWAITE
The principal objective of the Australian Institute of Health Innovation is to conduct multi-disciplinary research into health sector practices, organisation and management, that directly enhances the delivery of high quality, safe, efficient and affordable health care. The emphasis is on translational research, and turning policy into practice.

**THE AIHI IS COMPRISED OF THREE INDEPENDENT, INTERRELATED RESEARCH CENTRES:**

1. Centre for Health Informatics;
2. Centre for Health Systems and Safety Research; and,

We have over 100 researchers, fellows and visiting appointees, and 20 higher degree research students, mainly PhD candidates. Our major sources of income [running at more than $15 million per annum, up from $5 million five years ago] are National Health and Medical Research Council (NHMRC) program and project funding, University income and infrastructure support, Australian Research Council (ARC) discovery and linkage funding, and commissioned research.

We publish more than 200 scientific papers and chapters per annum, and numerous monographs and reports. We focus on translational impact in areas such as: improved health systems, models for changing practice and organisations, decision support for clinicians, the recognition of deteriorating patients, improving quality of care and patient safety, e-health and rapid response for at-risk patients.

Each of our three research Centres contributes to the Institute’s common mission and vision. Our work is highly collaborative; our projects often involve researchers from each of the Centres, supported by research grants awarded across the Centres and resulting in publications which share authorships from researchers across the Institute. This highly successful structure has enabled us to develop expert communities of practice within the multi-disciplinary setting, meaning we are able to attract and train highly specialised scientists to focus on health services research and combine their skills to focus on novel questions and test new hypotheses. Staff move between Centres as needed, and Centre staff may hold cross-Centre Institute-level responsibilities. The end result is a multi-disciplinary and highly flexible organisation, which is able to harness researchers from different backgrounds. It is internationally unique.
It is a pleasure to write this overview of 2015, our first full year at Macquarie University. The Institute is a multi-dimensional, multi-faceted, multi-disciplinary research grouping that has been my pleasure to lead (alongside my fellow Directors, Professor Enrico Coiera and Professor Johanna Westbrook) for almost a decade. In that time we have grown and contributed many research studies, papers, reports, PhD completions and projects, all centred on a key objective—to use high-quality research evidence to help improve healthcare.

When we first came to Macquarie we knew it was a place where extraordinary new opportunities have been actualised—the introduction of wireless technology, for example, and the home of the Big History Institute and the Australian Hearing Hub, to name a few. We also knew of Macquarie’s ranking among the top 100 institutions in the world for accounting and finance; communication, cultural and media; earth and marine sciences; education; English language and literature; geography; law; linguistics and psychology. It also has Australia’s first and only private, not-for-profit hospital on a university campus. In this first year we’ve been reaching out to new partners across these facilities as well as working with all our existing collaborators.

Since settling in over the course of 2015, we have come to realise two additional things. Firstly, the Institute now has a fantastic new home in a university determined to be decidedly different. Secondly, it is housed in a brand-new Faculty of Medicine and Health Sciences which is championing a values-driven approach to research and teaching which resonates completely with staff of the Institute. These values include stressing the importance of collaboration, patient-centred care, community engagement, a global outlook, learning, and progress through evidence.

In this transitional year, we’ve been learning about and exploiting the opportunities here. We are connecting with skilled new colleagues in our own and across the other faculties, and are surrounded by an industry park representing a cross-section of prestigious companies including those that are high-tech, those involved in the pharmaceutical industry, and those full of leading minds with links to many countries. It’s in the third largest commercial office precinct in New South Wales, and growing fast. This all feeds into a vibrant community of perspectives, which in turn creates many new ideas of benefit to the Faculty’s and Institute’s research and teaching programs.

In essence, we’ve caught the Macquarie bug and we are leveraging the knowledge in and outside the University, marrying it with our own expertise, and articulating this into brand new research questions which are being translated already into new and uniquely different research grants and studies. You will get a glimpse of these in the pages that follow.

Our productivity continues to accelerate. We have contributed 233 publications this year, and hosted 24 educational events. Our 125 staff and 19 postgraduate students worked on 33 research projects managed by AIHI, notably those funded by National Health and Medical Research Council and the Australian Research Council, as well as 21 other grants supported by health system and other partners across the country and internationally. This is expressed in research on topics as diverse as complexity science, e-health, human factors, paediatric care, patient safety and quality, implementation science, aged care and big data. To probe the many research questions which these topics generate, we employ multiple research methods and data gathering techniques. To read more about this, simply turn the page and enjoy the journey of the Institute across 2015.
Our board

PROFESSOR PATRICK MCNEIL (CHAIR),
Professor McNeil, the Executive Dean of the Faculty of Medicine and Health Sciences, is the senior academic officer of the Faculty and is responsible for the quality, planning and delivery of medical education to students within the faculty. He was also Executive Clinical Director of Liverpool Hospital, and Chair of Arthritis Australia.

He has been a continuous Chief Investigator on NHMRC or ARC project grants since 1995, has published more than 90 articles and has supervised 21 higher degree research students. His academic expertise is in the areas of cellular immunology, rheumatology and arthritis. However, he has also led innovation in medical education and published extensively in this field.

PROFESSOR LESLEY HUGHES
Pro Vice-Chancellor (Research Integrity and Development), Macquarie University, Professor Hughes has the responsibility to help sustain and grow the University’s research profile through the development of research capability and the promotion of research integrity. Professor Hughes has been researching and communicating the science of climate change for more than 20 years. She was appointed commissioner of the independent government advisory Climate Commission in 2011 and became a pro-bono founding councillor of the Climate Council of Australia in 2013. She was a lead author for the UN's IPCC Fourth and Fifth Assessment Reports.

PROFESSOR LES WHITE AM
Professor White AM was appointed as the inaugural New South Wales Chief Paediatrician in September 2010. He was Executive Director of Sydney Children’s Hospital (1995–2010), President of Children’s Healthcare Australasia (1999-2004), Convenor of the Greater Eastern and Southern NSW Child Health Network (2001–2010) and the John Beveridge Professor of Paediatrics (2005-2010).

He was awarded a Doctorate of Science for research contributions related to childhood cancer and completed his Master of Health Administration in 1995. He has served on numerous state and national boards/committees related to children’s health and community support. In 2007 he received an Order of Australia award for service to medicine in the field of paediatrics, to medical administration, and to the community through a range of organisations.

PROFESSOR SALLY REDMAN AO
Professor Redman AO, Chief Executive Officer of the Sax Institute, has extensive experience in public health research, particularly the evaluation of programs designed to improve health and healthcare. Previously she was the inaugural Director of the National Breast Cancer Centre. In 2001, Professor Redman was awarded the Centenary Medal for service to women diagnosed with breast cancer.

PROFESSOR CLIFF HUGHES AO
Professor Hughes AO is the President of the International Society for Quality in Health Care. Previously he was the Chief Executive Officer of the Clinical Excellence Commission, a statutory health corporation established in 2004 to build capacity and design programmes to promote and support improvement in quality and safety for health services across NSW. This appointment follows a 25-year career as a cardiothoracic surgeon in Sydney.

He has been chairman or member of numerous state and federal committees associated with quality, safety and research in clinical practice for health care services. He has held various positions in the Royal Australasian College of Surgeons, including Senior Examiner in Cardiothoracic Surgery and member of the College Council. In October 2015 he was awarded the Sir Hugh Devine Medal, the highest honour bestowed by the College. Professor Hughes has served on four editorial boards and has published widely in books, journals and conference proceedings on cardiothoracic surgery, quality and safety. He has a particular passion for patient based care, better incident management, quality improvement programmes and the development of clinical leaders.
Our Directors

Professor Enrico Coiera, Professor Johanna Westbrook and Professor Jeffrey Braithwaite

PROFESSOR JOHANNA WESTBROOK
DIRECTOR OF THE CENTRE FOR HEALTH SYSTEMS AND SAFETY RESEARCH

Professor Westbrook is internationally recognised for her research evaluating the effects of information and communication technology (ICT) in health care. She has over 390 publications, with an h-index of 43, and been awarded in excess of $40M in research grants. She 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 contributed to theoretical models regarding the design of complex multi-method ICT evaluations. Her research has led to significant advances in our understanding of how clinical information systems deliver (or fail to deliver) expected benefits and supported translation of this evidence into policy, practice, and IT system changes. Professor Westbrook also leads research investigating the role and impact of ICT in the community and aged care sector.

Professor Westbrook was elected as a Fellow of the American College of Medical Informatics (ACMI) in 2005, and is one of only three Australians to receive this honour. In 2014 she was named Australian ICT professional of the year by the Australian Information Industry Association for her research contributions. In 2015 she was appointed Associate Editor of the Journal of the American Medical Informatics Association (JAMIA). In 2016 she was appointed to the Board of the Australian Digital Health Agency.

PROFESSOR JEFFREY BRAITHWAITE
FOUNDATION DIRECTOR, AUSTRALIAN INSTITUTE OF HEALTH INNOVATION AND DIRECTOR OF THE CENTRE FOR HEALTHCARE RESILIENCE AND IMPLEMENTATION SCIENCE

Professor Braithwaite has contributed over 600 total publications presented at international and national conferences on more than 800 occasions, including
75 keynote addresses. His research appears in journals such as *British Medical Journal*, *The Lancet*, *Social Science & Medicine*, *BMJ Quality and Safety*, and *International Journal of Quality in Health Care*. He has received 32 different national and international awards for his teaching and research. Most recently, in 2015 he received the Health Services Research Award by Research Australia.

His research examines the changing nature of health systems, attracting funding of more than $91 million. He is particularly interested in health care as a complex adaptive system, and applying complexity science to health care problems.

Professor Braithwaite has appointments at six other universities internationally and he is a board member of the International Society for Quality in Health Care (ISQua) and consultant to the World Health Organization.

Professor Braithwaite is currently working on research on improving delivery systems, particularly examining patient safety, change, resilience and implementation science.

**PROFESSOR ENRICO COIERA**
**DIRECTOR OF THE CENTRE FOR HEALTH INFORMATICS AND DIRECTOR, NHMRC CENTRE FOR RESEARCH EXCELLENCE IN E-HEALTH**

Professor Coiera is an internationally recognised research leader in digital health and health systems science. He has a long reputation for opening up new avenues of research in his field, allowing others to follow and extend his work. He first made his reputation in the mid-1990s when he was arguably the first scientist in his field internationally to identify the huge potential of the world wide web for health service transformation, through a series of seminal papers in the British Medical Journal. His ground-breaking research into clinical communication for the first time outlined the interruptive, multitasking nature of clinical work and its implications for patient safety and technology design. He is a co-author of the seminal paper in digital health safety, published in the lead journal *JAMIA* in 2003, and which now is the highest cited paper in health informatics of all time.

He is a highly influential commentator on national e-health strategies, advocating strongly for rational policymaking based upon sound evidence. His work has translated into policy and practice changes for e-health safety, multiple patented inventions, and a US-based consumer e-health start-up company. He is author of one of the earliest textbooks on health informatics, now in its 3rd edition, widely used internationally, translated into several languages, and the receiver of an award by the British Medical Association.

