



MACQUARIE
University
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Australian Institute of Health Innovation

ANNUAL REPORT

2022

**Heal.
Learn.
Discover.**



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Founding Director's report



As ever, it is the Institute staff ... who have kept the wheels of research turning.

After the disruption and uncertainty of two years of COVID-19, 2022 was a year to grow – both in reach and significance – for the Australian Institute of Health Innovation (AIHI).

Our most significant expansion came with the very welcome addition of a new university research centre to the Institute: Macquarie University Centre for the Health Economy (MUCHE). Led by Professor Henry Cutler, MUCHE was established at Macquarie University in 2014 to undertake innovative research on health, ageing and human services, with a focus on the interdependencies of these systems with each other and the broader economy. The formal addition of MUCHE extends the collaborative scope of the Institute and provides one more essential component as we advance our picture of integrated human-centred healthcare.

In early 2022, we welcomed new members to the AIHI Board:

Dr Elizabeth Koff AM, Managing Director, Telstra Health

Ms Elizabeth de Somer, CEO, Medicines Australia

Ms Catherine Lourey, Commissioner, NSW Mental Health Commission

Professor Eric Knight, Executive Dean, Macquarie Business School, and

Professor Sakkie Pretorius, Deputy Vice-Chancellor, Research, Macquarie University.

Our new Board members' expertise in industry, policy and practice – combined with our existing Board members' deep experience – is an invaluable addition to the Institute, and we look forward to their contributions as we move into 2023. We also farewelled a number of retiring Board members whom we thank for their service. A full list of Board members follows in this report.

We saw substantial funding in 2022 from National Health and Medical Research Council (NHMRC) and Medical Research Future Fund grants as well as Fellowships and government and industry contracts. The enterprise value of grants under AIHI management reached \$49.8 million, demonstrating the value of our research to those seeking to improve health systems around the world. Highlights of our new funded research projects include:

- Improving emergency department performance and patient outcomes
- Bringing artificial intelligence into the real world of healthcare
- Unlocking the promise of virtual models of care through infrastructure innovation
- Establishing a digital health foundation for outcomes-based diagnostic excellence, safety and value

AIHI researchers have again had an extensive positive impact on healthcare systems and reform during 2022, through

accelerated data collection and the dissemination of research via books, book chapters, editorials and peer-reviewed publications. These include several high-impact international journals such as Nature Digital Medicine, International Journal for Quality in Health Care, Journal of Medical Internet Research and Health Economics. A volume of the international medical informatics journal, Journal of the American Medical Informatics Association (JAMIA), on climate change and health informatics was guest edited by Professors Enrico Coiera and Farah Magrabi. As in previous years, our researchers have also contributed to numerous conferences, symposia, and to local and global advisory boards, commissions, and panels.

Academically, AIHI continues to flourish. Student enrolments in our higher degree research (HDR) program have more than doubled in number since inception, and our involvement in the Macquarie University Doctor of Medicine Research Program continues to progress.

With the easing of COVID-19 restrictions, it was a joy to share our research with colleagues ‘in real life’, as we were able to not only attend, but host, numerous conferences and symposia and participate in industry and government panels.

As ever, it is the people of the Institute – our researchers, professional staff, students and visiting academics – who have kept the wheels of research turning. Despite successive waves of COVID-19, and the attendant changes to work requirements, they have continued to create world class research. Their resilience and adaptability under extremely trying circumstances, is nothing less than inspiring.

During 2023, AIHI will continue looking for new ways to expand our reach, to find ways to flourish and evolve – to keep following the upward trajectory of our “new normal”.



Professor Jeffrey Braithwaite
FOUNDING DIRECTOR



Australia's first university-led teaching hospital on campus



Ranked in the top 1 per cent of universities in the world

(QS WORLD UNIVERSITY RANKINGS, 2021)

Who we are

AIHI is a globally recognised, research-intensive institute dedicated to improving healthcare services, health systems and health policy in Australia and internationally. Established within Australia's first fully integrated academic health sciences centre, MQ Health at Macquarie University, AIHI has the largest team of health services researchers in Australia and is one of the largest in the world.

Reflecting our consistently high-value research contribution, in 2022 AIHI managed grants and contracts with an enterprise value in excess of \$49.8 million. We also contributed to research administered by other institutions with an enterprise value of \$79.6 million.

In line with our mission to provide the evidence to improve healthcare, research is the beating heart of AIHI, driving positive change in healthcare policy, practice and behaviour for the benefit of all.

Our researchers work collaboratively with those at the frontline of healthcare – patients and caregivers as well as health professionals. Our focus is on the efficient and effective delivery of sustainable person-centred care.

Our consistently robust level of productivity is largely due to the dedication of our highly skilled, multi-disciplinary team – which includes clinicians, scientists, social scientists, psychologists, pharmacists, engineers, epidemiologists, informatics experts, economists, statisticians and analysts, along with professional staff – who work together to strengthen health systems in myriad ways.

AIHI's 54 HDR students – our next generation of experts – make an invaluable contribution to many research projects. We also teach in the Macquarie University's Master of Public Health Program, and administer research projects and provide supervision in the Macquarie University Doctor of Medicine Research Program.

Our research has been instrumental in numerous healthcare projects and initiatives with the Australian Government, state and territory governments, and the private sector. AIHI also collaborates with major international agencies – including the World Health Organisation (WHO), and the Organisation for Economic Co-operation and Development (OECD) – and on various facets of health reform with governments, policymakers and academics globally.



AIHI [↗](#) comprises four independent, complementary and highly collaborative research centres, each of which takes a systems perspective to address challenges in healthcare, utilising highly innovative and wide-ranging research methods:

- Centre for Health Systems and Safety Research (CHSSR) [↗](#)
- Centre for Healthcare Resilience and Implementation Science (CHRIS) [↗](#)
- Centre for Health Informatics (CHI) [↗](#)
- Macquarie University Centre for the Health Economy (MUCHE) [↗](#)



Our leadership in translational health services research is further evidenced by the innovative work of our three NHMRC funded centres:

- NHMRC Partnership Centre for Health System Sustainability (PCHSS) [↗](#)
- NHMRC Centre of Research Excellence in Digital Health [↗](#)
- NHMRC Centre of Research Excellence in Implementation Science in Oncology

AIHI at a glance

HEAL. LEARN. DISCOVER.

\$49.8m

Enterprise value of projects under AIHI management

129

Number of research projects under AIHI management

\$79.6m

Enterprise value of grants administered elsewhere involving AIHI

\$19.6m

Enterprise value of grants commenced or awarded in 2022

\$34.2m

Category 1 funding for grants under management in 2022

268

Researchers, visiting appointees and professional staff

54

HDR students

417

Peer-reviewed outputs including journal articles, books and book chapters

WE PROVIDE THE RESEARCH EVIDENCE TO IMPROVE HEALTHCARE FOR COMMUNITIES AROUND THE WORLD



Understanding the relationship between system complexity and system performance



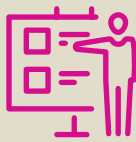
Evaluating the impact of interventions on health, workplace and social outcomes



Understanding behaviour as a basis for practice improvement



Understanding what patients value when seeking care



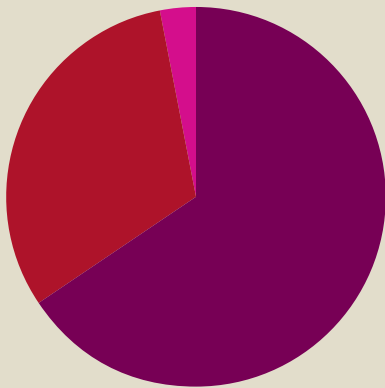
Designing models of care and ways of working that improve safety and quality



Using artificial intelligence as a technique to support evidence-based decision-making

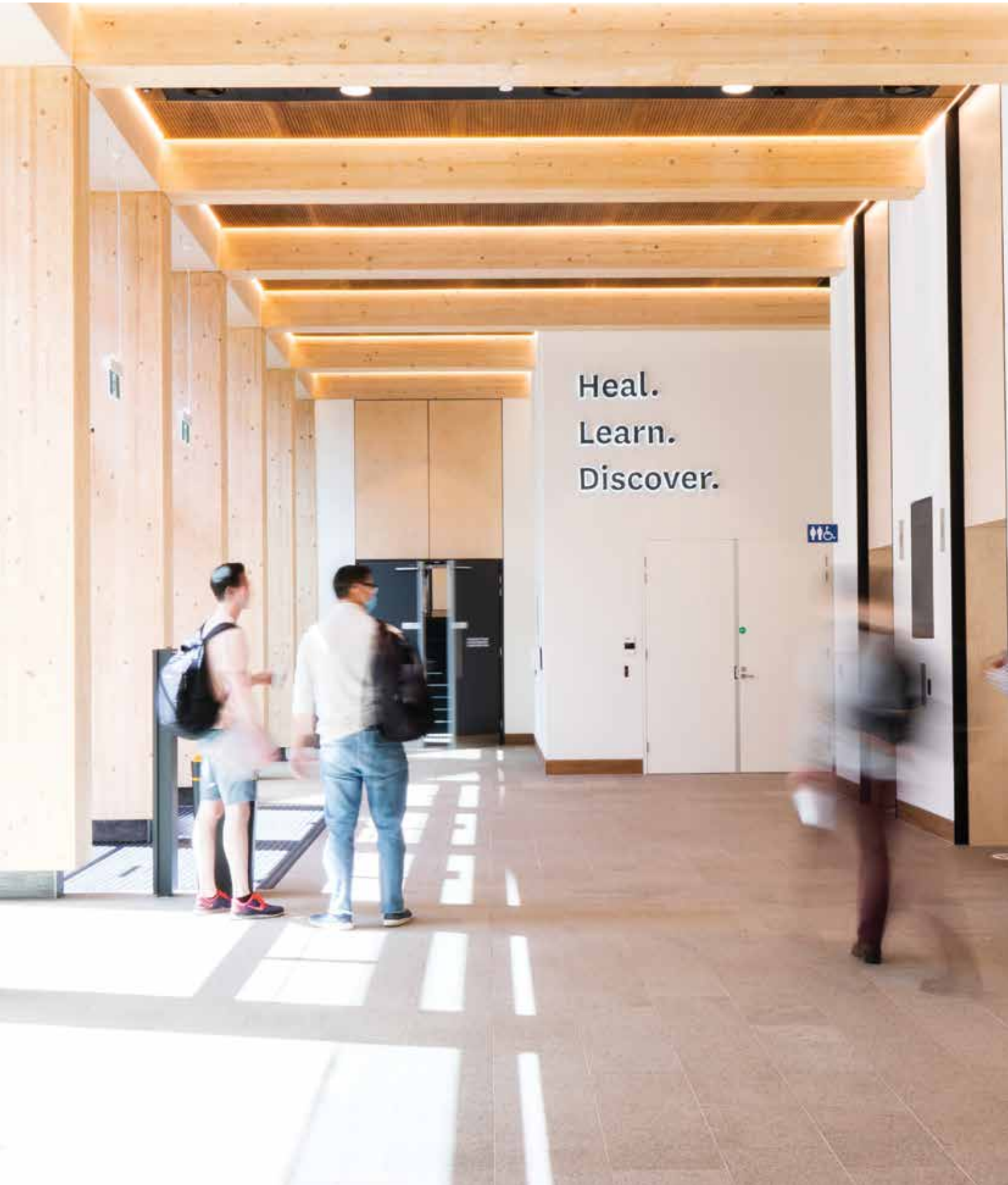


Applying an economic lens to evaluations and policy development



GRANTS UNDER MANAGEMENT 2022 BY FUNDING CATEGORY

- CATEGORY 1
Grants awarded from the Australian Competitive Grants Register
- CATEGORY 2 AND 3
Other Public Sector R&D Income
- OTHER
Industry and Other R&D Income



Our Board



CHAIR
Professor Patrick McNeil, Deputy Vice-Chancellor, Medicine and Health, MQ



HEALTH SYSTEM MEMBER
Elizabeth de Somer, CEO, Medicines Australia



HEALTH SYSTEM MEMBER
Dr Elizabeth Koff AM, Director, Telstra Health



HEALTH SYSTEM MEMBER
Professor Adam Jaffé, Paediatric Respiratory Consultant, SCHN



HEALTH SYSTEM MEMBER
Catherine Lourey, NSW Mental Health Commissioner



INDEPENDENT MEMBER
Dr Karen Owen



INDEPENDENT MEMBER
Emeritus Professor Les White AM



MACQUARIE UNIVERSITY MEMBER
Professor Cliff Hughes AO



MACQUARIE UNIVERSITY MEMBER
Professor Sakkie Pretorius, Deputy Vice-Chancellor, Research



MACQUARIE UNIVERSITY MEMBER
Professor Eric Knight, Executive Dean, Macquarie Business School