In 2015 Professor Coiera won the highest international award for digital health—the IMIA Francois Gremy Award of Excellence. He was the founding president of the Australian College of Health Informatics in 2001, the first Australian Fellow of the American Medical Informatics Association and the first non-US Associate Editor of the peak Journal of American Medical Informatics Association—a position he held for over ten years. He has also been on the editorial board of numerous international health informatics journals and held positions on national and international councils and associations.

In 2000 he founded the Centre for Health Informatics, which is now Australia’s first, longest running and most successful digital health research organisation. With over 9900 citations, he has an H-index of 48 in Google scholar; 21 of these publications have more than 100 citations, 5 more than 300 and one is over 1400. He has over 200 journal articles, books, chapters, and conference presentations.
AIHI at a glance

33 GRANTS UNDER MANAGEMENT
- NHMRC 10
- ARC 2
- Other 21

125 STAFF
- Academic 44
- Professional 30
- Visiting 51

233 PUBLICATIONS
- Books 5
- Book Chapters 31
- Refereed Journal Articles 118
- Conference papers - Full papers 4
- Conference papers - Abstracts 75

24 EVENTS
- Seminars 22
- Conferences 1
- Symposium 1

19 POSTGRADUATE STUDENTS
Our centres

A Centre for Health Informatics
B Centre for Health Systems and Safety Research
C Centre for Healthcare Resilience and Implementation Science
Centre for Healthcare Resilience and Implementation Science (CHRIS)

WHAT WE DO

The Centre for Healthcare Resilience and Implementation Science (CHRIS) is reconceptualising healthcare systems research to build more resilient healthcare systems. The Centre aims to help stressed modern healthcare systems cope with concurrent challenges posed by the growing and increasingly complex care demands of ageing populations, rapid technological and organisational change and stretched healthcare budgets. The Centre pursues highly collaborative, multidisciplinary research into how our complex healthcare systems really work, and is pioneering new approaches to ensure research findings are translated into better care and more cost-effective care. By scrutinising the myriad, dynamic interactions between interconnected webs of clinical professionals, their patients and new healthcare technologies, communication systems and equipment, the Centre is committed to enhancing understanding the big picture of healthcare delivery.

In particular, the Centre is leading new organisational research into the multitude of factors that combine to produce system-wide resilience. Such resilience can be harnessed to ensure healthcare organisations are more resistant to costly contemporary challenges, such as medical errors and other iatrogenic harm, and are able to reduce waste, improve patient outcomes and save money into the future. The Centre is also scrutinising the processes of change to help ensure that many more research findings are translated in real world gains for patients, policymakers, healthcare providers and funding agencies.
COLLABORATION
OUR VALUED PARTNERS FOR 2015 INCLUDED:

National
ACT Government Health Directorate
Aged Care Standards and Accreditation Agency Ltd
Australian College of Health Service Management (ACHSM)
Australian Commission on Safety and Quality in Health Care (ACSQHC)
Australian Council on Healthcare Standards (ACHS)
Australian General Practice Accreditation Ltd (AGPAL)
Australian Health Insurance Association (AHIA)
Australian Healthcare and Hospitals Association (AHHA)
Australian Patient Safety Foundation (APSF)
Australian Research Council (ARC)
BUPA Health Foundation
Cancer Institute NSW (CINSW)
Children’s Health Queensland
Department of Health and Ageing
Department of Health Victoria
Liverpool Hospital, NSW
Motor Neurone Disease Research Institute of Australia
National Health and Medical Research Council (NHMRC)
National Health Performance Authority (NHPA)
Northern Sydney Medicare Locals
NSW Kids and Families, NSW Ministry of Health
Population Health and Health Services Research, NSW Ministry of Health
Prince of Wales Hospital
Royal College of Pathologists of Australia Quality Assurance Programs
Queensland Health
School of Public Health and Community Medicine, UNSW Australia
South Australian Health
St Vincent’s Hospital, Sydney
Sydney Children’s Hospital Network
The Australian Health Care Reform Alliance
The Clinical Excellence Commission
The Sax Institute, NSW
Townsville Hospital and Health Service
University of Melbourne
University of Queensland
University of Sydney
University of Technology, Sydney
UNSW Australia
Westmead Hospital

International
Aalborg University, Denmark
Canon Institute for Global Studies, Japan
Harvard Medical School, USA
Health Services Management Centre, University of Birmingham, United Kingdom
Imperial College, London
International Society for Quality in Health Care, ISQua, Ireland
Kings College, London
Medical Management Centre, Karolinska Institutet, Sweden
National Health Service, United Kingdom (various NHS agencies)
Shanghai Municipal Health Bureau, People’s Republic of China
Society for the Study of Organising in Health Care, United Kingdom
The London School of Hygiene and Tropical Medicine, UK
Universitat Autonoma de Barcelona, Spain
University College London
University of Edinburgh, United Kingdom
University of Leeds, United Kingdom
University of Manchester, United Kingdom
University of Southampton, United Kingdom
University of Southern Denmark, Institute of Regional Health Research
University of Florida, Health Science Center, Jacksonville
World Health Organization, Kobe Centre, Japan
A follow up study “CareTrack Kids” will, for the first time, determine the percentage of healthcare encounters at which Australian children receive evidence- and consensus-based care for 16 paediatric conditions and examine the frequency and types of adverse events involving Australian children. We aim to deliver a range of important outcomes in this highly significant research, which is overdue. As the landmark CareTrack Australia study revealed in 2012, Australians receive ‘appropriate’ healthcare in only 57 percent of consultations. Led by Peter Hibbert this research stream is building on CareTrack Australia’s findings to pilot new approaches to clinical standards and to explore digital platforms for their delivery. This stream aims to provide a new evidence base to reduce healthcare costs and improve care by helping clinicians to deliver the right care at the right time to the rights patients.

Much is made of the patient experience, but what does it mean to be the recipient of a long-term care plan, and what do we know of patients’ experiences of consultations where important, often life-changing conversations take place? How do patients respond to an unexpected diagnosis or a prognosis of long-term ill health, and how would patients wish to be better supported during these interactions? Associate Professor Frances Rapport’s work, driving the Implementation Science stream, employs qualitative and multi-method approaches to address health services research questions through clinical trials, exploratory and complex study designs. The research aims to clarify the social, emotional, and physical determinants of ill-health. Current studies are being undertaken in: chronic conditions treatment, the negotiation of risk in cancer, and the impact of rehabilitation on patients’ quality of life. The Implementation Science stream aims to include patients, carers and clinicians in decision-making and negotiated care, and to combine data sources such as interviews, consultation fora, and large-scale surveys, to ensure rich data translates into practice.

While the rate of medical error remains stubbornly high at around 10 per cent in modern hospital systems, there are considerable untapped opportunities to improve care by turning our attention to what healthcare systems do well. Instead of focussing on why systems sometimes fail, resilience science seeks to understand how dynamic and highly complex organisations and systems, like healthcare, usually get things right. Successful approaches to improving care also consider human factors, or how healthcare professionals interact with their work environment. The Human factors and Resilience stream is pioneering a new approach to understanding the many factors that underpin the delivery of high-quality care despite the challenges of large, complex interacting networks of various health professionals, stretched budgets and rapid technological change.
This research stream seeks to investigate how to stimulate sustainable quality improvement activities, the outcomes from these activities and mechanisms to integrate research evidence into practice and policy. The research stream is theoretically located at the intersection of improvement and implementation sciences. The research has a multi-level focus of healthcare, complex adaptive systems, health services and the organisation of clinical practice. The research aims to derive evidence to improve organisational functioning, service delivery and patient outcomes.

Improving the delivery of safe, evidence based care requires healthcare professionals to change their behaviour. Whilst behaviour change is complex, it is entirely possible. The application of behaviour change methods to design interventions can transform healthcare organisations and improve patient outcomes. Co-design with key stakeholders can enhance intervention generalisability across different contexts, and the translation of effective approaches from research into practice. One current example of this is the use of behaviour change and implementation science methods to improve the detection of colorectal cancer patients with a high risk of carrying hereditary cancer genes. This translational project, Achieving behaviour change for identification of Lynch Syndrome and prevention of cancers, aims to improve genetic testing referral rates of colorectal cancer patients with high-likelihood risk of Lynch syndrome through working with clinicians to co-design evidence based interventions to address key psychosocial barriers to changing clinical practice.

Examining health outcomes following the provision of health care can be instrumental in guiding where improvements need to be made in health service delivery and health policy. Associate Professor Rebecca Mitchell is leading a programme of research aimed at identifying where systems improvements need to be made. The health outcomes stream is conducting large-scale, population-based studies in the areas of paediatric trauma, dementia and care transitions, unwarranted clinical variation, and a case-control study of adult injury and health service use. By identifying different types of factors that are associated with an increased risk of care complications, along with any variation between service providers, Associate Professor Mitchell and colleagues are developing targeted strategies with the aim of lowering the incidence of complications and improving health outcomes.
Building resilient healthcare systems

When it comes to healthcare, solving problems has often been done using models developed for other industries. However, Dr Robyn Clay-Williams is taking a different approach in her work: to build resilience in healthcare systems by learning from what works well in healthcare itself.

“Resilient systems function safely even when stretched,” explains Dr Clay-Williams, a Research Fellow in the Centre for Healthcare Resilience & Implementation Science (CHRIS). “We propose that there are ‘10Cs’ that underlie organisational resilience – including culture, compliance, challenges and constraints – and these combine in different ways depending on the setting.”

She has been studying Townsville Hospital’s highly resilient intensive care unit, in collaboration with Townsville clinicians including Associate Professor Andrew Johnson and Dr Paul Lane. Thousands of kilometres from the next available ICU in Brisbane, and it has to accept all patients in need, who can come from the emergency department, elective surgery, or the wards.

“The only thing the hospital can control is patients coming for elective surgery, which starts at 7.30 am. Previously, however the ICU team didn’t know how many beds they would have available that day until after consultants visit at 8.30, which meant nurses were having to make decisions, and people across the hospital were becoming stressed from the constant uncertainty.”

To overcome this issue they developed a traffic light system that would predict the ICU’s capacity much earlier in the day, before elective surgery commences. A red status means all elective surgery requiring ICU beds is postponed, amber means that extra coordination is required across the hospital to free up beds, and green allows additional elective surgery to be scheduled.

“In the case of Townsville Hospital, eight out of the ten resilience ‘Cs’ had been applied, resulting in improved operational planning and better patient outcomes. “We’re now looking at how that model can be rolled out in other settings.”

Working with a team including Professor Jeffrey Braithwaite and Dr Natalie Taylor, Dr Clay-Williams is also undertaking a broad study to help better understand the quality of care patients experience in the health system.

“After decades of improvements to the health system, patients still receive care that is highly variable, frequently inappropriate, and too often, unsafe, and we don’t have a deep enough understanding of how particular hospital quality processes and systems impact patient outcomes.

“This limits our ability to affect large-scale change.”

A study, known as DUQuE, was recently undertaken in Europe that examined the relationships between quality management systems (QMS), clinical processes, and patient outcomes in 188 hospitals across seven countries. Professor Braithwaite, Dr Taylor and Dr Clay-Williams will extend this project to 60 hospitals across Australia. Called DUQuA, it will enable them to benchmark quality issues and outcomes across the sample of Australian hospitals, and also against those in the European study.

“Specifically, we hope to determine how both hospital level and department level factors are related to patient factors for stroke, acute myocardial infarction (AMI), and hip fracture patients,” Dr Clay-Williams says.

“By doing this we hope to develop a deeper understanding of the quality management systems in our hospitals and hospital departments, as well as healthcare leadership and culture, and how these impact on care processes, patient perceptions, and patient outcomes.

“From this an evidence base can be created to inform individual hospitals about the specific factors which affect processes and outcomes for their patients, and tailor quality improvement interventions.”

CONTACT:
Dr Robyn Clay-Williams
E: robyn.clay-williams@mq.edu.au
Reducing poisoning among dementia patients

Dementia patients frequently find themselves in hospital, most commonly due to injury through falls and poisoning. With dementia an increasingly significant health issue, AIHI psychologist and injury epidemiologist Associate Professor Rebecca Mitchell is exploring ways to both prevent injury and improve the experience and care received by dementia sufferers in hospital.

“Previous research identified that injury was a common cause of hospitalisation for people with dementia. This study, funded by the Dementia Collaborative Research Centre (DCRC), examined poisoning, which was one of the most common injury mechanisms for people with dementia,” Associate Professor Mitchell explains.

“We wanted to examine poisoning-related hospitalisations of older individuals with and without dementia to see if there were any differences in the profile of hospital admissions and in the incidence of these types of hospitalisations.”

One of the most common causes of poisoning among dementia patients was inadvertently taking too much medication used to combat Alzheimer’s disease or too many antihypertensive drugs.

“It’s unintentional”, she says. “Older people have complicated medicine regimes and there is a risk of mixing medications, taking the wrong dose at the wrong time or forgetting that medicine has already been taken.

“Even blister packs, where medicines are sorted by the time of day when they are due to be taken are not infallible, because people still have to remember to take the medicine at the right time.”

The research team has completed the analysis of poisoning-related hospitalisations and Associate Professor Mitchell says one of their next steps is to explore ways to prevent unintentional poisoning for people with dementia, such as by having family members and carers become more involved in dispensing medicine.

“It could be an obvious way of decreasing the risk of poisoning, but there are issues, such as people living on their own, or without family members nearby, that need to be addressed here as well.”

CONTACT:
Associate Professor Rebecca Mitchell
E: r.mitchell@mq.edu.au
Centre for Health Systems and Safety Research (CHSSR)

WHAT WE DO

The Centre for Health Systems and Safety Research 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, even in the face of growing budgetary pressures and the many challenges of co-morbidities in ageing populations. In healthcare systems, rapid advances in ICT and biomedical technology are transforming the way clinicians and support staff work, as older information management systems and procedures are replaced by newer ICT-enabled models of healthcare delivery. Telemedicine applications, for example, allow care to be delivered in the community outside large hospitals, while sophisticated information systems now support the decisions clinicians make at a patient’s bedside. Information technology represents a potentially powerful tool for driving systems-wide improvements. Consequently, healthcare systems across the globe are making multi-billion dollar investments based on this promise. Yet until recently little attention has been paid to whether new ICT-enabled processes and systems are performing as expected or if they may also pose unanticipated risks.

CHSSR’s internationally-recognised research is filling this gap. Our health informatics evaluation research team—Australia’s largest—designs rigorous, innovative ways 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 safety and quality in healthcare.

By forging innovative partnerships with our national and international peers from many disciplines—and with information industry leaders and health practitioners, administrators and policymakers—we can ensure our work can be readily translated to inform ICT systems design and decision-making for better, more cost-effective healthcare.
COLLABORATION
OUR VALUED PARTNERS FOR 2015 INCLUDED:

National
Alcidion, Australia
Austin Centre for Applied Clinical Informatics, Melbourne
Austin Hospital, Victoria
Australian Association of Clinical Biochemists
Australian Catholic University
Australian Commission on Safety and Quality in Health Care
Australian Patient Safety Foundation
Campbelltown Hospital, NSW
Cancer Institute of NSW (CINSW)
Clinical Excellence Commission
Concord Repatriation General Hospital, NSW
Deakin University, VIC
Department of Health and Ageing / Department of Health, Canberra
eHealth NSW
Flinders University
HealthConsumers NSW
Healthdirect Australia
HTR Business and Technology Services Pty Ltd
LaTrobe University, VIC
Liverpool Hospital, NSW
Mater Health Services, QLD
Mater Hospital, QLD
National e-Health Transition Authority (NeHTA)
National Health Foundation
National Prescribing Service
NSW Health Ministry
NSW Health Pathology
NSW Health Pathology North
NSW Health Pathology West
NSW Kids and Families
Prince of Wales Hospital, NSW
Royal Adelaide Hospital, SA
Royal Australian and New Zealand College of Radiologists
Royal College of Pathologists of Australasia Quality Assurance Programs
Royal North Shore Hospital, NSW
Royal Prince Alfred Hospital, NSW
South Eastern Area Laboratory Services, NSW (SEALS)
St Vincent’s Hospital, NSW
Sydney Children’s Hospital Network
Sydney Local Health District
Sydney South West Pathology Services
UnityCare Ageing, NSW & ACT
University of Adelaide
University of Melbourne
University of Newcastle
University of Northern Sydney
University of Southern Queensland
University of Tasmania
University of Technology Sydney
University of Western Sydney
UNSW Australia
Western Sydney Local Health District

International
Albert Einstein College of Medicine, US
Alvarez & Marsal Business Consulting, US
American Medical Association
Canterbury District Health Board, New Zealand
Coastal Carolina University, US
Dartmouth-Hitchcock Medical Centre, US
Harvard Medical School
Indiana University, US
Kuopio University, Finland
London School of Economics
Montefiore Medical Center, US
Patient Safety Research Laboratory, Italy
Portsmouth University, UK
Swiss Patient Safety Foundation, Switzerland
Sysmex New Zealand Ltd
University of Alberta, Canada
University of Birmingham
University of Edinburgh
University of Leeds, UK
University of Lille, France
Vanderbilt University School of Nursing, US
Veteran Affairs Hospital, Houston, Texas, USA
Vision and Eye Research Unit (VERU), Anglia Ruskin University, UK
Western Cape Government, South Africa
Worcestershire Acute Hospital NHS Trust, UK
Key research streams

**Pathology and Imaging Informatics**

Professor Andrew Georgiou
andrew.georgiou@mq.edu.au

Pathology and medical imaging services perform a major role in the delivery of patient care by ensuring reliable and accurate results are delivered in a timely fashion to inform clinical management decisions. Over the last three decades there has been considerable growth in the number of requests for pathology, and medical imaging services. Our research is investigating the use and impact of electronic pathology and imaging systems to improve the appropriate and efficient use of pathology and imaging services in hospitals. Topics of investigation include the impact of IT systems on improved laboratory test turnaround times, and the follow-up and management of test results to inform decision-making.

**Human Factors Evaluation and Design**

Dr Melissa Baysari
melissa.baysari@mq.edu.au

Human factors studies the design of systems with the aim of improving interactions between people and their environments. Our research examines how well, or otherwise, ICT systems fit in with the work of doctors—specifically, computerised decision support for prescribers, including pre-populated orders, online resources, and electronic alerts. Observing systems in operation, we found nearly half the prescriptions triggered an alert, but most of these were dismissed—a reaction which undermines the system’s effectiveness. Current work, which incorporates organisational analysis, focuses on designing effective decision support. This research stream, led by Dr Melissa Baysari, is working towards designing resilient systems that can adapt and function effectively in the event of a disturbance.

**Medication Safety and eHealth**

Professor Johanna Westbrook
johanna.westbrook@mq.edu.au

Medication error and inappropriate medication therapy are two of the oldest, most costly and least tractable safety problems which health systems face. Information technology has the potential to make medication management safer and more effective. With that expectation, health systems worldwide are making vast investments in information technology. Our research is investigating the ways in which information technology can reduce medication errors and support improved medication therapy decisions and outcomes. This includes research on the design and use of electronic decision support systems.
Understanding the way clinical care is delivered is central to supporting effective and safe delivery models including the design of new models. Applying novel measurement techniques, the Centre has undertaken leading research investigating the impact of interruptions on error production and patient safety. Information and communication technologies (ICT) provide an 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 have included investigation of the relationship between interruptions to work and error, 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.

The field of patient safety in primary care is an emerging research area which encompasses a broad range of settings and themes. There is limited scientific evidence of the risks to patient safety in primary care settings, although there is some understanding that the provision of primary healthcare from a safety perspective could be greatly improved. eHealth is integral to many of our daily processes in the delivery of safe primary healthcare in Australia and other countries with a similarly developed healthcare system - it is a major component in the interface of primary care with secondary and tertiary healthcare settings. We are currently conducting projects that are defining the nature of threats to patient safety in primary care, and examining interventions that reduce these threats. We are investigating the use of eHealth in primary care settings, including electronic clinical information systems, My Health Record, secure messaging and electronic medication management and decision support systems.
Exploring the gap between GP and aged care facility medication charts

For residents living in residential aged care facilities (RACF), having their GP come to them is an important part of their health care. Residents’ medication charts are kept up to date at their facilities, however, when a change needs to be made by their doctor, this presently requires a duplication back at their GP’s practice record system. If this doesn’t occur, often due to time constraints, these changes are not reflected in the records at the GP’s office, which could create a risk to patient safety in an emergency.

“Ideally a GP’s medication list for their RACF patients at their practice is up to date and the same as the aged care facility, but this is not always the case and may be due to things like time pressures or simply remembering to make those alterations again at the other location,” explains Associate Professor Meredith Makeham from the AIHI Centre for Health Systems and Safety Research.

Associate Professor Makeham, whose research focusses on the impact of digital health initiatives on patient safety, has recently undertaken a large research study known as the General Practice and Residential Aged Care Concordance of Medications (GRACE-Med) Study, which compared the information held in GPs’ records with that held by aged care facilities.

“We analysed the differences in over 5000 medication orders, and how much of a risk these differences posed to patient safety. We found that the majority of orders contained a difference, and around 20 per cent of the differences involved a high risk medicine for these residents.”