AIHI MEMBER
Professor Jeffrey Braithwaite



AIHI MEMBER
Professor Enrico Coiera



AIHI MEMBER
Professor Johanna Westbrook



AIHI MEMBER
Professor Henry Cutler



BOARD SECRETARY
Chrissy Clay

The AIHI Directors express their profound thanks to members who retired from the Board during 2022: Professor George Rubin and Associate Professor Patrick Bolton

Our partners

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



Health systems



Academia



Clinicians



Industry



Health consumers



Peak bodies



International bodies



Governments

- ACT Health
- Aged Care Quality and Safety Commission
- Agency for Clinical Innovation NSW
- All State and Territory departments of health
- American Medical Informatics Association
- Anglicare
- Annalise.ai
- Australasian Institute of Digital Health
- Australian and New Zealand Hip Fracture Registry
- Australian Commission on Safety and Quality in Health Care
- Australian Council on Healthcare Standards
- Australian Defence Force
- Australian Digital Health Agency
- Australian e-Health Research Centre
- Australian General Practice Accreditation Ltd
- Australian Genomics Health Alliance
- Australian Government Department of Health and Aged Care
- Australian Government Department of Social Services
- Australian Health Insurance Association
- Australian Healthcare and Hospitals Association
- Australian Hearing Hub
- Australian National University
- Australian Research Council
- BaptistCare
- BESTMED
- Black Dog Institute
- Bond University
- Brain and Mind Centre, University of Sydney
- Bupa Health Foundation Australia
- Bureau of Health Information
- Cancer Australia
- Cancer Institute NSW
- Canon Institute for Global Studies, Japan
- CanTeen
- Centre for Healthy Brain Ageing, UNSW
- Children's Cancer Institute, Australia
- Clinical Excellence Commission NSW
- Cochlear Ltd
- Consumers Health Forum of Australia
- CSIRO Data61
- Deeble Institute for Health Policy Research
- Digital Health Cooperative Research Centre
- eHealth NSW
- Evidentli
- Fujitsu Australia
- Google Research
- Harrison.ai
- Harvard Medical School, USA
- Health Consumers NSW
- Health Infrastructure NSW
- Healthdirect Australia
- Imperial College, UK
- Independent Health and Aged Care Pricing Authority
- International Medical Informatics Association
- International Society for Quality in Health Care





- Juvenile Diabetes Research Foundation
- Karolinska Institutet, Sweden
- Kolling Institute
- KPMG Australia
- Local Health Networks – various
- Macquarie University Business School
- Macquarie University Centre for Motor Neuron Disease Research
- Macquarie University Cyber Security Hub
- Macquarie University Hospital and MQ Health
- Medibank Better Health Foundation
- Medibank Private Ltd
- Medical Council of NSW
- Melanoma Institute Australia
- MindSpot
- Mito Foundation Australia
- Monash University
- Murdoch Children's Research Institute
- National Acoustics Laboratory
- National Disability Insurance Agency and National Disability Insurance Scheme
- National Health and Medical Research Council
- National Library of Medicine, USA
- National Mental Health Commission
- National Stroke Foundation
- Neu-Ulm University of Applied Sciences, Germany
- NSW Department of Communities and Justice
- NSW Institute of Trauma and Injury Management
- NSW Health Pathology
- Organisation for Economic Co-operation and Development
- Outcome Health
- Primary Health Networks – various
- Rare Voices Australia
- Registry of Senior Australians
- Research Australia
- Royal Australasian College of Medical Administrators
- Royal Australian and New Zealand College of Radiologists
- Royal Australian College of General Practitioners
- Royal College of Pathologists of Australasia
- Royal Commission into Aged Care Quality and Safety
- Sax Institute
- Scalabrini
- St Vincent's Health Australia
- Sydney Children's Hospitals Network
- Telethon Kids Institute
- Telstra Health
- Therapeutic Goods Administration
- Therapeutic Guidelines Australia
- Townsville Hospital and Health Service
- Translational Cancer Research Network
- Uniting
- University College London, UK
- University of Adelaide
- University of Cambridge, UK
- University of Canberra
- University of Melbourne
- University of New South Wales
- University of Newcastle
- University of Notre Dame
- University of Oslo, Norway
- University of Oxford, UK
- University of Queensland
- University of Rio Grande do Sul, Brazil
- University of South Australia
- University of Southern Denmark
- University of Stavanger, Norway
- University of Sydney
- University of Western Australia
- University of Wollongong
- University of York, UK
- World Health Organization

Our Directors

PROFESSOR JEFFREY BRAITHWAITE

Founding Director, Australian Institute of Health Innovation
Director, Centre for Healthcare Resilience and Implementation Science
Professor of Health Systems Research, Macquarie University
President, International Society for Quality in Healthcare

Professor Jeffrey Braithwaite is a leading health services and systems researcher, with a highly regarded global profile. He has considerable expertise in researching the culture and structure of acute settings, leadership, management and change in healthcare, quality and safety in healthcare, international health reform, and the restructuring of health services. He has published extensively, with over 756 refereed contributions and over 28,295 citations.

AIHI comprises four independent, complementary and highly collaborative University research centres.

His cutting-edge research on culture, reform, and resilience has produced an extensive body of work that includes 15 highly regarded books. Professor Braithwaite has led research laying new underpinnings of the discipline, particularly applying complexity science to healthcare improvement and reform.

The International Society for Quality in Health Care (ISQua) has indicated that Professor Braithwaite contributes the most valuable international research in the field. Numerous national governments and health systems, WHO and the Organisation for Economic Co-Operation and Development (OECD) have made extensive use of his work on quality indicators and Safety-II.

A major breakthrough is represented in papers providing advances in healthcare structural change, and the need to deploy more sophisticated change strategies, such as via complexity science, culture change or organisational change through collaborative networks.

Professor Braithwaite is the recipient of 65 awards, including the prestigious Australian Healthcare and Hospitals Association's 2021 Sidney Sax Medal for leadership in improving the delivery, quality, and safety of healthcare systems. He was also awarded the Health Services Research Award by Research Australia in 2015 and multiple Editor's Choice awards for papers published in the International Journal for Quality in Health Care. In 2020, Professor Braithwaite was inducted as President of ISQua.

PROFESSOR JOHANNA WESTBROOK

Director, Centre for Health Systems and Safety Research

Professor of Health Informatics and Patient Safety, Macquarie University

NHMRC Elizabeth Blackburn Investigator Leadership Fellow

Co-Director, Safety, Quality, Informatics and Leadership Program, Harvard Medical School, Harvard University

Professor Johanna Westbrook is internationally recognised for her extensive expertise in medication safety, and her research evaluating the effects of information and communication technology (ICT) in healthcare. She has led research in the development and application of approaches to evaluate ICT, including new, internationally adopted tools and methods.

Professor Westbrook has contributed to theoretical models regarding the design of complex multi-method ICT evaluations and conducted large trials of their effects. To support the conduct of observational workflow studies, she developed the Work Observation Method by Activity Timing (WOMBAT) software (version 3.0 available in the Apple Store), now adopted by 62 research teams across 16 countries.

Professor Westbrook's highly applied research has significantly advanced our understanding of how clinical information systems deliver (or fail to deliver) expected benefits and supported translation of this evidence into policy, practice,



Professors Cutler, Coiera, Braithwaite and Westbrook

and systemic information technology changes. Her research findings informed the recommendations of the Royal Commission into Aged Care Quality and Safety. Most recently she has led research to investigate the effects of a large-scale organisational culture change intervention aimed at reducing unprofessional behaviours between hospital staff.

In 2020, she was awarded the NHMRC Elizabeth Blackburn Investigator Grant Award (Leadership in Health Services Research); and appointed as a Co-Director of Harvard Medical School's Safety, Quality, Informatics and Leadership Program. In 2022, she was awarded the Health Services Research Award by Research Australia, a Telstra Health Brilliant Women in Digital Health Award, and the Health Services Research Association of Australia and New Zealand, Distinguished Investigator Award.

PROFESSOR ENRICO COIERA

Director, Centre for Health Informatics

Director, NHMRC Centre of Research Excellence in Digital Health

Founder, Australian Alliance for Artificial Intelligence in Healthcare

Professor in Medical Informatics, Macquarie University

Professor Enrico Coiera has been working at the intersection of information technology and healthcare for over three decades. Trained in medicine and with a computer science PhD in Artificial Intelligence, he still leads this field. He is the founding Professor in Medical Informatics at Macquarie University and the founding Director of the Centre for Health Informatics (CHI), which was established at University of New South Wales in 1998 and is now based at Macquarie University. CHI is the longest running biomedical and health informatics academic research group in Australia. He is also the Director of the NHMRC Centre of Research Excellence in Digital Health and founder of the Australian Alliance for Artificial Intelligence in Healthcare (AAiH).

He has overseen the development and trial of multiple eHealth interventions, including the Healthy.me consumer support system as well as multiple clinical decision support systems. CHI has launched several start-ups. The most recent, Evidentli, is developing an international customer base for its AI-driven clinical data mapping technologies.

In 2022, Professor Coiera was asked to be editor-in-chief for a focus issue on climate change and health informatics by the prestigious Journal of the American Medical Informatics Association (JAMIA). In 2022, Professor Coiera completed his posting as the Australian government's nominated representative on the AI and Pandemic Response Working Group – part of the International Global Partnership on Artificial Intelligence.



Professor Coiera began his post-doctoral career with 10 years at the prestigious Hewlett-Packard Research Laboratories in Bristol, UK, where he led numerous health technology projects. His textbook, 'Guide to Health Informatics,' is in its third edition and internationally recognised. It has been translated into several languages.

Professor Coiera is a Fellow of the Australian Academy of Health and Medical Sciences, was elected Foundation Fellow and the first President of the Australian College of Health Informatics. He is a foundation member of the International Academy of Health Sciences Informatics, and a Fellow of the American College of Medical Informatics.

In other achievements, Professor Coiera has held key appointments on boards and councils, has been a chief investigator on multiple competitive grants – including two NHMRC Centres of Research Excellence, and has over 400 publications and over 22,000 citations, with a h-index on Google Scholar of over 75. Of these publications, 25 have more than 200 citations, six have more than 600 citations and one has over 2,300 citations.

PROFESSOR HENRY CUTLER

*Inaugural Director, Macquarie University Centre for the Health Economy
Inaugural Deeble Institute Fellow*

Professor Henry Cutler is the Inaugural Director of the Macquarie University Centre for the Health Economy (MUCHE). He leads a team of 15 health economists and eight PhD students, funded by competitive academic grants, alongside contracts with government and non-government organisations. Professor Cutler has led around 180 health economics research projects on a broad range of topics for federal and state government departments, government agencies, industry and non-government organisations.

This includes undertaking projects for the Department of Health and Aged Care, Aged Care Financing Authority, NSW Health, and NSW Treasury. He is also a chief investigator on multiple MRFF, NHMRC and other grants worth \$21 million. In 2022, Professor Cutler received the Inaugural Deeble Institute Fellowship (Australian Healthcare and Hospitals Association) to produce a policy brief for the government on the shift in financial risk associated with value-based payments.

Professor Cutler leads the Macquarie University Health Technology Evaluation team, which evaluates the cost effectiveness of pharmaceuticals and medical

devices for the Pharmaceutical Benefits Advisory Committee and the Medical Services Advisory Committee. The team has critically reviewed over 50 detailed applications, which were used to provide advice to the Minister for Health and Aged Care on whether to list medicines and medical devices.

In consultancy, Professor Cutler has contributed extensively to government policy thinking. He sits on the Independent Health and Aged Care Authority Interim Aged Care Working Group, the Advisory Board of the National Suicide Prevention Office, and the National Disability Insurance Agency Investment Effectiveness Program Academic Advisory Panel. He was recently a member of an expert committee for the Victorian Royal Commission into Mental Health, an expert witness in the Royal Commission into Aged Care Quality and Safety, and sat on the National Mental Health Commission National Workplace Initiative Evaluation Group.

Professor Cutler is collaborating with several Macquarie University research centres, including the Centre for Emotional Health, MindSpot, and the Centre for Ageing, Cognition, and Wellbeing. He is also collaborating with external research centres, such as the Black Dog Institute and the Centre for Healthy Brain Ageing.

Key new grants for 2022

MEDICAL RESEARCH FUTURE FUND

\$1m

Transforming residential aged care through evidence-based informatics

Professor Johanna Westbrook

Partners:

BESTMED
Aged Care Industry Information Technology Council
Aged Care Quality and Safety Commission
Consumers Health Forum of Australia
Southern Cross Care
Bupa Aged Care

\$1.2m

Smarter hospitals: Unlocking the promise of virtual models of care through infrastructure innovation in Australian healthcare facilities

Associate Professor

Reema Harrison

Partners:

Deakin University
Health Infrastructure NSW
University of New South Wales

\$2.8m

Working together: innovation to improve Emergency Department performance, and patient outcomes and experience for five complex consumer cohorts

Associate Professor

Robyn Clay-Williams

Partners:

Western Sydney Local Health District
Agency for Clinical Innovation
Commonwealth Department of Social Services
Health Consumers NSW
NDIS Quality and Safeguards Commission

NHMRC PARTNERSHIP PROJECT

\$1.5m

Improving the health system's response when patients are harmed: a mixed-methods study

Associate Professor Peter Hibbert

Partners:

Clinical Excellence Commission NSW
Clinical Excellence Queensland
Safer Care Victoria
ACT Health
Australian Commission on Safety and Quality in Health Care

IMPACT STORIES

Making a difference to communities around the world

Survey reveals Australia's healthcare experience



Overall, Australians' perceptions of their healthcare system improved

In April 2022, the now Federal Health Minister Mark Butler launched the Voice of Australian Health Consumers' Survey, stating that, "This is one of the most important pieces of research we have, about one of the most important issues facing Australians." The independent survey, conducted by AIHI, PCHSS and the Consumers Health Forum of Australia (CHF), found that

overall, Australians' perceptions of their healthcare system improved between 2018 and 2021, perhaps indicating a greater appreciation of the skills of healthcare workers on the frontlines of care.

However, significant concerns were expressed over a number of issues, including inadequate workforce capacity, reduced affordability of care and medicines, the perceived poor quality of aged care facilities, and unacceptable levels of disrespect and discrimination. According to the report, 23% of Australians have experienced discrimination or disrespect when accessing healthcare, and many Australians struggled to access or afford healthcare, with 24% reporting that they did not fill a prescription or omitted doses of medicine on the basis of cost.

The research was led by Professors Yvonne Zurynski, Jeffrey Braithwaite and Dr Louise Ellis.

Zurynski Y, Ellis LA, Dammerly G, Smith CL, Halim N, Ansell J, Gillespie J, Caffery L, Vitangcol K, Wells L, Braithwaite J.

The Voice of Australian Health Consumers: The 2021 Australian Health Consumer Sentiment Survey. North Ryde: Report prepared for the Consumers Health Forum of Australia, 2022; Mar 2022. 20 p. ↗

Zurynski Y, Wells L, Braithwaite J. Affordability of health system huge issue for consumers. MJA InSight+. 2022 Mar 28;11. ↗

IMPACT STORIES

Making a difference to communities around the world

World-first research at the National Medication Safety Symposium

New world-first research showing the impact of electronic medication management (eMM) systems on the rate of errors that occur during the prescribing of medication in paediatric hospitals, was released at the National Medication Safety Symposium at AIHI, on September 21st, 2022. NSW Health Secretary Susan Pearce opened the event.

The research, funded by an NHMRC Partnership Project, led by Professor Johanna Westbrook, measured the rate and severity of medication prescribing errors in two large paediatric hospitals, after the introduction of a new eMM system. Results point the way for safer care for children. Medication errors are a known problem in hospitals, with figures showing each patient can experience a medication error during their stay, resulting in additional costs for the health system and families.

However, Professor Westbrook is confident that advances can be made: this research has, “not only delivered evidence on the effectiveness of the new technologies, it also demonstrated how researchers and hospitals working together could make rapid improvements to optimise systems and improve practices to deliver safer care for children.” Numerous findings from the research have been rapidly implemented by the hospitals involved.



NSW Health Secretary Susan Pearce with Professors Johanna Westbrook and Jeffrey Braithwaite

Researchers and hospitals can make rapid improvements to optimise systems and improve practices, delivering safer care

Westbrook JI, Li L, Raban MZ, Mumford V, Badgery-Parker T, Gates P, Fitzpatrick E, Merchant A, Woods A, Baysari M, McCullagh C, Day R, Gazarian M, Dickinson M, Seaman K, Dalla-Pozza L, Ambler G, Barclay P, Gardo A, O'Brien T, Barbaric D, White L. Short- and long-term effects of an electronic medication management system on paediatric prescribing errors. *npj Digit. Med.* 2022 Dec 13;5:179. [↗](#)

Macquarie University. AIHI: National Medication Safety Symposium 2022 [Video on the internet]. 2022 Oct 3. [↗](#)



IMPACT STORIES

Making a difference to communities around the world

The Centre for Health Informatics celebrates twenty-one years

On July 11th 2022, the Centre for Health Informatics (CHI) – Australia’s longest running health informatics research group – marked its 21st anniversary with a symposium, celebrating two decades of digital transformation in healthcare.

Leading AI and health experts converged on Macquarie University to discuss the AI-led reinvention of healthcare. Discussions ranged from the latest in ground-breaking research to a consideration of the possibilities, challenges – and dangers – of AI.

Innovations are needed if our health system is to meet the waves of challenge



IMPACT STORIES

Making a difference to communities around the world

21

Professor Enrico Coiera, who founded CHI as a university-based research group in 2000, presented his keynote, appraising two decades of digital transformation in healthcare noting that, “we are firmly fixed on creating the next generation of innovations that are needed if our health system is to meet the waves of challenge now washing over it, from COVID-19 to climate change.”

The event was introduced by Macquarie University’s Vice-Chancellor, Professor Bruce Dowton, with the Keynote address by Professor Michael Kidd AM, Deputy Chief Medical Officer and Principal Medical Advisor. The afternoon culminated in a lively panel discussion facilitated by Professor Jeffrey Braithwaite and featured expert panellists from across Australia.

Macquarie University. AIHI: Centre for Health Informatics 21st anniversary symposium 2022 [Video on the internet]. 2022 Sep 4. ↗

years



Snapped at the event: left to right Professor Patrick McNeil, Deputy Vice-Chancellor (Medicine and Health), MQ; Professor Andrew Georgiou, AIHI, and Louise Schaper, CEO, Australasian Institute of Digital Health; Professor Farah Magrabi, AIHI; Professor Enrico Coiera, AIHI; Sheree Crick, Kalissa Brooke-Cowden, Denise Tsiros, Sue Christian-Hayes, Pippa Dorricott, AIHI; Professor Shlomo Berkovsky, AIHI; Professor Michael Kidd AM, Deputy Chief Medical Officer and Principal Medical Advisor, Australian Government.

IMPACT STORIES

Making a difference to communities around the world

Health Innovation Series delivers on eMedication safety



Each issue contains system optimisation tips ... as well as user tips for health professionals

The Health Innovation Series – an electronic bulletin featuring evidence-based recommendations to improve care delivery through electronic medication management (eMM) systems – was launched at the National Medication Safety Symposium in September 2022.

Drawing on a five-year program of research in hospital and aged care settings, this regular short-form bulletin was developed to communicate recommendations for eMM system optimisation, making care safer. Each issue contains eMM optimisation tips that can be actioned by managers and system vendors, as well as user tips for health professionals including nurses, doctors, and pharmacists.

Each bulletin in the series has been downloaded hundreds of times and feedback from the health system has been overwhelmingly positive.

Australian Institute of Health Innovation, Macquarie University. e-Medication Safety. Health Innovation Series [Internet]. 2022 Sep. ↗



IMPACT STORIES

Making a difference to communities around the world

Introducing a roadmap towards scalable value-based payments in healthcare

“Australian healthcare funding policy needs a rethink,” writes Professor Henry Cutler in an Issues Brief for the Australian Healthcare and Hospitals Association’s (AHHA) Deeble Institute for Health Policy Research.

The ground-breaking Issues Brief, ‘A roadmap towards scalable value-based payments in Australian healthcare’, examines the challenges and advantages of moving ahead with a health funding model that includes value-based payments.

The Brief outlines four key recommendations, including the development of a cohesive vision and national 10-year plan for

value-based payment integration into the healthcare system and the creation of an independent national payment authority.

“Value-based payments are a necessary step towards securing a sustainable healthcare system for Australia. Their purpose aligns with other important healthcare system policies to improve health outcomes and reduce waste, and crucially to provide better outcomes that matter to patients and their families.”

Cutler H. A roadmap towards scalable value-based payments in Australian healthcare. Deakin ACT: Australian Healthcare and Hospitals Association; 2022. 58 p. (Deeble Issues Brief;49). ↗



Professor Henry Cutler

Value-based payments are a necessary step towards securing a sustainable healthcare system for Australia

IMPACT STORIES

Making a difference to communities around the world

Climate change and health informatics: a call to action



Professor Farah Magrabi

Health informatics can support communities experiencing the detrimental impacts of climate change

A special climate-focused issue of the prestigious international Journal of the American Medical Informatics Association (JAMIA), edited by Professors Enrico Coiera and Farah Magrabi, suggests that IT can help reduce greenhouse emissions and manage the health impacts of climate change.

Health informatics and digital health solutions are fundamental to addressing both the causes and consequences of global heating, say Professors Coiera and Magrabi in their editorial call-to-action.

With contributions from around the world, the special issue not only shines a light on what health informatics can do to support communities experiencing the detrimental impacts of climate change (e.g., targeted dissemination of healthcare information during extreme weather events), but also seeks to raise awareness of how health services are contributing to carbon emissions.

AIHI researchers also contributed papers on the importance of measuring healthcare's climate footprint, and the role of health informatics in climate change mitigation and response.

Coiera E, Magrabi F. What did you do to avoid the climate disaster? A call to arms for health informatics. JAMIA, 2022 Dec;29(12):1997-1999. [↗](#)

Smith CL, Zurynski Y, Braithwaite J. We can't mitigate what we don't monitor: using informatics to measure and improve healthcare systems' climate impact and environmental footprint, JAMIA, 2022 Dec;29(12):2168-2173. [↗](#)

Rahimi-Ardabili H, Magrabi F, Coiera E. Digital health for climate change mitigation and response: a scoping review. JAMIA, 2022 Dec;29(12):2140-2152. [↗](#)

IMPACT STORIES

Making a difference to communities around the world

Reducing wait times in hospital emergency departments

In NSW emergency departments, consumers who are older, have a disability, present with a mental health condition, are Aboriginal and Torres Strait Islander, or come from culturally and linguistically diverse (CALD) backgrounds, are being involved in research to improve the safety and quality of care they receive when visiting a hospital emergency department.

This 5-year Medical Research Future Fund project is led by Associate Professor Robyn Clay-Williams, who says, “These communities have higher rates of presentation to emergency departments than other Australians and improving their care will reduce hospital waiting times for everyone.”

The \$2.8 million project is addressing the acute care needs of people with complex health conditions who often spend longer than average in emergency departments and have worse health outcomes than the general population.

The research is centred in Western Sydney hospitals, and successful improvements will be rolled out to other hospitals across NSW. The project team includes researchers from Macquarie University and the University of New South Wales, along with clinicians from Westmead and Blacktown Mount Druitt Hospitals’ emergency departments.



Associate Professor Robyn Clay-Williams

Improving the care of the vulnerable will reduce hospital waiting times for everyone

IMPACT STORIES

Making a difference to communities around the world

Expanding the use of PROMIS

The ALDVMM outperformed all other econometric models considered in this study



Mona Aghdaee

The Patient-Reported Outcomes Measurement Information System (PROMIS-29) is gaining popularity as healthcare system funders increasingly seek value-based care and is the primary tool used by the NSW Ministry of Health to measure patient outcomes for integrated care programs.

PROMIS-29 is however limited in its ability to estimate utilities and thus inform economic evaluations. A recent study by researchers at MUCHE developed the first mapping algorithm for estimating EuroQol 5-Dimension 5-Level (EQ-5D-5L) utilities from PROMIS-29 responses using a large dataset and through extensive comparisons between econometric models.

An online survey collected responses to PROMIS-29 and EQ-5D-5L from the general Australian population.

Direct and indirect mapping methods were explored, including linear regression, Tobit, generalised linear model, censored regression model, beta regression (Betamix), the adjusted limited dependent variable mixture model (ALDVMM) and generalised ordered logit.

The study developed a robust algorithm to estimate EQ-5D-5L utilities from PROMIS-29. This extensively broadens the use of PROMIS-29, allowing healthcare system evaluators to derive utilities and conduct cost utility analysis on programs that have collected PROMIS-29 primarily to inform better clinical decisions.

Aghdaee M, Gu Y, Sinha K, Parkinson B, Sharma R, Cutler H. Mapping the Patient-Reported Outcomes Measurement Information System (PROMIS-29) to EQ-5D-5L. *Pharmacoeconomics*. 2023 Feb;41(2):187-98. [↗](#)

Aghdaee M, Parkinson B, Sinha K, Gu Y, Sharma R, Olin E, et al. An examination of machine learning to map non-preference based patient reported outcome measures to health state utility values. *Health Economics*. 2022;31(8):1525-57. [↗](#)



Our higher degree researchers are undoubtedly the future leaders of healthcare with their innovative ideas and dedicated approach. These recent candidates share their perspectives.

Researchers of the future



ASHFAQ CHAUHAN

As a person from a CALD background, I have always been passionate about improving quality and safety of healthcare for CALD communities. My PhD aimed to characterise and enhance safety of care for CALD communities accessing cancer services in New South Wales. I explored the nature of patient safety issues experienced by patients from CALD backgrounds and how people from CALD backgrounds are engaged in healthcare decision-making. As part of my PhD, a co-designed consumer engagement intervention to enhance medication safety in cancer care was developed. I also produced outputs demonstrating meaningful involvement of people from CALD backgrounds in co-design research. My thesis is comprised of six peer-reviewed journal articles.