Associate Professor Makeham says that many clinicians in primary and secondary care are probably aware that the GPs’ medication records may not match those held by residential care facilities, and take steps to confirm medication lists when a patient is admitted to hospital, for example. “But it’s really important to improve our understanding of how large this medication gap at our general practices really is, and the level of risk it poses for these residents, particularly as we move toward using more digital health tools like Shared Health Summaries that might be generated from our GP practice software. She says the qualitative findings of the study are also highlighting the fact that busy GPs, whose intention it is to keep their records up to date, are facing a number of barriers to achieving this, and digital health may have a large role to play in developing solutions to reduce these medication record differences.

“Our focus is on reducing avoidable threats to patient safety. Hopefully this study will provide baseline evidence needed to help drive digital health improvements in aged care. We need to try to automate changes to medication records in aged care facility and GP systems, to reduce the risk for these residents from a safety point of view.”

This research is funded by the National eHealth Transition Authority (NEHTA).

CONTACT:
Associate Professor Meredith Makeham
E: meredith.makeham@mq.edu.au
Testing the limits

In hospitals many tests are ordered, from pathology to X rays and other medical imaging, but reviews have found that results aren’t followed up for between 20 and 62 percent of inpatients and up to 75 percent of emergency department patients – with some potentially life-threatening consequences.

Professor Andrew Georgiou from the Centre for Health Systems and Safety Research says that a 2011 NSW Clinical Excellence Commission review showed that 11 percent (3/27) of reported clinical incidents resulting in patient harm (including patient death), and 32% (24/75) of clinical incidents with major consequences for patients, were related to poor test result follow-up.

“Some results take longer than others to become available and patients either in the emergency department or on the wards may be sent home before all results arrive,” he says.

“Unless there is a follow-up mechanism, such as a designated officer whose job it is to check results received after a patient has been discharged, then the results may go unread.” A doctor may also order tests and finish their shift with the doctor taking over unaware that the tests have been ordered, so they don’t get followed up.

“There is a collaborative responsibility to review and take any necessary action on this information, but it often doesn’t happen,” Professor Georgiou says.

To overcome this issue, Professor Georgiou’s team are undertaking a five-year study into how information is communicated in hospitals. It includes identifying existing lines of communication as well as what protocols need to be established to ensure that information is clearly communicated, particularly when the results may be critical to the patient’s wellbeing.

“For example, if there is a sudden change in a patient’s test results, the pathology department (for example) needs to first recognise that there is an issue, then contact the doctor straight away. If that doctor is not available, then the pathology department needs to know who else they can contact to ensure the information is passed on.

The study is also exploring how both IT and patients themselves can help ensure results end up in the right hands.

“Paper is cumbersome, so we are looking at ways to design system alerts that will help smooth the passage of information around the healthcare system.

“We are also looking at patients; why they aren’t notified and what role they see themselves playing,” he explains, adding that in the US, some hospitals offer a patient portal, where patients can access their electronic health records and make appointments to discuss those results.

“For that to work, we have to make those results meaningful, by improving patients’ health literacy and establishing patients as partners in their own care.

“Once our study is complete we will put out guidelines and frameworks that will allow hospitals to audit their own communication lines and develop protocols that are appropriate to their needs, which may vary considerably between the emergency department and the wards.”

This research is funded by an NHMRC Partnership Projects Grant with partners, Sydney Eastern Area Laboratory Service (SEALS) and Australian Commission on Safety and Quality in Health Care. Chief investigators: Georgiou A, Westbrook JI, Greenfield D, Horvath A, Wakefield D, Li L, Hillman K.

CONTACT:
Professor Andrew Georgiou
E: andrew.georgiou@mq.edu.au
Centre for Health Informatics (CHI)

WHAT WE DO

The potential for information and communication technology (ICT) to change the ways healthcare systems work is enormous. In some settings its effects will be incremental; in others, radical. Some of the changes are easy to predict; others are clouded in uncertainty. At Macquarie University, the Centre for Health Informatics (CHI) within the Australian Institute for Health Innovation, focuses on studying the many facets of this process in all its complexity.

CHI is the largest academic group in Australia researching the emerging discipline of health informatics, and is building an international reputation as a research leader in the application of information technology to healthcare. Its principal aim is to map the complex organisational systems that shape today’s health systems and to design and evaluate rigorous, system-wide interventions that provide a sustainable platform for future healthcare systems in areas including intelligent search systems, safety models and standards, communication systems, and the application of data mining to healthcare.

Our work at CHI is of direct relevance to clinicians, administrators and policy makers at all levels of government. Consequently, CHI is a highly collaborative research centre working in partnership with major healthcare providers, research institutions and governments, including the NSW Department of Health, the National Institute of Clinical Studies and the Commonwealth Department of Health.
**COLLABORATION**

**OUR VALUED PARTNERS FOR 2015 INCLUDED:**

**National**
- Austin Hospital, Melbourne
- Australian Commission on Safety and Quality in Health Care
- Australian Patient Safety Foundation, South Australia
- Blackdog Institute, UNSW
- Centre for Healthcare Resilience and Implementation Science, MQ
- Centre for Health Systems and Safety Research, MQ
- Centre for Infectious Diseases and Microbiology, Westmead Hospital, NSW
- Centre for Research on Evidence Based Evidence, Bond University, Queensland
- Clinical Excellence Commission, NSW
- Clinical Trials Centre, Sydney University
- Department of Computing, MQ
- Flinders University, South Australia
- The George Institute, Sydney
- The Kirby Institute, UNSW
- Macquarie University Hospital, MQ
- Prince of Wales Hospital, Sydney
- Royal Hospital for Women, Sydney
- St Vincent’s Hospital, Sydney
- School of Computer Science and Engineering, UNSW
- School of Public Health and Community Medicine, UNSW
- Simpson Centre for the Health Services Research, UNSW
- South Australia Health
- South Western Sydney Local Health Network, Cancer Services
- Spokade Pty. Ltd. Sydney
- Sydney South West Area Health Service General Practice Unit
- University of Adelaide, SA
- University of Melbourne, VIC
- University of Sydney, NSW
- University of Technology, Sydney (UTS), NSW
- University of Western Sydney, NSW
- UNSW Australia
- UNSW Counselling and Psychological Services, UNSW
- UNSW Health Service Clinical Research Unit for Anxiety and Depression (CRUFA), UNSW
- Westmead Hospital, Sydney

**International**
- Aalborg University, Denmark
- Biomedical Research Centre, Stanford Medicine
- Danish Centre for Health Informatics, Department of Development and Planning, Aalborg University, Denmark
- Harvard Medical School, USA
- Indraprastha Institute of Information Technology (IIIT), Delhi, India
- Johns Hopkins University, USA
- Schizophrenia Cochrane Review Group, Nottingham Universisy, UK
- Medical Informatics Research Centre, Ben Gurion University of the Negev, Israel
- Université de Lille Nord de France, France
- University of Applied Sciences Weihenstephan-Triesdorf, Bavaria
- University of Texas – Memorial Hermann Center for Healthcare Quality & Safety, Houston, Texas, USA
- University of Tromso, Norway
Key research streams

Health informatics and e-health enables Australia’s health system to benefit from the digital revolution and translate advances into effective working health services. Led by Professor Enrico Coiera, the research conducted enables improved clinical outcomes and efficiencies to ensure our health system is sustainable. New tools are being created to support self-management and new ways of collaboratively engaging with health services to improve patient outcomes are being investigated. Professor Coiera also leads the NHMRC Centre of Research Excellence in e-health which targets major evidence gaps in the safety and quality of clinical and consumer e-health systems.

The use of information technology (IT) or digital health is revolutionising care delivery. Our research is focussed on monitoring the patient safety risks of digital health using reports of critical incidents and automated methods for surveillance of IT systems. By better understanding the origins of these risks, problems can be detected early and we can mitigate hazards ahead of harming patients. We are also investigating models for the safety governance of digital health. In 2015 our classification for IT safety was endorsed by the American Nursing Informatics Association, and was used by the US Joint Commission to investigate 120 sentinel events and to formulate national guidelines. A/Prof. Magrabi received the Sax Institute Research Action Award in recognition of the international impact of her research on policy and practice to improve health IT safety.

The Health Analytics Lab focusses on developing and testing new analytic tools to support learning health care systems. The availability of digital biomedical data and the ability to collect, store and analyse has transformed healthcare into a learning system which delivers information in real time at the point of care. The Lab, led by Dr Gallego Luxan is developing and testing models of such learning systems for future electronic health record systems, providing clinical decision-support systems which impact on patient safety and quality of care. Our core strength lies in the combination of deep analytic and computing theory and methods with understanding of clinical decision support systems.
The Computable Evidence Lab (CEL), led by Dr Guy Tsafnat, researches, develops and tests software tools that help clinicians make effective and evidence-based decisions. Collectively the team focusses on three main areas. One: Developing tools that synthesise evidence from the literature using computational linguistics and machine learning. Two: Automating evidence synthesis by integrating individual synthesis tools into synthesis workflows that automatically keep the evidence up-to-date at all times. Three: Integrating evidence from multiple sources such as the literature, clinical records, genetics and other sources.

The Evidence Surveillance team develops new ways to measure and mitigate biases in evidence-based medicine, spanning the entire process of evidence-based medicine from the design and undertaking of clinical trials through to the representation of evidence in the public domain. The team have expertise in data mining, clinical epidemiology, network science, and machine learning. In 2015, the team researched new methods to support the automatic detection of reporting biases in clinical evidence and used a new system of evidence surveillance to sample health information consumption on Twitter, which will be used to support public health practices.

Dr Annie Lau leads the Consumer Informatics team which focusses on those with the highest stake in our healthcare system—patients and healthcare consumers. Her research program investigates the ‘impact’, ‘design’, and ‘science’ of Information and Communications Technology (ICT) on consumers, patients and their carers. The team have developed Healthy.me, a research platform which allows individuals to connect with health services, peers, information sources, and tools to manage their health together with a mobile app for self-management and consumer engagement. They are also researching how patients and consumers use social media for health purposes (i.e. e-health sociology), and examining ways for “social network intervention” to change the network around us to achieve better health outcomes.
Understanding health informatics’ inherent risks

The use of information technology (IT) or digital health is revolutionising healthcare, with 97 per cent of GPs using electronic records systems and IT systems playing a mission-critical role in hospitals.

“IT has the potential to bring many benefits to quality and safety but we need to understand the risks as well,” explains Associate Professor Farah Magrabi, who leads the Centre for Health Informatics’ research program on Patient Safety Informatics.

Her team has pioneered the study of IT-related harms by looking at different data sets from both Australia and overseas to help identify the role IT plays in patient safety risk.

“We have made a major contribution to documenting the risks of IT to patient safety by examining incidents in Australia, the USA and England,” she adds. “From our analysis of IT safety events, we have developed a new classification system for IT risks. This has become the de facto international standard for analysing IT safety events.

“Our work is also shaping policy to govern IT safety in Australia and overseas.”

Risks arise when technology does not work as intended, for example, when a prescribing system fails to display important allergy information, patients can be harmed.

Risks also arise when technology does not fit with our bodies or cognitive abilities.

“Our analyses of safety events across England over a five-year period revealed that human factor issues were over-represented in the events involving patient harm.”