I am currently working as a post-doctoral researcher with AIHI on a project that aims to enhance quality of end-of-life care for patients from CALD backgrounds with cancer.



NOURA SABA

I started my journey at AIHI as a Master of Research student exploring the preferences of Australians for depression treatment and the impact of health literacy on their choices. I am currently pursuing a PhD while working as a research assistant. My PhD explores policy impact of COVID-19 on mental healthcare utilisation in Australia. My work also involves understanding suicide prevention preferences for men who had suicidal thoughts and/or attempts but haven't sought formal help from healthcare services.

I am grateful to AIHI for their incredible support in giving me the opportunity to pursue research in the field I am most passionate about: the economics of mental health.



TOM BOWDEN

Following a career in setting up and running one of Australasia's largest e-Health startups, I became concerned at the substantial investment in shared electronic healthcare records systems (SEHRs) that were getting very little use by emergency department clinicians. AIHI gave me the opportunity to commence a PhD looking at alternative ways in which to design and implement SEHRs.

We have learned that ED clinicians want access to the records of all patients, easily and efficiently, and access to the widest possible range of information and to be able to fully rely on what they find.

Four papers, jointly authored with other AIHI team members, have been published in internationally recognised journals.



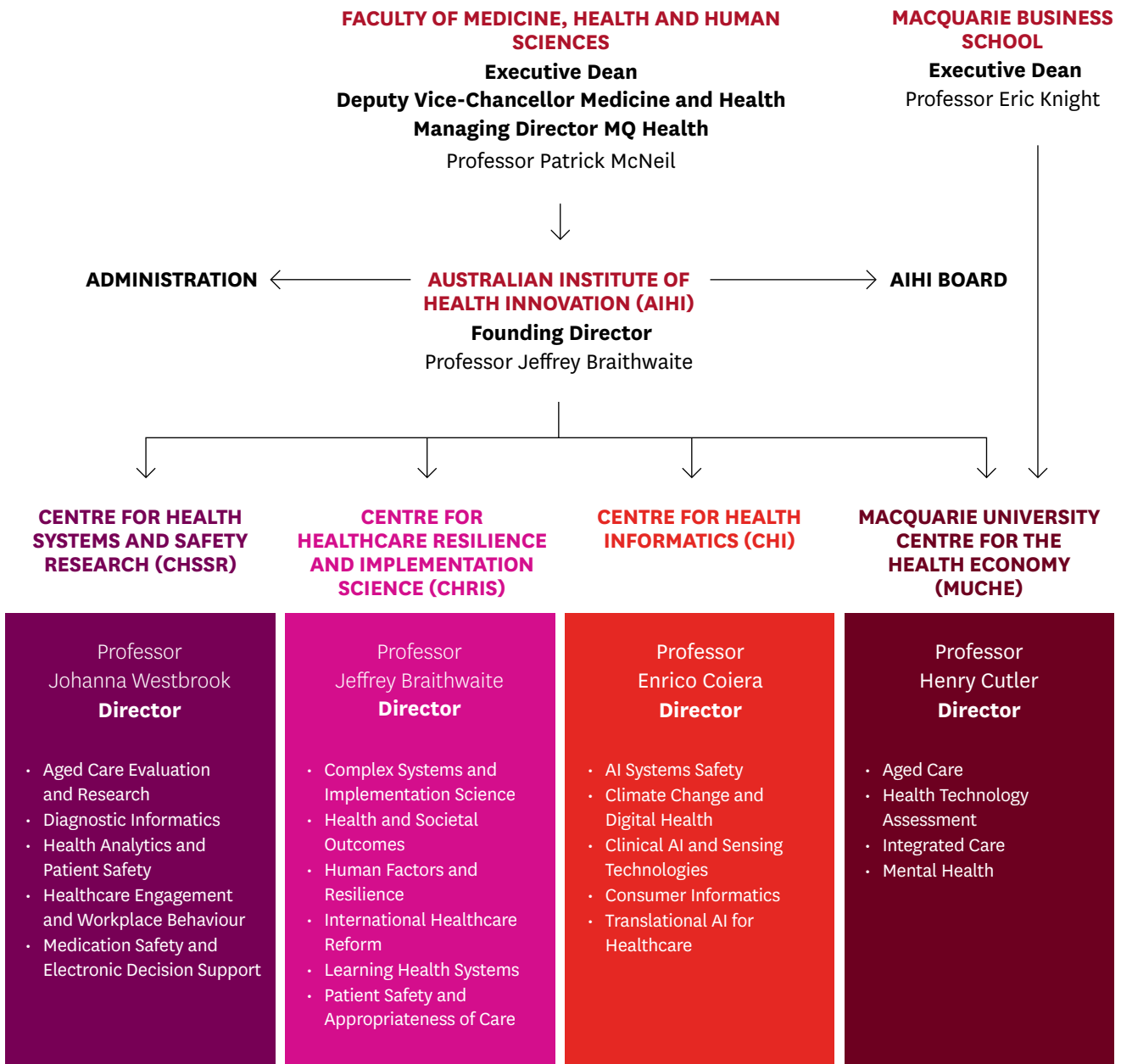
NATALIE SEQUEIRA

I am the Director of Strategy, Quality and Engagement at MQ Health – Macquarie University's health sciences centre. As part of my portfolio, I look after doctor engagement for the organisation. I was fortunate to be able to extend my practical experience working with doctors to a research project designed to measure engagement. Working with an incredible supervisory team at AIHI and medical colleagues in the USA, my MRes thesis involved the development and validation of a tool to measure 'doctor activation' – the MD-A. I'm continuing to work with the team to build on the tool and expand its relevance and applicability and am excited that we have adopted it within my workplace at MQ Health.

As a health service manager, the opportunity to conduct translational research with world-class guidance and supervision onsite, and learn new skills, is a unique and fulfilling experience which I commend to my colleagues.

I hope to use what I have learned to make a significant contribution to the design of future SEHR systems in Australia, Canada, New Zealand and perhaps further afield. TOM BOWDEN

Organisational structure



NHMRC PARTNERSHIP CENTRE FOR HEALTH SYSTEM SUSTAINABILITY

NHMRC CENTRE OF RESEARCH EXCELLENCE IN DIGITAL HEALTH

NHMRC CENTRE OF RESEARCH EXCELLENCE IN IMPLEMENTATION SCIENCE IN ONCOLOGY



Introducing our Centres

AIHI is dedicated to improving the services and systems that deliver healthcare to individuals and communities. Central to this mission are the four highly productive and complementary Research Centres at the core of the Institute:

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

These centres are specialist powerhouses of expert research endeavour, as can be seen in the reports that follow. They also collaborate extensively. The success of this model is exemplified by the three additional centres funded by the NHMRC and led by AIHI, shown in the organisational structure.

Centre for Health Systems and Safety Research

More than ever before, applied health services research is needed to guide the design, implementation and optimisation of health services and the underpinning of information technology systems in order to deliver safe and effective care for the Australian community.

PROFESSOR JOHANNA WESTBROOK

From hospitals to aged care services, health information technologies are designed to make things better – from greater efficiency to improved patient safety. However, the implementation of these technologies is complex and often disrupts healthcare delivery. The Centre for Health Systems and Safety Research (CHSSR), led by Professor Johanna Westbrook, continues to tackle important research questions about how health information technologies can be designed, utilised, and deliver improved outcomes for Australians. Effective information exchange, communication, and teamwork are essential elements of the patient safety puzzle. Through our design and application of complex multi-method evaluation models, our research is delivering high quality evidence to inform decision making and drive changes in healthcare policy and practice.

Our work continues to inform policy and practice, including:

- A NHMRC Partnership Project to co-design, implement and evaluate a National Aged Care Medication Roundtable under-pinned by a learning health systems model.

- A NHMRC Partnership Project in Digital Health to establish a digital health foundation for outcomes-based diagnostic excellence, safety and value.
- Publishing the Health Innovation Series – evidence-based recommendations to improve care delivery and outcomes – with the first series focussing on a specific concern around medication safety, including electronic medication management systems.
- A Cancer Institute NSW Career Development Fellowship project to co-design quality end of life care for culturally and linguistically diverse people with cancer.
- A NHMRC Partnership Project with Anglicare to develop a dashboard of predictive analytics and decision support to drive care quality and person-centred outcomes in aged care.



Professor Johanna Westbrook (centre) was awarded the prestigious Health Services Research Award at Research Australia's 19th Health and Medical Research Awards

CHSSR Streams of research

AGED CARE EVALUATION AND RESEARCH

Dr Nasir Wabe

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People receiving aged care services are faced with numerous quality and safety concerns due to their increased vulnerability and rising healthcare needs. The goal of the Aged Care Evaluation and Research (ACER) team is to generate high-quality evidence through applied and translational research to improve health and service delivery outcomes in both residential and community aged care settings.

There are four themes within ACER:

- Consumer-driven health services and informatics
- Geriatric pharmacoepidemiology and pharmacy informatics
- Predictive and prescriptive analytics
- Chronic disease care and healthy ageing

ACER were successful in securing the following MRFF grants in 2022:

- Transforming residential aged care through evidence-based informatics. This Dementia, Ageing and Aged Care Mission Project Grant is led by Professor Westbrook with an overarching aim of improving medication management in aged care by mobilising the power of informatics.

- The Australian Consortium for Aged Care Quality Measurement Toolbox (ACAC- QMET): Improving Quality of Care through Better Measurement and Evaluation. This project aims to improve consistency and quality of care for older Australians by creating a pragmatic national framework for person-centred care that includes meaningful measurement and innovative evaluation tools.

A study, published in BMC Geriatrics, about the use and predictive performance of the Peninsula Health Falls Risk Assessment Tool (PH-FRAT) in residential aged care facilities revealed important findings with both clinical and policy implications. The results showed that this commonly used tool has poor accuracy in predicting falls. The paper attracted widespread media attention.

MEDICATION SAFETY AND ELECTRONIC DECISION SUPPORT

Dr Magda Raban

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Medication error and inappropriate medication therapy are a continuing challenge to the health system across care settings. The Medication Safety and Electronic Decision Support stream evaluates whether and how digital technology can

reduce medication errors, support medication therapy decision making and improve patient outcomes.

We conduct our research across multiple care settings, including hospitals and residential aged care. We apply mixed methods to understand technology impact, how it is used, and identify well-designed and poorly designed system features.

Highlights for 2022 include:

- We were awarded a MRFF Dementia, Ageing and Aged Care Mission project grant.
- The team hosted the National Medication Safety Symposium.
- The key results of our partnership project with the Sydney Children's Hospitals Network and eHealth NSW to evaluate the electronic medication system in paediatrics, were published in Nature Digital Medicine: Short- and long-term effects of an electronic medication management system on paediatric prescribing errors.
- The Health Innovation Series was launched and is highlighted earlier in this report in Impact Stories.

DIAGNOSTIC INFORMATICS

Professor Andrew Georgiou

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Pathology and medical imaging services play a critical role in the delivery of patient care,

underpinning much of the health care system. Diagnostic informatics research is central to innovations in diagnostic delivery and management, empowering therapeutic decision-making and quality patient care. Our research stream delivers the quality evidence necessary to enhance clinical excellence, patient safety and the value of care.

The Australian Journal of Primary Health paper, “A framework for conducting policy-relevant primary care research: a COVID-19 case study in Australia”, detailed the Diagnostic Informatics team’s involvement in a ground breaking research collaboration that examined the impact of the COVID-19 pandemic on Australian general practice activity and patient care. The project was supported by the Digital Health Cooperative Research Centre involving researchers, general practitioners, digital health providers, professional bodies and five primary health networks from across New South Wales and Victoria. This project has now received additional funding to continue through 2023.

In a further highlight and in collaboration with NSW Health

Pathology, the team secured a Department of Health (Commonwealth) Quality Use of Pathology Program grant to facilitate the design of “The Emergency Department Pathology Order Support Tool (ED POST) – an intelligent and dynamic electronic tool to facilitate appropriate and effective use of pathology.”

HEALTH ANALYTICS AND PATIENT SAFETY ↗

Associate Professor Ling Li
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Rich and dynamic healthcare data have been collected from different sources across healthcare systems. Health Analytics and Patient Safety focuses on enabling the use of healthcare data to improve patient care delivery and patient outcomes. We endeavour to apply rigorous and robust data analytics methods to properly interpret these data, discover potential issues and reveal hidden opportunities.

Highlights for 2022 include:

- Awarded a 5-year MRFF grant as a major collaboration partner, involving study design and data analytics. This grant – Giving patients an EPIC-START:

An evidence-based, data-driven model of care to improve patient care and efficiency in emergency departments (EDs) – aims to improve patient outcomes through earlier decisions, delivery of care and detection of clinical deterioration. A stepped wedge cluster randomised trial will commence at 30 NSW EDs in 2023.