For example, if prescribing systems require users to scroll through too many options, or they are not arranged intuitively, then patients may be prescribed the wrong medication simply through a pick list error.

“How many times have you hit the send button on your email and said ‘oops’, or mistakenly picked the wrong option when shopping online? It’s easy to do, but when that happens in health there can be real consequences,” she says.

Associate Professor Magrabi says that risks inherent in IT are also different from other sources of risk.

“A safety incident such as a fall is usually confined to one patient, but an IT incident has the potential to expose multiple patients to the risk of harm.”

“In 2015 for example, an IT system failure affected hospitals across an Australian state. We know from our analysis of UK data that such events can disrupt the delivery of care and harm patients.”

It’s an issue we need to take seriously, she adds. “We need to be actively managing the risks of digital health alongside our efforts to introduce technology.”

“By better understanding the origins of this risk, problems can be detected early and we can mitigate hazards ahead of harming patients.”

CONTACT:
Associate Professor Farah Magrabi
E: farah.magrabi@mq.edu.au
In a time when information about just about anything is available to anyone with a computer, bias and conflicts of interest have the capacity to cause unintended harm in the wider community.

Dr Adam Dunn, a Senior Research Fellow in the Centre for Health Informatics, is looking at how conflicts of interest bias research. He is using publicly available government grant funding databases to study the differences in what people said they were going to study, what they actually studied, and their published results – or whether they elected not to publish.

“‘We’re also looking at the system to examine how clinical evidence is produced, how that evidence is then synthesised in reviews and how that information is then communicated to the public and makes its way into practice,’” he explains.

“Our goal is to help make it easier for people to judge the information they read.”

He says they are also trying to understand the ‘information diets’ of people in different cities and countries.

“We’re doing this by setting up ‘rain gauges’ for different communities that will collect information in the form of news and social media. We will then be able to compare information and misinformation, around vaccinations, for example, and look at how that affects people’s decisions.

“We know that there are places in California and the North Coast of NSW where people are basing their decisions on misinformation.

“If we understand what information people are consuming then we can develop appropriate materials to help give them an evidence-based perspective,” he says, adding that despite the antivaccination movement attracting a lot of media attention, lack of access to healthcare is the primary cause of people missing vaccinations.

“We need to be careful about monitoring health information available online and understanding how it impacts people’s behaviour,” Dr Dunn adds. “No matter how well we do medical research, the useful health information being produced can often be drowned out by less credible sources of information.”

CONTACT:
Dr Adam Dunn
E: adam.dunn@mq.edu.au
AIHI’s large scale research initiatives

CARETRACK KIDS: A $2.5 MILLION RESEARCH PROJECT INVESTIGATING THE QUALITY AND SAFETY OF CHILDREN’S HEALTHCARE

CareTrack Kids, will, for the first time, determine the percentage of healthcare encounters at which Australian children receive evidence- or consensus-based care for 19 paediatric conditions (e.g. asthma, diabetes, upper respiratory tract infections, gastroenteritis, and attention deficit hyperactivity disorder) during 2012-2013 and examine the frequency and type of adverse events involving Australian children. In addition, we will run an intervention study to evaluate asthma control, using contemporary smartphone technology, and consumer engagement.

The AIHI, through Macquarie University and the University of South Australia is leading an international research team funded by National Health and Medical Research Council (NHMRC), and partnership contribution from Bupa Health Foundation, Sydney Children’s Hospitals Network (SCHN), NSW Kids and Families, Children’s Health Queensland, the South Australian Department of Health, and the NSW Clinical Excellence Commission. The research is also supported by the Australian Commission on Safety and Quality in Health Care.

The Chief Investigators leading the research are Professor Jeffrey Braithwaite (AIHI), Professor Adam Jaffe (UNSW, SCHN), Professor Les White (Office of Kids and Families, SCHN, UNSW), Professor Christopher Cowell (SCHN), and Professor Mark Harris (Centre for Primary Health Care and Equity, UNSW). In addition Associate Investigators and an International Advisory Group are contributing, creating a strong synergistic collaboration between researchers, policy makers, the Australian Government, private health sector, safety and quality specialists, paediatricians and general practitioners.

We aim to deliver a range of important outcomes in this highly significant research, which is overdue, internationally relevant, and supported by all relevant national and international communities. It will garner new knowledge about health care delivery systems and provide baseline data on appropriate care for common paediatric conditions. The rate and extent of adverse events in children will be identified. CareTrack Kids will embrace methodological extension and innovations in research of this kind, including demonstrating the use of a wiki process for indicator assessment and a novel smartphone intervention. This work will create substantial information of value to national international researchers, policymakers, patient groups and practitioners.

CareTrack Kids has obtained ethics approvals from all relevant bodies and has run a pilot data collection process in two states. A web-based system that was used to collect data in CareTrack Australia has been modified for use in CareTrack Kids. Data collection for the main part of the study commenced in January 2016.
A $10.8m CHALLENGE: TRANSLATING RESEARCH INTO BETTER CARE

AIHI is working to reshape the future of healthcare in Australia and internationally by moving beyond conventional small-scale, localised efforts to build theoretically sound new approaches that achieve systems-wide change. Backed by a $10.8m NHMRC grant, the third largest Program Grant announced in 2012, the AIHI team and their international partners are focussing on the translational challenge for healthcare. That is, how we can implement sustainable, large-scale improvements across complex, dynamic healthcare systems.

Despite decades of research effort, patients in modern healthcare systems still receive care that is highly variable, frequently inappropriate and all too often unsafe. Although there is widespread agreement among clinicians, academics, policy-makers and funding bodies that a breakthrough is urgently needed, progress has been frustratingly slow. This is in large part because we do not yet understand the foundational processes of translating evidence into practice.

Five research streams are investigating and deploying effective, transferrable approaches to translating evidence into better clinical practice, while concurrently building our knowledge of the theory and science of implementation.

ADAPTIVE ANALYTICS

Employing emerging ‘big data’ methods to develop evidence-based clinical indicators for system feedback and to test their power to predict patient risk.

END-OF-LIFE CARE

Understanding the collaborative decision-making processes between patients and clinicians and extent of inappropriate or futile treatments being offered to end-of-life patients.

LEVERAGING E-HEALTH

Focussing on medication orders using electronic systems across aged care, primary care and hospital settings.

CONSUMER MOBILISATION

Overcoming barriers to engagement by both consumers and healthcare providers in monitoring and improvement processes.

IMPLEMENTATION SCIENCE

Unravelling how context shapes effective implementation by applying an explicit translational model to our improvement strategies (1-4 above), and by executing an international study assessing complex adaptive ecosystems in a collaborative project with eight countries in Europe.
In the last 12 months our research has focussed on three main areas.

1. **Consumer e-health**
2. **Decision support**
3. **E-health safety**

We’ve developed a number of tools to support health management, clinical decisions and monitor problems with patient care.

**OUR TOOLS ARE AVAILABLE FROM EHEALTH.EDU.AU AND ARE:**

- **Healthy.me** is a personal health management system which allows individuals to connect with health services, peers, information sources, and tools to manage their health. Currently it is a research platform available in web-based and mobile app platform (iOS, Android).

- **Quick Clinical** is a federated meta-search engine. This means that it does not search the literature like a regular search engine. Rather, Quick Clinical connects to several search engines, queries each one in parallel, and collates the results.

- **TechWatch** is an online system for general practitioners to monitor problems with e-health in general practice that are creating risks for patient care.
Key events

AIHI RESEARCH SYMPOSIUM 2015
The relocation to Macquarie University of the AIHI – Australia’s foremost healthcare systems research institute – has opened up new opportunities for academic and industry collaboration across a wide range of multi-disciplinary research projects. With healthcare now close to 10% of GDP in most advanced economies, the AIHI is pioneering innovative new models and approaches to help healthcare providers and governments simultaneously improve patient outcomes, prevent medical errors and reduce costs. The AIHI’s first symposium, held in March 2015 at Macquarie University, introduced the university’s researchers and industry representatives to the Institute’s nationally and internationally significant health systems research, such as the ground-breaking CareTrack Australia project.

The Symposium was attended by over 150 participants from within Macquarie University and many organisations representing healthcare and education ranging from; hospitals, medical device companies, health and aged care providers, pharmaceutical and medical technology companies and universities.
RESILIENT HEALTH CARE: MOVING FROM SAFETY-I TO SAFETY-II

This one-day conference brought together a faculty of leading international experts in the field of patient safety. With just over 100 participants registered for this event, held at the Manly Novotel Hotel, the day was a highly interactive event, with keynote talks, panel discussions and group work.

Participants who attended this event left with:

- a better understanding of the way international focus on patient safety is changing to include everyday clinical work as a whole, complementing existing effort focussing on things going wrong.
- a greater ability to identify new methods for keeping patients safe in a constantly changing environment.
- new perspectives, ideas and plans for building a safer environment for patients under care.

The speakers were:

- **Professor Erik Hollnagel**, Denmark and lead editor of Resilient Health Care, 2013 and author of Safety-I and Safety-II: The past and future of Safety management, 2014;
- **Professor Robert Wears**, USA, and lead editor of the Resilience of Everyday Clinical Work, 2015 and Research Professor at the University of Florida;
- **Professor Jeffrey Braithwaite**, Australia, and lead editor of Reconciling Work-As-Imagined and Work-As-Done, 2015 and Health Reform, Quality and Safety: Perspectives, Participants, Partnerships and Prospects in 30 Countries, in press;
- **Dr Lacey Colligan**, USA, and founder of Sharp End Advisory, LLC and an expert in pediatric and intensive care;
- **Dr Janet Anderson**, UK, Research fellow in the Patient Safety and Service Quality Research Centre, King’s College;
- **Dr Robyn Clay-Williams**, Australia, research expert in aviation, human factors and organisational resilience;
- **Dr Paul Lane**, Australia, Deputy Director, ICU The Townsville Hospital, Medical Director, The Townsville Skills Centre and co-designer of the Townsville Ten Cs resilience model; and
- **Associate Professor Andrew Johnson**, Executive Director Medical Services at the Townsville Hospital and Health Service and co-designer of the Townsville Ten Cs resilience model.
Financial highlights

Revenue

- Australian Research Council: 5%
- National Health and Medical Research Council: 46%
- Government grants: 6%
- Partner funding: 26%
- Contract research: 17%

Expenses

- Employee related expenses: 85%
- Consultants and contractors expenses: 4%
- Staff development and training, travel and entertainment: 4%
- Other expenses: 3%
- Repairs and maintenance: 4%
Our staff