- Expanded our sepsis research and collaboration across Australia. We published four articles on sepsis early detection and treatment, including one in BMJ Open and two comprehensive scoping reviews on computerised clinical decision support systems for early detection of sepsis – one for adults and the other for paediatric, neonatal, and maternal inpatients (JMIR and JMIR Medical Informatics).
- In 2022, we had six students working on sepsis-related projects, including three clinical science students, two Macquarie Doctor of Medicine Program students, and one PhD student (Khalia Ackermann – awarded the Macquarie University Research Excellence Scholarship).
- Provided analytical support to three NHMRC partnership projects on paediatric medication

L-R: Dr Nasir Wabe, Dr Magda Raban, Professor Andrew Georgiou, Associate Professor Ling Li and Associate Professor Reema Harrison



management systems, drug-drug interaction decision support and unprofessional behaviours in hospitals.

HEALTHCARE ENGAGEMENT AND WORKPLACE BEHAVIOUR ↗

Associate Professor Reema Harrison

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Ensuring that healthcare staff and consumers are involved in decision-making about their healthcare and the system in which it operates, is critical for safe and good quality care. Our work strives to facilitate engagement of staff and consumers in decision-making processes and the design of healthcare change and innovation. We focus particularly on finding novel

approaches to make sure that every voice is heard, including those who are seldom involved by health services.

During 2022, our co-design project CanEngage produced, with consumers and clinicians, the Make it Meaningful (MiM) tool to reduce medication safety problems experienced by CALD consumers accessing cancer services. The MiM is now being trialled by Prince of Wales Hospital, Sydney.

The Clinician Experience Measure (CEM) developed in work commissioned by NSW Ministry of Health, received approval to be used as a state-wide indicator for evaluating value-based initiatives in NSW and has now been applied with cohorts of clinicians providing care

for older adults, people with diabetes and those using virtual models.

We secured an NHMRC Partnership Project: Smarter Hospitals to explore virtual care integration in Australian health systems with a focus on achieving equitable health outcomes for diverse communities.

Dr Chauhan was awarded his PhD for research on the safety of cancer care for culturally diverse consumers.

Snapped at the National Medication Safety Symposium, left to right: Dr Magda Raban, AIHI; Dr Racha Dabliz, Senior Project Officer, ACSQHC, Jo Root, Policy Director, CHF, Dr Mark Simpson, eHealth NSW Chief Clinical Information Officer and Executive Director, Clinical Engagement and Patient Safety; Michael Dickinson, Director of Information, Communication and Technology, Sydney Children’s Hospitals Network, Erin Fitzpatrick, AIHI, Sophie Brown, Pharmacist, Sydney Children’s Hospitals Network; Dr George Margelis, Aged Care Industry Information Technology Council, Professor Johanna Westbrook, AIHI, Professor Jeffrey Braithwaite, AIHI.






Ms Susan Pearce, Secretary, NSW Health

Centre for Healthcare Resilience and Implementation Science

Recent years have highlighted the urgent need for strengthened, robust healthcare systems that provide high quality care to patients with increasingly complex needs.

PROFESSOR JEFFREY BRAITHWAITE

The improvement of health systems is a challenge of enormous magnitude due to a confluence of factors, such as ageing populations, limited resources, technological breakthroughs, and heightened consumer expectations. Researchers from the Centre for Healthcare Resilience and Implementation Science (CHRIS ) address complex problems, adopt evidence, translate this into practice to improve delivery systems, and design new models of care. We are leaders in the study of complexity science, human factors, resilience in healthcare setting, implementation science, and patient safety.

CHRIS, led by Professor Jeffrey Braithwaite, is reconceptualising healthcare research to build more resilient systems. We pursue highly collaborative, multidisciplinary research to ensure findings are translated into better and more cost-effective, sustainable care.

CHRIS is integral to the NHMRC Partnership Centre for Health System Sustainability (PCHSS) and the NHMRC Centre of Research Excellence in Implementation Science in Oncology (CRE-ISO). We also work with international bodies including the WHO, OECD, ISQua, and the Society for Organisational Behaviour in Health Care to support global healthcare reform.



Professor Jeffrey Braithwaite's opening address at the International Society for Quality In Health Care (ISQua) conference

CHRIS Streams of research

COMPLEX SYSTEMS AND IMPLEMENTATION SCIENCE ↗

**Professor Jeffrey Braithwaite
Dr Janet Long, Dr Louise Ellis,
Dr Kate Churruca**

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Complex Systems explores ways to capture, leverage and embrace the intricacies and multifaceted nature of healthcare. In a Complex Adaptive System, with diverse agents (patients, providers, governments) constantly interacting with each other and their environment (clinical processes, complicated technologies), a holistic approach is required to improve care.

We focus on organisational culture and context and their influence on care delivery, and implementation of best practice and new treatment advances, including in genomic medicine and mental health. Key projects include the Medical Research Futures Fund Keeping Australians out of Hospital; a range of genomic research projects (Mackenzie's Mission: the Australian Reproductive Genetic Carrier Screening Project, funded by the Genomics Health Futures

Mission); an MRFF funded project on the implementation of new cancer treatments for melanoma and non-small cell lung cancer; a Suicide Prevention Australia targeted research grant on the implementation and evaluation of co-created safe spaces for people experiencing emotional distress or suicidal crisis; a range of safety culture research projects with the Australian Commission on Safety and Quality in Health Care, the OECD, and MQ Health; our ongoing involvement in the Resilience in Healthcare longitudinal research program in six countries; as well as our work with the University of Oxford on virtual triage services, NHS 111 and healthdirect. The value of our research is demonstrated by substantial grant success listed in the Grants section of this report.

In key research progress, three papers were published from the MRFF Keeping Australians out of Hospital, including a realist synthesis and a realist methodology paper. Mackenzie's Mission finished after screening 9,600 couples. Our implementation science work with GPs offering the screen helped to support and streamline the process. Additionally, as a

Stream we were well represented at numerous conferences, such as the Organisational Behaviour and Healthcare Conference in Birmingham, and ISQua in Brisbane.

HEALTH AND SOCIETAL OUTCOMES ↗

**Associate Professor
Rebecca Mitchell**

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We examine the burden of chronic disease and traumatic injury on the health system to determine priorities for preventive efforts. We conduct research in the health system, and in the general population, aimed at identifying where population health outcomes could be enhanced.

Highlights included:

- Grant awarded from the Cochlear-Macquarie University Joint fund to examine the health and social long-term outcomes of adults who have received a cochlear implant within NSW as well as nationally.
- Best conference paper Lystad R, McMaugh A, Herkes G, Browne G, Badgery-Parker T, Cameron C, Mitchell R. The impact of concussion on school performance in Australian children: a population-based matched

cohort study. Sports Medicine Australia Annual Conference, 16-19 November 2022.

- Completed the first retrospective cohort study examining health service use and predictors of high health service use among adults experiencing homelessness with Macquarie University Professor Olav Nielssen.

HUMAN FACTORS AND RESILIENCE

Associate Professor Robyn Clay-Williams

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Human Factors and Resilience focuses on creating health systems that function effectively in the presence of complexity and uncertainty. Our team provides a vital contribution, nationally and internationally, to understanding how healthcare systems function, and how to make them safer for patients.

In 2022, our research in health service and system design, in combination with our expertise in human factors methods, produced new tools to assist in understanding complex health systems and improve their functioning. We completed

development and validation of Cognitive Work Analysis and Functional Resonance Analysis Models of NSW hospital emergency departments (ED). These models can be used to design, implement, and test new interventions in EDs to improve patient care.

In NSW ED consumers who are older, have a disability, present with a mental health condition, are Aboriginal or Torres Strait Islander, or come from CALD backgrounds, spend longer than average in the ED and have worse outcomes. In mid-2022, we commenced a large 5-year MRFF funded project (short title: MyED) to work with these consumers and the clinicians who treat them, to understand their needs and to co-design new models of care that reduce excess length of stay and improve the care outcomes and experience for these groups. We are undertaking the research in Westmead, Blacktown and Mount Druitt EDs, with our partners Western Sydney Local Health District, the NSW Agency for Clinical Innovation, the Department of Social Services, the NDIS quality and Safeguards Commission and Health Consumers NSW.

We also completed a project to develop innovative models of care for a new hospital for Health Infrastructure, the Rouse Hill Development Project. The findings were used to develop the Clinical Services Plan for the new hospital.

INTERNATIONAL HEALTHCARE REFORM

Professor Jeffrey Braithwaite

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International Healthcare Reform asks a key question: how can we provide high-calibre research evidence which low-, middle-, and high-income countries can apply in their efforts to continuously reform and make system improvements? Two book series have been produced in this field: one, on international efforts to understand resilient healthcare, and another on 152 different countries' reform activities.

Implementation Science: The Key Concepts was published in 2022 (Rapport F, Clay-Williams R, Braithwaite J, editors. Implementation Science: The Key Concepts. Taylor & Francis; 2022 Jun 7.)

Over 30 abstracts, posters and talks were accepted from AIHI for ISQua's 38th annual conference.

L-R: Associate Professor Rebecca Mitchell, Associate Professor Robyn Clay-Williams, Professor Jeffrey Braithwaite, Professor Yvonne Zurynski and Associate Professor Peter Hibbert



The event was held in Brisbane, Australia, on various aspects of systems improvement and healthcare reform. Of all international research groups and agencies, AIHI provided the largest contribution to this prestigious international conference.

LEARNING HEALTH SYSTEMS

Professor Jeffrey Braithwaite and Professor Yvonne Zurynski

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Learning Health Systems (LHS) bring together data, clinical information, test results and patient histories alongside patient reported outcomes, preferences and experiences and puts these data in the hands of decision makers.

These can include clinicians, patients themselves, policy makers, and others who need information in a timely way. Finding ways to address the technical problems of data management alongside the social and professional problems of using the data to make better decisions and exercise choices about treatment and care, is crucial if we are to have a fit-for-purpose health system.

In conjunction with PCHSS, during October, we brought together international experts for a symposium under the banner of Creating integrated, safe healthcare systems: Lessons from around the world. Alongside AIHI speakers,

keynotes were provided by Sir Liam Donaldson, Chair, Integrated Care Board (North-East and North Cumbria), UK and Dr Ezequiel García Elorrio, Institute for Clinical Effectiveness and Health Policy, Argentina and President-Elect, ISQua.

Working with international colleagues, we have contributed to the US steering committee on the learning healthcare system with European and US experts and released a LHS Toolkit for global use.

Our papers re-conceptualising Macquarie University General Practice as a learning health system, have been published in the British Journal of General Practice and BMC Primary Care.

Snapped at the ISQua conference left to right: Professor Jeffrey Braithwaite and Professor Cliff Hughes; Dr Elizabeth Austin; Dr Kate Churruca, A/Professor Reema Harrison, Dr Bronwyn Newman, Dr Ashfaq Chauhan, Dr Ann Carrigan.



PATIENT SAFETY AND APPROPRIATENESS OF CARE

Associate Professor Peter Hibbert and Professor Jeffrey Braithwaite

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The aim of the Patient Safety and Appropriateness of Care stream is to research the level of evidence-based or best practice healthcare that Australians receive. Evidence-based care means care is in line with the recommendations in clinical guidelines. This is important because if evidence-based care is not delivered to patients reliably, they can be subject to misdiagnoses, or delayed treatments, or suffer harm from treatments or medications they do not need.

The team continued to publish and present its work on whether patients receive evidence-based care – the CareTrack studies. From our CareTrack Aged NHMRC Project Grant, we published the world’s first comprehensive set of process indicators in aged care – 236 in total. This work was published in the International Journal of Quality in Healthcare. We went on to complete data collection to measure the level of evidence-based care delivered to 543 residents in 42 facilities across South Australia and Victoria.

The team won a NHMRC Partnership Grant together with our partners,

the Clinical Excellence Commission NSW, Clinical Excellence Queensland, Safer Care Victoria, ACT Health and the Australian Commission on Safety and Quality in Health Care. The project will develop and test evidence-based methods for healthcare organisations to improve and measure their response, analysis and learning from incidents, thereby reducing harm to patients.

Associate Professor Hibbert taught on Harvard University’s International Safety, Quality, Informatics and Leadership Program on conducting patient safety investigations.

Official guests at the Creating Integrated, Safe Healthcare Systems: Lessons from around the World seminar were left to right A/Professor Peter Hibbert, AIHI, Dr Ezequiel García Elorrio, Institute for Clinical Effectiveness and Health Policy, Argentina, Professor Patrick McNeil, MQ, Professor Yvonne Zurynski, AIHI, Professor Jeffrey Braithwaite, AIHI, Sir Liam Donaldson, Chair of the Integrated Care Board (North-East and North Cumbria), UK, Professor Johanna Westbrook, AIHI, Professor Cliff Hughes, AIHI, Dr Christian von Plessen, University Centre for General Medicine and Public Health, Switzerland.