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACADEMIC STAFF</strong></td>
<td></td>
</tr>
<tr>
<td><strong>DIRECTORS/PROFESSORS</strong></td>
<td></td>
</tr>
<tr>
<td>Braithwaite, Jeffrey</td>
<td>Director AIHI and CHRIS</td>
</tr>
<tr>
<td>Coiera, Enrico</td>
<td>Director CHI</td>
</tr>
<tr>
<td>Westbrook, Johanna</td>
<td>Director CHSSR</td>
</tr>
<tr>
<td><strong>ASSOCIATE PROFESSORS</strong></td>
<td></td>
</tr>
<tr>
<td>Callen, Joanne Leighton</td>
<td>Honorary Associate Professor, CHRIS</td>
</tr>
<tr>
<td>Georgiou, Andrew</td>
<td>Associate Professor, CHSSR</td>
</tr>
<tr>
<td>Greenfield, David</td>
<td>Associate Professor, CHRIS</td>
</tr>
<tr>
<td>Magrabi, Farah</td>
<td>Associate Professor, CHI</td>
</tr>
<tr>
<td>Makeham, Meredith</td>
<td>Associate Professor, CHSSR</td>
</tr>
<tr>
<td>Mitchell, Rebecca</td>
<td>Associate Professor, CHRIS</td>
</tr>
<tr>
<td>Rapport, Frances</td>
<td>Associate Professor, CHRIS</td>
</tr>
<tr>
<td><strong>SENIOR RESEARCH FELLOWS</strong></td>
<td></td>
</tr>
<tr>
<td>Baysari, Melissa</td>
<td>Senior Research Fellow, CHSSR</td>
</tr>
<tr>
<td>Dunn, Adam</td>
<td>Senior Research Fellow, CHI</td>
</tr>
<tr>
<td>Gallego Luxan, Blanca</td>
<td>Senior Research Fellow, CHI</td>
</tr>
<tr>
<td>Li, Ling</td>
<td>Senior Research Fellow, CHSSR</td>
</tr>
<tr>
<td>Pont, Lisa</td>
<td>Senior Research Fellow, CHSSR</td>
</tr>
<tr>
<td>Tsafnat, Guy</td>
<td>Senior Research Fellow, CHI</td>
</tr>
<tr>
<td><strong>RESEARCH FELLOWS</strong></td>
<td></td>
</tr>
<tr>
<td>Borotkanics, Robert</td>
<td>Research Fellow, CHSSR</td>
</tr>
<tr>
<td>Clay-Williams, Robyn</td>
<td>Research Fellow, CHRIS</td>
</tr>
<tr>
<td>Hodgden, Anne Vaughan</td>
<td>Research Fellow, CHRIS</td>
</tr>
<tr>
<td>Kim, Mi-Ok</td>
<td>Research Fellow, CHI</td>
</tr>
<tr>
<td>Lau, Annie</td>
<td>Research Fellow, CHI</td>
</tr>
<tr>
<td>Maali, Yashar</td>
<td>Research Fellow, CHI</td>
</tr>
<tr>
<td>Perez Concha, Oscar</td>
<td>Research Fellow, CHI</td>
</tr>
<tr>
<td>Raban, Magdalena Zuzanna</td>
<td>Research Fellow, CHSSR</td>
</tr>
<tr>
<td>Siette, Joyce</td>
<td>Research Fellow, CHRIS</td>
</tr>
<tr>
<td>Taylor, Natalie Jayne</td>
<td>Research Fellow, CHRIS</td>
</tr>
<tr>
<td>Wang, Ying</td>
<td>Research Fellow, CHI</td>
</tr>
<tr>
<td>NAME</td>
<td>POSITION</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td><strong>ACADEMIC STAFF</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>POST-DOCTORAL RESEARCH FELLOWS</strong></td>
<td></td>
</tr>
<tr>
<td>Blakely, Brette Dyrek</td>
<td>Post-Doctoral Research Fellow, CHRIS</td>
</tr>
<tr>
<td>Choong, Miew-Keen</td>
<td>Post-Doctoral Research Fellow, CHI</td>
</tr>
<tr>
<td>Debono, Deborah Suzannah</td>
<td>Post-Doctoral Research Fellow, CHRIS</td>
</tr>
<tr>
<td>Douglas, Heather Elaine</td>
<td>Post-Doctoral Research Fellow, CHSSR</td>
</tr>
<tr>
<td>Karystianis, George</td>
<td>Post-Doctoral Research Fellow, CHI</td>
</tr>
<tr>
<td>Laranjo, Liliano</td>
<td>Post-Doctoral Research Fellow, CHI</td>
</tr>
<tr>
<td>Lehnbom, Elin</td>
<td>Post-Doctoral Research Fellow, CHSSR</td>
</tr>
<tr>
<td>Long, Janet</td>
<td>Post-Doctoral Research Fellow, CHIS</td>
</tr>
<tr>
<td>McCaughey, Euan</td>
<td>Post-Doctoral Research Fellow, CHSSR</td>
</tr>
<tr>
<td>Mumford, Virginia</td>
<td>Post-Doctoral Research Fellow, CHRIS</td>
</tr>
<tr>
<td>Ong, Mei-Sing</td>
<td>Post-Doctoral Research Fellow, CHI</td>
</tr>
<tr>
<td>Prgomet, Mirela</td>
<td>Post-Doctoral Research Fellow, CHSSR</td>
</tr>
<tr>
<td>Selwood, Amanda</td>
<td>Post-Doctoral Research Fellow, CHRIS</td>
</tr>
<tr>
<td>Surian, Didi</td>
<td>Post-Doctoral Research Fellow, CHI</td>
</tr>
<tr>
<td>Tariq, Amina</td>
<td>Post-Doctoral Research Fellow, CHSSR</td>
</tr>
<tr>
<td>Zhang, Min</td>
<td>Post-Doctoral Research Fellow, CHRIS</td>
</tr>
<tr>
<td>Zhou, Xujuan</td>
<td>Post-Doctoral Research Fellow, CHI</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PROFESSIONAL STAFF</strong></td>
<td></td>
</tr>
<tr>
<td>Bilimoria, Reza</td>
<td>Institute Manager</td>
</tr>
<tr>
<td>Christian-Hayes, Susan</td>
<td>Manager CHRS</td>
</tr>
<tr>
<td>Crick, Sheree</td>
<td>Manager CHSSR</td>
</tr>
<tr>
<td>Dahm, Maria (Mary)</td>
<td>Research Assistant, CHSSR</td>
</tr>
<tr>
<td>Hogden, Emily Jane</td>
<td>Research Assistant, CHRIS</td>
</tr>
<tr>
<td>James, Wendy</td>
<td>Research Assistant Part Time, CHRIS</td>
</tr>
<tr>
<td>Kim, Tae Yeun Tara</td>
<td>Research Officer, CHSSR</td>
</tr>
<tr>
<td>Kim, Vitaliy</td>
<td>Computer Systems Officer, CHI</td>
</tr>
<tr>
<td>Lake, Rebecca</td>
<td>Research Assistant, CHSSR</td>
</tr>
<tr>
<td>Lamprell, Gina</td>
<td>Research Assistant Part Time, CHRIS</td>
</tr>
<tr>
<td>Li, Yu Jia Julie</td>
<td>Research Assistant, CHSSR</td>
</tr>
<tr>
<td>Li, Zhicheng</td>
<td>Research Assistant, CHRIS</td>
</tr>
<tr>
<td>Liu, Jingbo</td>
<td>Computer Systems Officer, CHI</td>
</tr>
<tr>
<td>Ludlow, Kristiana</td>
<td>Research Assistant, CHRIS</td>
</tr>
<tr>
<td>Marks, Danielle</td>
<td>Research Assistant Part Time, CHRIS</td>
</tr>
<tr>
<td>Molloy, Charlotte</td>
<td>Research Assistant, CHRIS</td>
</tr>
<tr>
<td>Mullins, Jackie</td>
<td>Administrative Assistant, CHRIS</td>
</tr>
<tr>
<td>Pottumati, Denise</td>
<td>Administrative Assistant, CHRS H</td>
</tr>
<tr>
<td>Purdy, Helen</td>
<td>Research Officer, CHSSR</td>
</tr>
<tr>
<td>Pye, Victoria Elizabeth</td>
<td>Statistician, CHRIS</td>
</tr>
<tr>
<td>Raichand, Smriti</td>
<td>Research Assistant, CHI</td>
</tr>
<tr>
<td>Robinson, Keira</td>
<td>Statistician, CHSSR</td>
</tr>
<tr>
<td>NAME</td>
<td>POSITION</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Shi, George</td>
<td>Computer Systems Officer, CHI</td>
</tr>
<tr>
<td>Testa, Luke</td>
<td>Research Assistant, CHRIS</td>
</tr>
<tr>
<td>Ting, Pei</td>
<td>Statistician, CHRIS</td>
</tr>
<tr>
<td>Tsiros, Denise</td>
<td>Manager Operations and Students, CHI</td>
</tr>
<tr>
<td>Vecellio, Elia Julian</td>
<td>Research Assistant, CHSSR</td>
</tr>
<tr>
<td>Waldie, Jenny</td>
<td>Business Manager, CHI</td>
</tr>
<tr>
<td>Walter, Scott</td>
<td>Statistician, CHSSR</td>
</tr>
<tr>
<td>Zheng, Wu Yi</td>
<td>Research Assistant, CHSSR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NAME</th>
<th>TITLE</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beuscart-Zephir, Marie-Catherine</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Carson-Stevens</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Chuang, Sheuwen</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Corbett, Angus</td>
<td>Associate Professor</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Cunningham, Frances</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Gardiner, Brett</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Groene, Oliver</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Hannan, Terry</td>
<td>Associate Professor</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Hinchcliff, Reece</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Hooper, Tamara</td>
<td>Ms</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Horvath, A Rita</td>
<td>Professor</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Johnston, Brian</td>
<td>Mr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Lindeman, Robert</td>
<td>Associate Professor</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Lipworth, Wendy</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Long, Paul</td>
<td>Mr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Low, Lena</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
</tbody>
</table>

**VISITING STAFF**

**AND STUDENTS**

15 VISITING PROFESSIONALS
### VISITING STAFF (CONTINUED)

<table>
<thead>
<tr>
<th>NAME</th>
<th>TITLE</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moldovan, Max</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Nugus, Peter</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Pain, Charles</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Pantle, Annette</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Pawsey, Marjorie</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Pelayo, Sylvia</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Pereira, David</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Plumb, Jennifer</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Ranmuthugala, Geetha</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Robinson, Maureen</td>
<td>Ms</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Roffe, David</td>
<td>Mr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Short, Alison</td>
<td>Dr</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Westbrook, Mary</td>
<td>Assoc Prof</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Wiles, Louise</td>
<td>Ms</td>
<td>Visiting Fellow</td>
</tr>
<tr>
<td>Wilson, Roger</td>
<td>Prof</td>
<td>Visiting Fellow</td>
</tr>
</tbody>
</table>