Centre for Health Informatics

We are creating the next generation of innovations needed for our health system to meet the many waves of challenge now washing over it from COVID-19 to climate change.

PROFESSOR ENRICO COIERA

2022 was a year of celebration for the Centre for Health Informatics (CHI) as two decades of ground-breaking research and industry-changing successes were celebrated at the 21st Anniversary Symposium on Monday 11th July. Highlights of the hugely successful day are reported in the Impact Stories section of this report.

CHI also held a two-day National Workshop for emerging researchers sponsored by the Australasian Institute of Digital Health (AIDH). The inaugural Emerging Researchers in Health Informatics Symposium (ERHIC) invited abstract submissions from PhD students and early-career researchers. The best paper award went to Kanisha Ward, a Master of Research Student with Dr Annie Lau who leads our Consumer Informatics research stream.

Professor Farah Magrabi was nominated by the Federal Department of Industry, Science, Energy and Resources, as one of Australia's representatives for a 3-year term on the Global Partnership for AI (GPAI). Professor Magrabi will be working with the Montreal Centre of Expertise on Responsible AI.

Professor Magrabi is lead investigator on a Digital Health CRC project which will, on completion of all stages, receive \$2.7 million in funding.

The use of AI to assist clinicians in their safe and effective interpretation of chest X-rays in emergency departments is the focus of this project, working with Sydney Local Health District and Australian MedTech partner, [annalise.ai](#).

Dr Roneel Sharan, postdoctoral research fellow, secured a Google award for his COVID-19 research project 'Cough Sound Assessment Using Deep Learning Techniques' worth USD \$60,000.

Professors Coiera and Magrabi edited a special focus issue on the role of digital health and informatics in helping the health systems meet the challenge of climate change for *JAMIA*, the most highly regarded field journal for medical informatics.

Dr Annie Lau (as mentee) and Professor Magrabi (as mentor) were selected by Macquarie University to participate in the 2022 Franklin Women Mentoring Program.

During 2023, we will add the research stream, Translational AI for Healthcare, led by Dr Sidong Liu.

Centre for Health Informatics 21st Birthday Symposium

Enrico Coiera
The Reinvention of Healthcare –
two decades of digital
transformation



AUSTRALIAN INSTITUTE
OF HEALTH INNOVATION

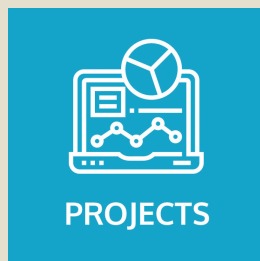
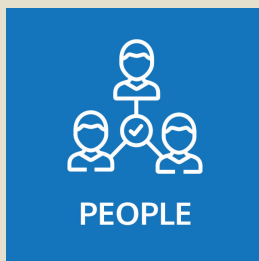


Professor Enrico Coiera at the 21st anniversary symposium for CHI



Dr Sidong Liu

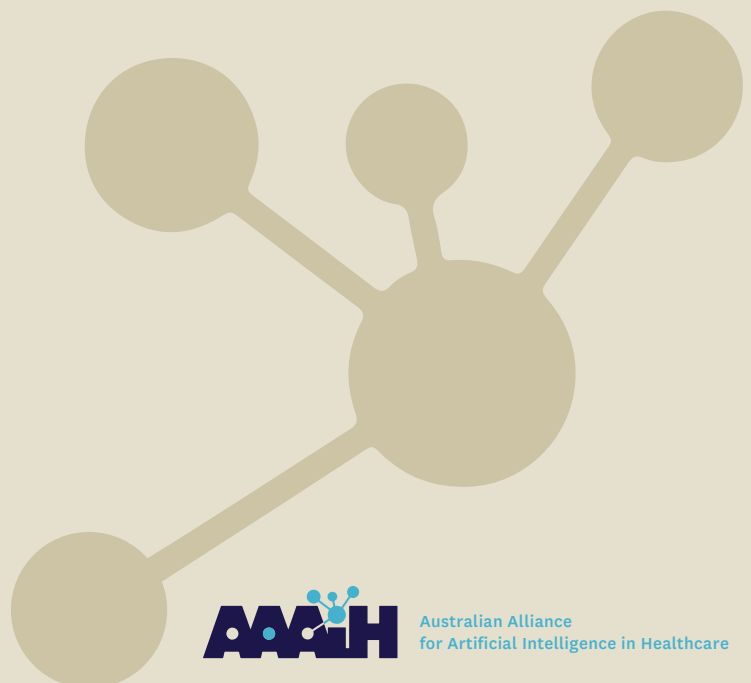
Australian Alliance for Artificial Intelligence in Healthcare



The Australian Alliance for Artificial Intelligence in Healthcare (AAAIH) was founded in 2018 by Professor Enrico Coiera and colleagues from CSIRO and other leading universities to catalyse the national discussion on the safe and effective use of AI in healthcare. It currently has 280 members from 120 national and international partners and stakeholders in academia, government, consumer, clinical, industry organisations, and peak bodies, with the aim to translate frontier AI technologies into real-world health services.

In 2022 the Alliance focused on its new Roadmap for AI in Healthcare, the result of a major consultation process. The Alliance shared the Roadmap widely, including with non-government organisations, the jurisdictions and State and Federal Health Ministers. It makes major recommendations around AI safety governance, security, industry and workforce development.

aihealthalliance.org 



CHI Streams of research

AI SYSTEMS SAFETY

Professor Farah Magrabi

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AI has become ubiquitous in all aspects of our lives, including healthcare where it supports clinicians and patients to make more accurate decisions based on genetic, environmental and lifestyle data. The evaluation of AI is important, but current methods do not focus specifically on AI. To address this gap, the AI Systems Safety stream is creating and implementing methods to monitor the safety and quality of AI in healthcare. This ensures that AI is applied safely and appropriately, that benefits are realised, and key risks are mitigated. Our work is used nationally and internationally by healthcare organisations, government departments, patient safety agencies, and industry.

We are leading the project mentioned in the CHI introduction to evaluate the impact of AI for chest radiography interpretation on clinical decision-making in emergency medicine. We hypothesise that chest x-ray (CXR) AI can support ED clinician decision making by

increasing diagnostic accuracy of CXR interpretation and improving subsequent patient management plans. Findings will also inform further research and implementation of AI into clinical practice.

We are working with healthdirect, the national health advice service to assist with clinical safety assessment of a new clinical decision support system that will be used both by the nurses on the healthdirect helpline, and as the decision support for the online symptom checker.

We were invited by the Therapeutic Goods Administration (TGA) to the International Medical Device Regulators Forum / Global Medical Technology Alliance (GMTA) joint workshop on Updates and Considerations for Artificial Intelligence Medical Devices. The event was attended by over 200 members of the GMTA, Medical Device Regulators, Medical Device Industry and other bodies. The companies represented by GMTA produce nearly 85 percent of the healthcare technology purchased and utilised annually around the world.

CLIMATE CHANGE AND DIGITAL HEALTH

Professor Enrico Coiera

enrico.coiera@mq.edu.au

The Climate Change and Digital Health stream aims to respond to the health impact of climate change using digital technology. Managing data during health crises can be complex; digital health is a central solution to streamline the process and enable healthcare systems to respond efficiently. Further, this stream examines digital health's role in minimising greenhouse gas (GHG) emissions within the healthcare system.

The research within this stream can be divided into three distinct activities:

- How digital health solutions can respond to adverse health effects of climate change.
- How digital health supports the transition towards a net zero health system.
- What digital health's contribution is to GHG emissions, and how can it be minimised.

Professor Coiera was appointed editor-in-chief of JAMIA's climate change and health informatics special issue and provided an editorial.

CLINICAL AI AND SENSING TECHNOLOGIES

Professor Shlomo Berkovsky
shlomo.berkovsky@mq.edu.au

The Clinical AI and Sensing Technologies stream focuses on the use of AI and machine learning for developing personalised predictions of diagnosis and care. The scope of work undertaken by the stream can be described as follows:

- Clinical AI applications. This addresses an emerging approach for personalised disease treatment and prevention that takes into consideration individual variability in genes, environment, and lifestyle.
- Human-technology interaction. This is research addressing how to improve the interaction of people, both clinicians and patients, with health technologies.
- Sensing and signal processing. Sensing technologies can collect accurate and reliable data about human behaviour and condition. If processed and mined, this can reveal insightful information for monitoring of medical conditions.

A new grant was secured from the CSIRO Next-Generation Graduates

Program (2023-2026): AI-Enabled Medical Technologies: From Diagnostics to Therapeutics.

Two significant journal articles were:

- Xiong H, Berkovsky S, Kaafar MA, Jaffe A, Coiera E, Sharan RV. Reliability of crowdsourced data and patient-reported outcome measures in cough-based COVID-19 screening. *Scientific Reports*. 2022 Dec 20;12(1):1-9. 21990.
- Xiong H, Liu S, Sharan R, Coiera E, Berkovsky S. Weak label based Bayesian U-Net for optic disc segmentation in fundus images. *Artificial Intelligence in Medicine*. 2022 Apr;126:1-14. 102261.

CONSUMER INFORMATICS

Dr Annie Lau
annie.lau@mq.edu.au

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

We work closely with patients, consumers, clinicians, and multidisciplinary colleagues to identify important gaps, and develop

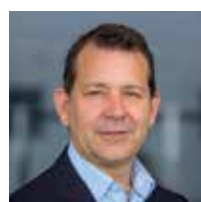
innovative solutions together. We are also able to apply rigorous methods to test the boundaries of how digital technologies can improve health.

During 2022, we deepened our collaboration with a start-up company, commencing a pilot trial examining whether assistive technology (e.g., falls alarm) can enable older people to live safely and independently at home. Adults needing assistance with independent living and their families have been recruited in NSW and Queensland to test these technologies.

We published several innovative breakthroughs in the leading health informatics journal JAMIA, ranging from family informatics, deep learning to classify self-care behaviours from wearable cameras to consumer workarounds during COVID-19.

We celebrated three of our Master of Research students submitting their thesis, one of whom, Kaneshia Ward, has subsequently been awarded a Research Training Program Scholarship to commence her PhD with us. We also welcomed six new candidates commencing their HDR journey.

L-R: Professor Farah Magrabi, Professor Enrico Coiera, Professor Shlomo Berkovsky and Dr Annie Lau



Macquarie University Centre for the Health Economy

It's never been more exciting to research health and aged care. With wholesale reform now required to meet changing healthcare needs and preferences, we're well placed to answer the hard questions and build a better health ecosystem.

PROFESSOR HENRY CUTLER

Further information on our research follows in the MUCHE research stream highlights and elsewhere in this Annual Report.

The Macquarie University Centre for the Health Economy (MUCHE AU) was established in 2014 to become one of Australia's leading applied health economics research centres. Since its inception, MUCHE has delivered over 100 research projects, attracting more than \$12 million directly into Macquarie University and contributed to research funded by grants not administered by MUCHE, valued at over \$70 million.

MUCHE has become a reliable reference point for decision makers, evidenced by the role it plays within the health ecosystem. MUCHE runs the Macquarie University Health Technology Assessment group, evaluating applications for new listings on the Pharmaceutical Benefits Scheme and devices on the Medicare Benefits Schedule, on behalf of the Commonwealth Department of Health. Evaluations undertaken by MUCHE are relied upon to make new medicine

listing decisions that can cost the government over \$1 billion.

MUCHE team members regularly contribute to policy thinking and currently sit on various national government committees, including the National Suicide Prevention Office Expert Advisory Group, Independent Health and Aged Care Pricing Authority (IHACPA), Interim Aged Care Working Group, and the National Disability Insurance Agency (NDIA) Investment Effectiveness Program Academic Advisory Panel.

MUCHE has developed a reputation for undertaking complex health economics research through a collaborative and multidisciplinary approach. MUCHE is affiliated with nine other academic research centres, within and beyond Macquarie University, and collaborates on international health economics projects with world leading research groups.

HIGHLIGHTS



Associate Professor Bonny Parkinson received the Australian Health Economics Society Rising Star Award in 2022.



Publication of an algorithm to convert Patient-Reported Outcomes Measurement Information System (PROMIS-29) responses to utilities for use within economic evaluations. PROMIS-29 was developed by the US National Institutes of Health to measure physical, mental and social domains of health.



Publication of the annual MUCHE Health Report 2022, Australia's most detailed and insightful exploration of federal budget announcements and their potential impact on the Australian health and aged care system.



Professor Henry Cutler

MUCHE Streams of research

MENTAL HEALTH

Professor Henry Cutler

Our mental health stream focuses on the evaluation of new mental healthcare programs tested through randomised control trials, the impact of government policy on mental health outcomes and the structure of the mental healthcare system. We collaborate widely with clinical academics within Macquarie University and with external internationally leading clinical research centres. Our funding comes from a combination of NHMRC and MRFF grants, along with government and industry sources.

Highlights include:

- Leading a year-long project for the National Mental Health Commission on developing a framework to embed more value into mental healthcare funding models and investment decisions. The report will be delivered in 2023, setting the scene for further reform in mental healthcare funding and investment beyond that recommended by the Productivity Commission in their inquiry into mental health.
- Commenced a five-year project funded by the NHMRC

to understand intergenerational change in the health and well-being of older adults and its effects on healthcare use and costs. This project is being led by the Centre for Healthy Brain Ageing, with MUCHE taking responsibility for evaluating the economic impacts of cognitive decline in older adults.

- Professor Cutler joined the National Suicide Prevention Office (NSPO) Advisory Board to provide expert advice on its work and strategic direction. The NSPO was established in 2022 by the Australian Government to develop a nationally consistent and integrated approach to suicide prevention across governments, portfolios and sectors.

AGED CARE

Professor Henry Cutler

An aged care system that delivers high quality and respectful care is the cornerstone to a caring society. Our aged care stream focuses on evaluating the funding and financing structures of the aged care system to help embed sustainability, the role of markets and its impact on care quality, and the interplay

between the demand for different types of aged care – such as Home Care and Residential Care.

Highlights include:

- Dr Anam Bilgrami was awarded a year-long Macquarie University scholarship to explore whether recent increases in Home Care packages funded by the Australia Government have impacted the demand for residential aged care and the outcomes of residents.
- We published a paper in the leading journal Health Policy that investigated the potential impacts on care quality from the Australian Government's 2021 Budget proposal to increase market forces in the residential aged care sector. The paper was presented to over 500 seminar participants within the Department of Health and presented within the Economic Society of Australia (NSW Branch) seminar series.
- Professor Cutler joined the IHACPA Interim Aged Care Working Group and provided advice to IHACPA on the development of aged care pricing methodology for residential aged care.

INTEGRATED CARE

Professor Henry Cutler

Integrated healthcare exists when healthcare providers across different disciplines work together to develop a seamless care pathway for patients. Integrated care is particularly valuable for people with chronic conditions given they often receive services in the community and hospital. Our integrated care stream focuses on the evaluation of integrated care models being delivered within local health networks in Australia. We also seek to help governments develop value-based payment models that break down the traditional siloed funding structures resulting from Australia’s federated structure, to incentivise multidisciplinary providers to work together to deliver outcomes that matter to patients.

Highlights include:

- Finalising an economic evaluation of LifeSpan, a two-year integrated approach across nine strategies aimed at preventing suicide. Lifespan was implemented in four NSW local health networks, which incorporated organisations in health, education, frontline services, community and business.

- Published an article in PharmacoEconomics that maps responses from a patient reported outcomes measure survey (PROMIS-29) to a preference-based health related quality of life survey (EQ-5D-5L). This allows all PROMIS-29 responses to be used in a cost utility analysis to measure economic efficiency.
- Reported in the Impact Stories section of this report, we published a Deeble Institute for Health Policy Research Policy Issues Brief on developing a roadmap towards scalable value-based payments in Australian healthcare.

HEALTH TECHNOLOGY ASSESSMENT

Associate Professor Bonny Parkinson and Professor Martin Hoyle

Health technology assessment (HTA) is the systematic evaluation of the evidence regarding the health and economic impact of a medicine, vaccine, diagnostic test, medical device or procedure. HTA aims to maximise the health of the population given resource constraints by synthesising evidence, sometimes using

economic models, in a form that can be used by policy makers to decide whether a health intervention is value for money.

We undertake collaborative, multidisciplinary projects with the Australian Government, healthcare organisations and leading national research groups in a broad range of fields from genomics, hearing health, and cancer.

Highlights include:

- Conducted nine evaluations for the Australian Pharmaceutical Benefits Advisory Committee and three protocols or evaluations for the Medical Services Advisory Committee.
- Published on the cost and cost-effectiveness of prostate specific membrane antigen positron emissions tomography for the diagnosis of prostate cancer in PharmacoEconomics and Value in Health Regional Issues. These reflect the results of five years of research in collaboration with Cyclotek, which culminated in a new item funded through Medicare on July 1, 2022.

L-R: Professor Henry Cutler and Associate Professor Bonny Parkinson





Clockwise from top:

MUCHE presenters at the Australian Health Economics Society (AHES) Annual Conference. From left, Dr Rezwatul Rana, Dr Rajan Sharma, A/Professor Yuanyuan Gu, Ms Noura Saba, Dr Anam Bilgrami, Professor Henry Cutler, A/ Professor Bonny Parkinson, Ms Noura Aghdaee, Ms Qunfei Chen and Ms Meimei Chen

Dr Rezwatul Rana presenting at the Health Services Research Association Australia and New Zealand Conference

A/Professor Bonny Parkinson presenting at the Health Technology Assessment Summit



MUCHE staff and PhD candidates from top left;

(Standing) Ms Meimei Chen, A/Prof Yuanyuan Gu, Dr Rajan Sharma, Dr Antonio Ahumada-Canale, Ms Noura Saba, Prof Martin Hoyle, Prof Henry Cutler, Dr Olukorede Abiona, Dr Varinder Jeet, Dr Rezwanul Rana, Ms Mona Aghdaee, Ms Alicia Norman, Ms Qunfei Chen

(Sitting) Ms Elizabeth Seil, Dr Anam Bilgrami, A/Prof Bonny Parkinson, Ms Ashley Soytemiz, Ms Zobaida Ahmed-Piu

NHMRC Partnership Centre for Health System Sustainability



\$10.75m

Five year collaboration

17

Lead investigators from
seven universities

20

Expert advisors

>40

System implementation
partners from around
Australia



The Centre is led by
Professor Jeffrey Braithwaite

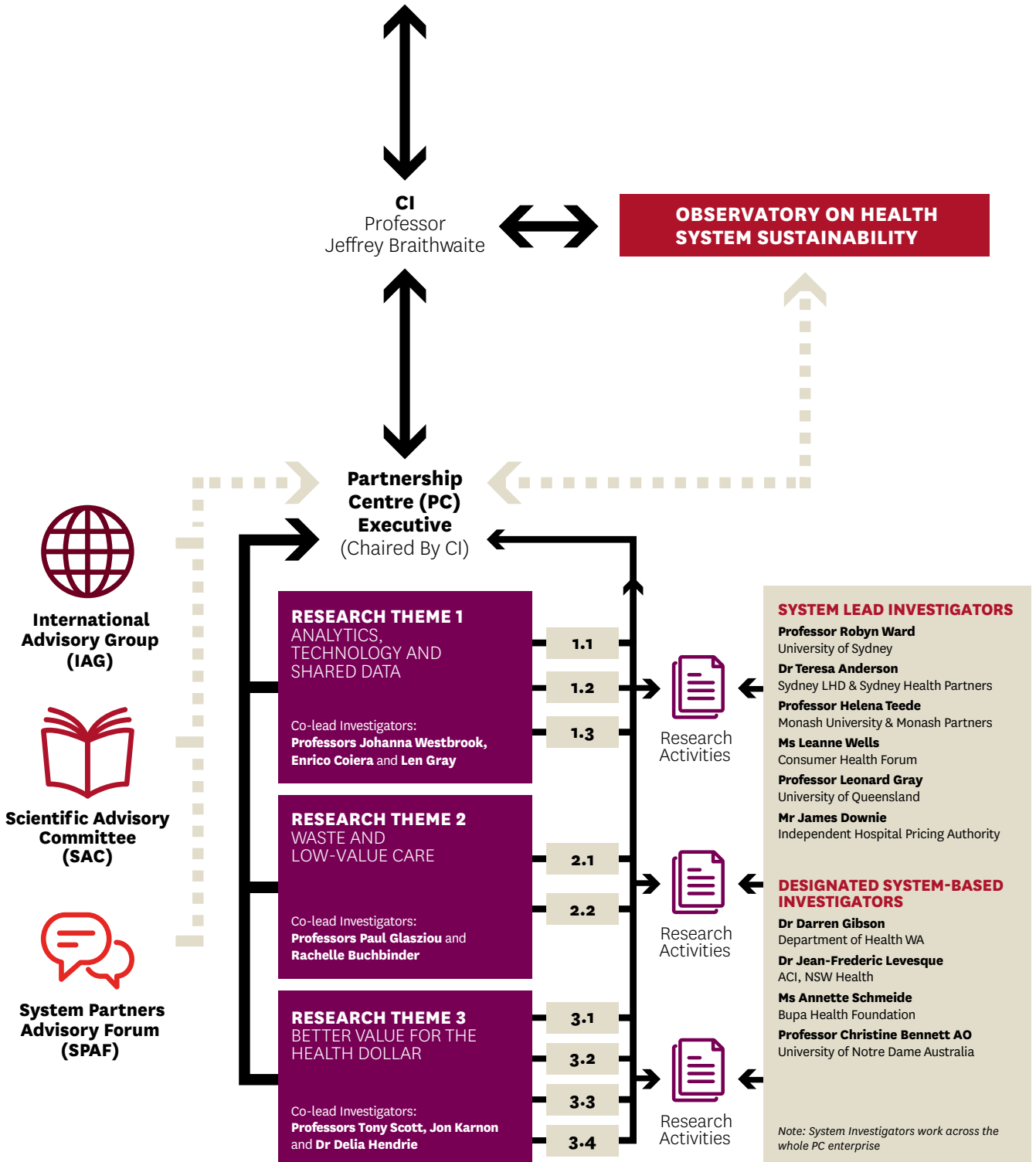


In 2022, the Centre continued
to publish and disseminate
its internationally recognised
research into improving health
services and systems



Health System Sustainability
NHMRC Partnership Centre

Governance Authority (GA)
NHMRC AND FUNDING PARTNERS



PCHSS LEAD INVESTIGATORS AND PARTNER ORGANISATIONS



WESTERN AUSTRALIA

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

NORTHERN TERRITORY

Department of Health, NT*

SOUTH AUSTRALIA

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

VICTORIA

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

TASMANIA

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

QUEENSLAND

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

NEW SOUTH WALES

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

ACT

Ms Leanne Wells ^{RL}
 ACT Health*

NATIONAL COLLABORATORS

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

CIA – Chief investigator first listed

RL – Research lead investigator

* System-based implementation partner organisation

FUNDING PARTNERS



Government of Western Australia
 Department of Health

The Governance Authority for the PCHSS comprises representatives of the NHMRC and its Funding Partners: Bupa Health Foundation, NSW Health, University of Notre Dame, and the Western Australia Department of Health. It is currently co-chaired by Associate Professor Annette Schmiede, former Executive Leader of Bupa Health Foundation, and Mr George Leipnik from the NSW Ministry of Health.



OUR VISION

To produce research that contributes to the development of a resilient health system—one that is affordable, cost-effective, and delivers improved health outcomes for all Australians.

WHY IS THE PARTNERSHIP CENTRE NEEDED?

Demand associated with ageing populations, increasing rates of chronic and complex diseases, growing cost pressures from new medical technologies and medicines, wasteful spending on low-value care, inefficiencies arising from system fragmentation, and limited use of data and evidence to support reform, all threaten the sustainability of health systems. The ongoing global COVID-19 pandemic has placed additional stress on already challenged health systems. Our Centre aims to understand the challenges facing current health systems in order to develop and evaluate practical, long-term

solutions that are appropriate and implementable from clinical, patient, and economic perspectives.

WHAT DOES THE PARTNERSHIP CENTRE DO?

We are committed to generating and disseminating ideas and evidence to improve the performance of the health system so that it delivers care efficiently and effectively over the long-term. Our centre seeks to maximise health system improvement in the real-world by bringing together people who provide, plan, consume, and need healthcare.

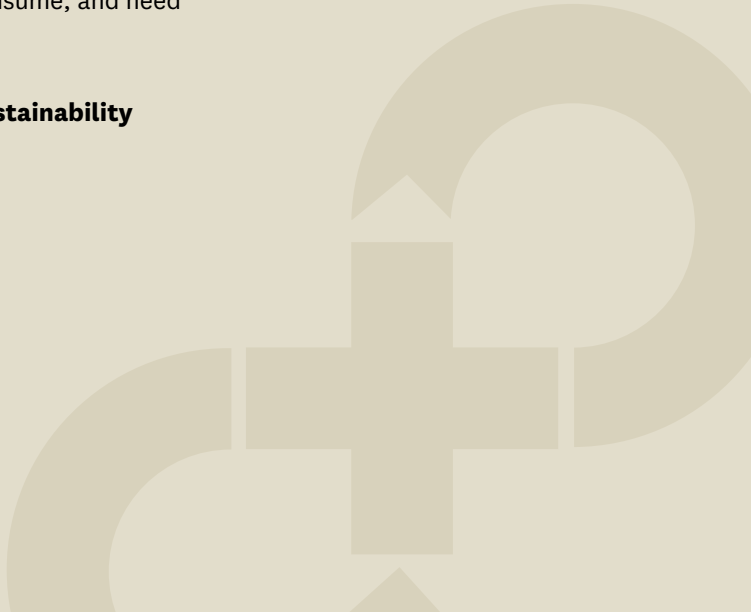
Visit our website:
healthsystemsustainability.com.au ↗

193
 Publications

\$15.7m
 Leveraged funding

>220
 Media engagements

>60
 Health system collaborators



2022 highlights

PCHSS researchers published over 190 peer-reviewed papers and reports in 2022. Thirteen of these publications specifically focussed on the ongoing impact of the COVID-19 pandemic on health systems and health consumers.