### VISITING STUDENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>Level</th>
<th>Institution</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anderson, Niels</td>
<td>Master Students</td>
<td>enrolled at Aalborg University, Denmark</td>
<td>Visiting student</td>
</tr>
<tr>
<td>Anderson, Simon</td>
<td>Master Students</td>
<td>enrolled at Aalborg University, Denmark</td>
<td>Visiting student</td>
</tr>
<tr>
<td>Bang, Christian</td>
<td>Master Students</td>
<td>enrolled at Aalborg University, Denmark</td>
<td>Visiting student</td>
</tr>
<tr>
<td>Gabarron, Elia</td>
<td>PhD Research Placement, The Artic University of Tromso, Norway</td>
<td>Visiting student</td>
<td></td>
</tr>
<tr>
<td>Meyer, Sonny</td>
<td>Master Students</td>
<td>enrolled at Aalborg University, Denmark</td>
<td>Visiting student</td>
</tr>
</tbody>
</table>

31 VISITING FELLOWS

5 VISITING STUDENTS
Postgraduate students

AIHI 2015 POSTGRADUATE CANDIDATES

MASTERS OF RESEARCH, YEAR 2
Dennis Jasch
Georgina Kennedy

MASTERS OF PHILOSOPHY
Christoph Camphausen
Brian Johnston
Ken Lee
Natalie Page
Sasa Popovic

DOCTORATE OF PHILOSOPHY
Tom Bowden
Craig Campbell
Tobias Hodgson
Andre Jenkins
Klay Lamprell
George Larcos

David Lyell
Katherine McConnon
Bella St Clair
Scott Walter
Victoria Walton
Su-Jen Yap
Books we’ve published


Publications 2015
AS AT 31 DECEMBER, 2015

BOOKS


REFFERED JOURNAL ARTICLES


**CONFERENCE ABSTRACTS AND POSTERS**


17. Clay-Williams R, Taylor N, Baysari M, Zalitis D. Say ‘hello’ to the camera: Using simulation to test a video telehealth system and train healthcare professionals to develop rapport with callers [Abstract]. ISQua's 32nd Conference: Building quality and safety into the healthcare system; 4-7 October 2015; Doha, Qatar. 2015.


7th International Shared Decision Making (ISDM) Conference and the 4th International Society for Evidence-Based Health Care (ISEHC) Conference; 19-22 July, 2015; Sydney, Australia. 2015.

21. Clay-Williams R, Taylor N, Hogden E, Braithwaite J. Making the medical manager: Educating clinical leaders about quality through participation in research [Abstract and Poster]. ISQua's 32nd Conference: Building quality and safety into the healthcare system; 4-7 October 2015; Doha, Qatar. 2015.

22. Debono D, Greenfield D, Hogden A, Braithwaite J. Cohesion and diversity bring opportunity: A survey of the critical elements, strengths and challenges to an Australian primary care accreditation program [Abstract]. ISQua's 32nd Conference: Building quality and safety into the healthcare system; 4-7 October 2015; Doha, Qatar. 2015.


24. Debono D, Greenfield D, Travaglia J, Braithwaite J. Trade-offs between hospital policy and effective care: The case for and against workarounds in medication safety [Abstract and Poster]. ISQua's 32nd Conference: Building quality and safety into the healthcare system; 4-7 October 2015; Doha, Qatar. 2015.


32. Greenfield D, Hogden A, Debono D, Braithwaite J. Stakeholder views of the Australian national safety and quality health service standards: Perspectives from the new world [Abstract]. ISQua's 32nd Conference: Building quality and safety into the healthcare system; 4-7 October 2015; Doha, Qatar. 2015.


40. Hogden A, Debono D, Greenfield D, Braithwaite J. Partnering with consumers: The Australian experience of the development of a national health service accreditation standard [Abstract and Poster]. ISQua’s 32nd Conference: Building quality and safety into the healthcare system; 4-7 October 2015; Doha, Qatar. 2015.


42. Hogden A, Short A, Rajendran H, Greenfield D. “It just hit me like a sledgehammer”: Impact of indoor noise on the lifestyle choices of older adults [Abstract and Poster]. ISQua’s 32nd Conference: Building quality and safety into the healthcare system; Doha, Qatar. 2015.


49. Lawrence S, van Gellecum Y, Dennis C, Greenfield D. The association between HRM, safety and quality: Evidence form a longitudinal analysis of a health service accreditation program [Abstract and Poster]. ISQua’s 32nd Conference: Building quality and safety into the healthcare system; 4-7 October 2015; Doha, Qatar. 2015.


52. Milne J, Greenfield D, Braithwaite J. Organisational constraints affecting patient centred care in teaching hospitals: The case for change [Abstract and Poster]. ISQua’s 32nd Conference: Building quality and safety into the healthcare system; 4-7 October 2015; Doha, Qatar. 2015.


56. Mitchell R, Lord S, Harvey L, Close J. Obesity and falls in older individuals:
57. Mumford V, Greenfield D. Developing a logic model to evaluate accreditation in Australian acute care hospitals [Abstract]. ISQua’s 32nd Conference: Building quality and safety into the healthcare system; 4-7 October 2015; Doha, Qatar. 2015.


66. St Clair B, Greenfield D, Georgiou A. Sinking our TEETH in: A mixed methods framework to examine the barriers and incentives for participation in dental accreditation programs [Abstract and Poster]. ISQua’s 32nd Conference: Building quality and safety into the healthcare system; 4-7 October 2015; Doha, Qatar. 2015.

67. St Clair B, Greenfield D, Georgiou A. What do we really know about accreditation, quality, safety and dental services? A multi-faceted approach to review the literature [Abstract]. ISQua’s 32nd Conference: Building quality and safety into the healthcare system; 4-7 October 2015; Doha, Qatar. 2015.

68. St Clair B, Greenfield D, Georgiou A. Examining health care culture and attitudes to quality and safety issues. A multi-faceted approach to review the literature [Abstract]. ISQua’s 32nd Conference: Building quality and safety into the healthcare system; 4-7 October 2015; Doha, Qatar. 2015.


Seminars

CONCEPTUALIZING FRAUDULENT STUDIES AS INFECTIOUS VIRUSES: A NEW MODEL FOR HANDLING RETRACTIONS IN THE SCIENTIFIC KNOWLEDGE BASE
PRESENTER:
Professor Kathleen Montgomery
Professor of the Graduate Division at the University of California, Riverside, and Emerita Professor of Organizations and Management in UCR's School of Business Administration.

THE IMPLICATIONS OF SUMMATIVE USABILITY TEST RESULTS REQUIRED FOR US MEANINGFUL USE CERTIFICATION FOR AUSTRALIAN CLIENTS
PRESENTER:
Associate Professor Anne Miller
AIHI, Macquarie University

BUILDING SCALABLE HEALTH ANALYTIC PLATFORM: COMPUTATIONAL PHENOTYPING AND CLOUD-BASED PREDICTIVE MODELLING
PRESENTER:
Associate Professor Jimeng Sun
Associate Professor of School of Computational Science and Engineering at College of Computing in Georgia Institute of Technology

DO HOSPITAL BOARDS MATTER FOR BETTER, SAFER, PATIENT CARE? FRESH EVIDENCE FROM THE ENGLISH NHS
PRESENTER:
Professor Russell Mannion
Chair in Health Systems at the University of Birmingham, Director of Research at the Health Services Management Centre (HSMC).

MEDICAL TOURISM: PATIENT, ORGANISATIONAL AND SYSTEM-LEVEL PERSPECTIVES
PRESENTER:
Dr Neil Lunt
Department of Social Policy and Social Work, University of York

QUALITY AND SAFETY IN ENGLAND: THE ROLE OF REGULATION
PRESENTER:
David Behan
CBE Chief Executive of the Care Quality Commission

APPLYING ERGONOMICS/HUMAN FACTORS TO STUDY AND IMPROVE "PATIENT WORK"
PRESENTER:
Professor Richard J. Holden
Assistant professor of BioHealth Informatics at the Indiana University School of Informatics and Computing, USA, and founding Director of eHealth for the Center for Brain Care Innovation at Eskenazi Health

INCIDENT REPORTING DRIVING A CO-PRODUCED PRIMARY CARE IMPROVEMENT AGENDA FOR AUSTRALIA
PRESENTER:
Dr Andrew Carson-Stevens
He leads the PISA Research Group at Cardiff University

THE LONG JOURNEY: BUILDING QUALITY AND SAFETY WITHIN THE ELECTRONIC HEALTH RECORD AT MEMORIAL HERMANN
PRESENTER:
Dr Robert Murphy
Associate Professor at the University of Texas School of Biomedical Informatics

TALES FROM THE (ALMOST) FRONT LINE – WHAT’S CLINICAL GOVERNANCE IN REALITY?
PRESENTER:
Dr Annette Pantle
She was the inaugural Group General Manager Clinical Governance and Chief Medical Officer for St Vincent’s Health Australia

WHY BOTHER TO TEACH PATIENT SAFETY BEFORE GRADUATION?
PRESENTER:
Emeritus Professor Kim Oates
Director of Undergraduate Quality and Safety at the Clinical Excellence Commission, Sydney, Australia

RESILIENT HEALTH CARE: RE-CONCEPTUALISING PATIENT SAFETY
PRESENTER:
Professor Jeffrey Braithwaite
Foundation Director, Australian Institute of Health Innovation, Director, Centre for Healthcare Resilience and Implementation Science and Professor of Health Systems Research, Faculty of Medicine and Health Sciences, Macquarie University

QULTURUM, IMPROVEMENT AND PATIENT SAFETY HUB IN REGION JÖNKÖPING COUNTY, SWEDEN
PRESENTER:
Dr Axel Ros
Chief Medical Officer, Region Jönköping County, Sweden; Berit Axelsson
Development manager at Qulturum, Region Jönköping, Sweden

BUILDING SCALABLE HEALTH ANALYTIC PLATFORM: COMPUTATIONAL PHENOTYPING AND CLOUD-BASED PREDICTIVE MODELLING
PRESENTER:
Associate Professor Jimeng Sun
Associate Professor of School of Computational Science and Engineering at College of Computing in Georgia Institute of Technology

BIG HISTORY, POPULATION AND COLLECTIVE LEARNING
PRESENTER:
Dr David Baker
Macquarie University

MEDICAL TOURISM: PATIENT, ORGANISATIONAL AND SYSTEM-LEVEL PERSPECTIVES
PRESENTER:
Dr Neil Lunt
Department of Social Policy and Social Work, University of York

QUALITY AND SAFETY IN ENGLAND: THE ROLE OF REGULATION
PRESENTER:
David Behan
CBE Chief Executive of the Care Quality Commission

APPLYING ERGONOMICS/HUMAN FACTORS TO STUDY AND IMPROVE "PATIENT WORK"
PRESENTER:
Professor Richard J. Holden
Assistant professor of BioHealth Informatics at the Indiana University School of Informatics and Computing, USA, and founding Director of eHealth for the Center for Brain Care Innovation at Eskenazi Health

THE LONG JOURNEY: BUILDING QUALITY AND SAFETY WITHIN THE ELECTRONIC HEALTH RECORD AT MEMORIAL HERMANN
PRESENTER:
Dr Robert Murphy
Associate Professor at the University of Texas School of Biomedical Informatics

WHY BOTHER TO TEACH PATIENT SAFETY BEFORE GRADUATION?
PRESENTER:
Emeritus Professor Kim Oates
Director of Undergraduate Quality and Safety at the Clinical Excellence Commission, Sydney, Australia
NPS MediciNeWise and choosing wisely Australia; improving use of medicines and medical tests

Presenter: Dr Lynn Weekes
Chief executive officer of NPS MedicineWise

Towards better healthcare: intergroup communication and safety and quality of patient care.

Presenters: Associate Professor Bernadette Watson
Director of the Applied Psychology program in the School of Psychology at the University of Queensland

Associate Professor Gavin Schwarz
Associate Professor in the School of Management at the UNSW Business School

What the Ethics Committee is all about

Presenter: Professor Tony Eyers
Professor of Ethics in Surgery and Medicine in the Faculty of Medicine and Health Sciences, Macquarie University

CSIRO’s e-Health Research: transforming healthcare through the use of digital technology

Presenters: Dr David Hansen CEO of the Australian e-Health Research Centre, part of the CSIRO Digital Productivity Flagship.

Dr Jill Freyne
Senior Research Scientist and Team and Project Leader in the CSIRO e-Health Research Centre.

Supporting responsible surgical innovation - Professor Wendy Rogers and Dr Katrina Hutchison

Presenters: Professor Wendy Rogers
Professor of Clinical Ethics at Macquarie University

Dr Katrina Hutchison
Post-doctoral researcher in bioethics at Macquarie University

Climate change and human health: challenges and opportunities

Presenter: Professor Lesley Hughes
Professor Lesley Hughes, Professor in the Department of Biological Sciences and Pro Vice-Chancellor (Research Integrity and Development) at Macquarie University

Monitoring use of eHealth on a national level

Presenter: Professor Christian Nøhr
Professor of Technology analysis and health care planning at Department of Development and Planning, Aalborg University, Denmark

Evidence-based implementation of the electronic medical record and computerized physician order entry

Presenter: Dr Natalie Pageler
Director of the Clinical Informatics Department, and an Associate Program Director for the Clinical Informatics Fellowship

Presenter: Dr Veena Goel
Fellow in Pediatric Hospital Medicine after completing Pediatrics residency at Stanford Children’s
# Grants under management

<table>
<thead>
<tr>
<th>GRANT</th>
<th>INVESTIGATORS</th>
<th>GRANTING AGENCY</th>
<th>GRANT AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NHMRC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| The appropriateness of healthcare delivered to Australian Children: CareTrack Kids | J Braithwaite  
A Jaffe  
L White  
C Cowell  
M Harris | NHMRC | $1,743,318 |
| Creating safe, effective systems of care: the translational challenge | J Braithwaite  
J Westbrook  
E Coiera  
W Runciman  
R Day  
K Hillman | NHMRC | $10,855,710 |
| Dynamic prediction of hospital length of stay, readmission, and death | B Gallego Luxan  
F Martin-Sanchez | NHMRC | $312,069 |
| Real time surveillance for the early detection of e-health related adverse events | M Ong | NHMRC | $299,564 |
| Safety of clinical software in general practice | F Magrabi | NHMRC | $289,750 |
| Using collaboration networks to measure bias and inefficiency in the production and translation of evidence about cardiovascular risk | A Dunn | NHMRC | $214,182 |
| Delivering safe and effective care for children in hospital with eHealth systems | J Westbrook  
A Georgiou  
R Day  
T O’Brien  
J Karnon  
L Dalla-Pozza  
C Cowell  
L Li  
M Baysari  
G Ambler | NHMRC | $1,082,806 |
| Personally Controlled Electronic Health Records for young adults with communication disabilities: charting the course for successful child to adult health service transition | B Hemsley  
S Balandin  
A Georgiou  
S Hill | NHMRC | $396,853  
($77,727 administered by AIHI) |
## NHMRC (Continued)

<table>
<thead>
<tr>
<th>Grant Topic</th>
<th>Principal Investigators</th>
<th>Granting Agency</th>
<th>Grant Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivering safe and effective test result communication, management and follow-up</td>
<td>A Georgiou, J Westbrook, D Greenfield, A Horvath, D Wakefield, L Li, K Hillman</td>
<td>NHMRC</td>
<td>$1,133,359</td>
</tr>
<tr>
<td>Centre for research excellence in e-health</td>
<td>E Coiera, P Glasziou, S-T Law, V Sintchenko, W Runciman, F Magrabi, B Gallego Luxan</td>
<td>NHMRC</td>
<td>$1,063,152</td>
</tr>
</tbody>
</table>

## ARC

<table>
<thead>
<tr>
<th>Grant Topic</th>
<th>Principal Investigators</th>
<th>Granting Agency</th>
<th>Grant Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthening organisational performance through accreditation research: the ACCREDIT project</td>
<td>J Braithwaite, J Westbrook</td>
<td>ARC</td>
<td>$2,350,000</td>
</tr>
<tr>
<td>Development of an evaluation model for assessing the effectiveness of ICT to integrate services and improve service performance and client experience</td>
<td>J Westbrook, A Georgiou</td>
<td>ARC</td>
<td>$914,044</td>
</tr>
</tbody>
</table>

## OTHER

<table>
<thead>
<tr>
<th>Grant Topic</th>
<th>Principal Investigators</th>
<th>Granting Agency</th>
<th>Grant Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalised injury in NSW: a geographical comparison</td>
<td>R Mitchell</td>
<td>University of Sydney</td>
<td>$35,500</td>
</tr>
<tr>
<td>Unwarranted clinical variation following hospitalised injury in young people in NSW</td>
<td>R Mitchell</td>
<td>NSW Kids and Families</td>
<td>$69,076</td>
</tr>
<tr>
<td>Stocktake of data sources relevant to childhood injury in NSW</td>
<td>R Mitchell</td>
<td>NSW Kids and Families</td>
<td>$49,971</td>
</tr>
<tr>
<td>Behaviour change for prevention and management for Lynch Syndrome</td>
<td>N Taylor, M Chin, R Williams</td>
<td>TCRN</td>
<td>$100,000</td>
</tr>
<tr>
<td>GRANT</td>
<td>INVESTIGATORS</td>
<td>GRANTING AGENCY</td>
<td>GRANT AMOUNT</td>
</tr>
<tr>
<td>-------</td>
<td>---------------</td>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>External evaluation expertise and advise to NSML Care Co-ordination Program (CCP) Pilot with Private Health Insurers</td>
<td>J Braithwaite P Hibbert</td>
<td>Northern Sydney Medicare Local</td>
<td>$40,000</td>
</tr>
<tr>
<td>Prince of Wales Joint Project – Hospital-level improvement strategies</td>
<td>J Braithwaite P Bolton</td>
<td>POWH</td>
<td>$165,000</td>
</tr>
<tr>
<td>Trauma Journey Day of Difference</td>
<td>R Mitchell</td>
<td>University of Sydney</td>
<td>$31,999</td>
</tr>
<tr>
<td>Decision support tools for motor neurone disease multidisciplinary care</td>
<td>A Hogden X Cai J Caga D Greenfield</td>
<td>MND Victoria</td>
<td>$96,000</td>
</tr>
<tr>
<td>ISU escalation plan evaluation</td>
<td>R Clay-Williams</td>
<td>Townsville Hospital and Health Service</td>
<td>$23,375</td>
</tr>
<tr>
<td>The appropriateness of healthcare delivered to Australian Children: CareTrack Kids</td>
<td>J Braithwaite L White C Cowell A Jaffe W Runciman G Wheaton H Williams P Hibbert T Hunt N Hannaford</td>
<td>*BUPA</td>
<td>$400,000</td>
</tr>
<tr>
<td>Population Health and Health Services Research Support Program Round 4</td>
<td>J Braithwaite (for the AIHI)</td>
<td>NSW Health</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Proof of Concept - Whether national data linkage can be conducted in Australia and cross-border health care use identified + the demonstration project is looking at hospitalised injury morbidity and mortality</td>
<td>R Mitchell</td>
<td>Telethon Institute PHRN</td>
<td>$127,550</td>
</tr>
<tr>
<td>GRANT INVESTIGATORS</td>
<td>GRANTING AGENCY</td>
<td>GRANT AMOUNT</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>Evaluation of Point of Care Testing (PoCT)</td>
<td>A Georgiou, L Li, J Westbrook, V Mumford</td>
<td>NSW Health Pathology</td>
<td>$150,947</td>
</tr>
<tr>
<td>Assessment of the National Inpatient Medication Chart (NIMC) GP eVersion</td>
<td>M Baysari, M Raban, A Tariq, J Westbrook</td>
<td>Australian Commission on Safety and Quality in Health Care</td>
<td>$64,737</td>
</tr>
<tr>
<td>GP &amp; RACF Medication Concordance Study</td>
<td>M Makeham, J Westbrook, L Pont, R Borotkanics, M Raban, H Douglas</td>
<td>National EHealth Transition Authority</td>
<td>$199,874</td>
</tr>
<tr>
<td>PhD Awards for Improvement Science</td>
<td>N Taylor</td>
<td>University of Leeds</td>
<td>$8,530</td>
</tr>
<tr>
<td>ME app. Development of cardiovascular calculator</td>
<td>A Lau</td>
<td>University of Sydney</td>
<td>$30,000</td>
</tr>
<tr>
<td>Mobile App for people with type 1 diabetics Mellitus who have stopped engaging with health services</td>
<td>A Lau</td>
<td>Novo Nordisk</td>
<td>$14,908</td>
</tr>
<tr>
<td>To conduct a research review on m-health for HealthDirect</td>
<td>A Lau</td>
<td>Sax Institute</td>
<td>$25,400</td>
</tr>
<tr>
<td>An evidence review of electronic meal ordering systems</td>
<td>L Li, M Prgomet, J Li, A Georgiou, J Westbrook</td>
<td>Sax Institute</td>
<td>$50,000</td>
</tr>
<tr>
<td>Road Trauma Research</td>
<td>R Mitchell</td>
<td>UNSW</td>
<td>$9,600</td>
</tr>
</tbody>
</table>
We strive to conduct world-class research with relevance to national and international research communities, governments, policymakers, providers of health services, managers, clinicians, patients and the community. Our work underpins health reforms and systems improvement and provides new tools, perspectives and evidence to help stakeholders who are interested in making the health system more effective, efficient and productive.
What...

We call it a health system, but all too often – it isn’t represented as “a system”. It’s a sector that’s been built in pieces over the years, that isn’t joined-up – in fact, it’s fragmented, and the different components don’t talk to each-other sufficiently. Our Institute provides the research needed to improve the system, to connect different parts of the system through e-health and other communication strategies, and create better care for patients. It’s an enormous task, and there are huge challenges, but that doesn’t mean that we shouldn’t try to create the evidence base needed for a sustainable health system in the future. That’s what we think about in the Institute, every day.

...next?