Examples of our publications include a scoping review exploring the sustainable performance of healthcare systems, including definitions, measures and challenges; a paper developing a new methodological framework for identifying overdiagnosis for noncancer conditions; an empirical study which revealed that doctors charge more when competition is low; a review of tools used to measure healthcare's carbon footprint, and an evaluation of the Western Australian research translation program (which funds research projects that have the potential to improve healthcare practice). PCHSS investigators also published a report and several papers based on the responses of 5,100 Australians to our health consumer sentiment survey, which was co-designed with the Consumers Health Forum of Australia (CHF).

Our COVID-19 related publications included a paper exploring the effectiveness and sustainability of telehealth in primary care; a study examining the rates of psychological distress and use of digital health services during the COVID-19 pandemic; an economic evaluation

of government-funded COVID-19 testing in Australia; and a study of vaccine hesitancy among people with inflammatory arthritis.

As in previous years, PCHSS received substantial media attention. Over 220 radio, television, news articles, and commentaries in the popular press covered our research. This extensive coverage reveals broad interest by the public in the outcomes of PCHSS's research. We continued our webinar series with four webinars on important current topics, such as realist evaluation of research translation programs, creating integrated and safer healthcare systems, international perspectives on the quality of healthcare in the 2020s, and how to transition healthcare to 'Green Care'. PCHSS research was also extensively represented at national and international conferences, including over 50 presentations.

PCHSS continued to work closely with system partners and collaborators, including 50 non-academic institutions and more than 60 health system and health consumer researchers. We strengthened our collaboration with health consumer organisations, such as CHF, Health Consumers NSW, and Rare Voices Australia, through the co-design of research, joint presentations, and new policy advocacy to support health system improvements.

PCHSS investigators generated ~\$15M in new leveraged funding

in 2022. Examples of new grants include funding to establish new ways to reduce the burden of juvenile arthritis; a project to build population-based databases from adults with hearing loss who use hearing aids or cochlear implants; and a project on transforming residential aged care through evidence-based informatics. Other grants include a trial intervention to reduce unnecessary low-back imaging in emergency departments and research into virtual models of care in Australian hospitals.

PCHSS researchers continued to be recognised for excellence in their field of research. Examples of awards and recognition include Research.com bestowing the Best Female Scientist 2022 Award on Professor Rachele Buchbinder, AO. She was also awarded the 2022 Medal for Excellence in Scientific Research by the Council of the Royal Society of Victoria. In addition, Professor Glasziou, AO was awarded the Bond University Vice Chancellor's Award for Research Excellence.



Using analytics, technology and shared data



Reducing waste and low-value care



Promoting better value for the health dollar



USING ANALYTICS, TECHNOLOGY, AND SHARED DATA

Professors Johanna Westbrook, Enrico Coiera, and Len Gray

This research theme tackles important questions in informatics and healthcare, including using big data to improve care, diagnostic testing, and medication management, as well as designing analytics to guide better healthcare decisions. Researchers are also examining the role of telehealth for greater access and sustainability.

TARGETING MEDICATION SAFETY

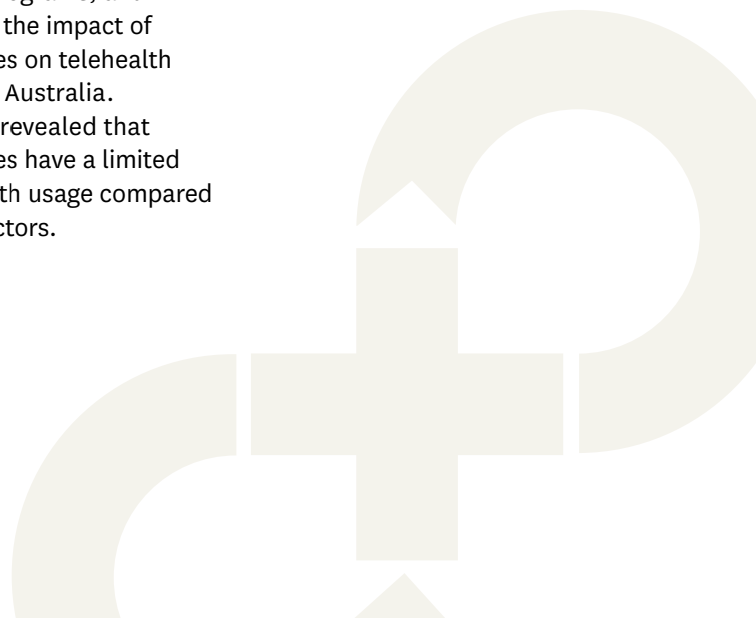
Professor Westbrook and her colleagues developed a “Health Innovation Series”, which was launched in September 2022. The eight issues of the Health Innovation Series focus on e-medication safety and provide evidence-based recommendations to improve care delivery and outcomes. They also continued to disseminate the findings of their research through symposia, such as the National Medication Safety Symposium at Macquarie University, and meetings with system partners including Sydney Children’s Hospitals Network and eHealth.

LEARNING FROM THE PAST

Professor Coiera and colleagues have undertaken a project called, Turbulence health systems, which uses interviews with health professionals to explore the challenges faced during the COVID-19 pandemic and how health professionals have responded. The results will be used to inform health system engineering for future crises.

EVALUATING TELEHEALTH

Telehealth continues to play an important role in healthcare provision. Professor Gray and colleagues’ publication of an analysis of International Remote Patient Monitoring (RPM) Programs revealed the characteristics of successful RPM programs, and an assessment of the impact of financial incentives on telehealth service uptake in Australia. The latter report revealed that financial incentives have a limited effect on telehealth usage compared to other social factors.





REDUCING WASTE AND LOW-VALUE CARE

Professors Paul Glasziou AO and Rachelle Buchbinder AO

Approximately 30% of delivered healthcare is wasteful or of low value. Researchers from this stream are finding ways to reduce wasteful expenditure and to deliver needed care more cost-effectively.

REDUCING OVER-DIAGNOSIS UNDER THE SPOTLIGHT

Professor Glasziou and colleagues developed a new methodological framework for describing overdiagnosis for noncancer conditions. Frameworks for defining and quantifying overdiagnosis like this are critical as it is the most important harm associated with cancer screening programs and is therefore also relevant to noncancer diseases. The team is also working with policy makers to change the gestational diabetes testing guidelines after their research revealed that current policy increases the number of diagnoses and costs without improving outcomes.

THE IMPORTANCE OF FEEDBACK

A collaborative study by Professors Glasziou and Buchbinder with the Australian Government Department of Health and Aged Care showed that

feedback to general practitioners (GPs) can successfully reduce overuse of musculoskeletal imaging at a national scale. The benefits of feedback are enormous: saving patients' time, money, potential for incidental findings, unnecessary treatment, risk of harm from cumulative exposure to ionising radiation and saving finite health system resources. Compared with no intervention, feedback to GPs resulted in a 11 per cent reduction in imaging requests over six months and nine per cent over 12 months, and an estimated ~47,000 fewer imaging requests.



PROMOTING BETTER VALUE FOR THE HEALTH DOLLAR

Professors Tony Scott and Jon Karnon, and Associate Professor Delia Hendrie

This research theme covers four areas:

1. using financial incentives to promote value-based healthcare
2. priority setting and decision-making in healthcare organisations
3. the impact of markets, competition, and choice in healthcare
4. the impact of a collaborative research program on cost savings and efficiencies in healthcare settings.

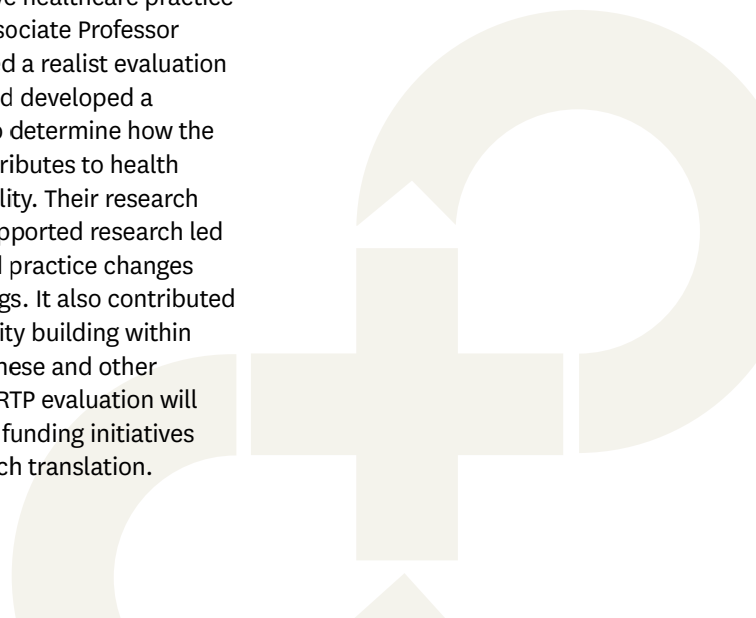
UNCOVERING THE TRENDS

Professor Scott's team published on recent trends in the private medical workforce in Australia. They found that non-specialist GP practices were consolidating and that profits were increasing for both GPs and non-specialists over time. Another study by Professor Scott and collaborators on competition and low-value care found that under certain circumstances higher competition resulted in lower quality care, such as ordering unnecessary imaging for low-back pain and uncomplicated acute bronchitis.

Professor Karnon, in collaboration with the Southern Adelaide Local Health Network (SALHN), completed a local economic evaluation of intervention options for prevention of hypoglycaemia. The results informed decisions to implement two new interventions in the SALHN. His team also conducted modelling analysis to determine the economic value of government-funded COVID-19 testing. The results suggested that funding only rapid antigen tests would have the

highest economic return (given that Australia had high vaccination rates at the time (July 2022)).

The Western Australian Department of Health Research Translation Program (RTP) funds short-term research projects to improve healthcare practice and efficiency. Associate Professor Hendrie conducted a realist evaluation of the program and developed a program theory to determine how the RTP program contributes to health system sustainability. Their research found that RTP supported research led to both policy and practice changes within local settings. It also contributed to research capacity building within health systems. These and other findings from the RTP evaluation will help shape future funding initiatives to improve research translation.





OBSERVATORY ON HEALTH SYSTEM SUSTAINABILITY

Professors Jeffrey Braithwaite and Yvonne Zurynski

The Observatory oversees Partnership-wide activities, coordinates engagement with investigators, stakeholders, and funders, and conducts research.

Professor Yvonne Zurynski

The Observatory published research on a range of topics including the implementation of learning health systems, work on initiatives targeting dementia risks, and the design of indicators for measuring residential aged care conditions. Our research also covered the sustainability of healthcare programs, and work on measuring healthcare's carbon footprint.

In conjunction with CHF, the Observatory completed the second round of the Australian health consumer survey and launched the Voice of the Australian Health Consumer report. Details of this are provided in the Impact Stories section of this report.

Researchers from the Observatory presented six talks at the 13th International Organisational Behaviour in Health Care Conference (OBHC 2022), Birmingham, UK. At the ISQua

conference, we held two symposia (one on climate change and health system sustainability; the other on the health consumer survey) and gave talks on other topics, including research on a rapid access cardiology clinic and a university-based learning health system, as well as a scoping review of transition programs for young adults with Type 1 diabetes. The Observatory also hosted international researchers who participated in seminars on creating safer more integrated health systems, reflections on the quality of healthcare from an international perspective, and on how to create greener health systems.

Professor Braithwaite, Professor Zurynski, and Dr K-lynn Smith are editing a Routledge 'Handbook on Climate Change and Health System Sustainability'. The Handbook will contain over 40 chapters from

internationally renowned authors addressing topics including the impact of climate change on mental health, how to reduce health systems' carbon footprint, and how a OneHealth perspective can improve our environment and our health. The book is accepted for publication and will be widely available in late 2023.

Videos of our events are posted on the PCHSS [YouTube](#) channel. To date, our videos have earned over 5,400 views.



Dr K-lynn Smith




For more details on our research and a full list of publications, please see our website healthsystemsustainability.com.au.



NHMRC Centre of Research Excellence in Digital Health

The NHMRC Centre of Research Excellence in Digital Health (CREiDH) is a national research centre which brings together the major Australian centres of health informatics research. Working with healthcare data, artificial intelligence (AI) tools and techniques, and together with our partners, collaborators and front-line healthcare providers, CREiDH addresses key issues to drive the development of a fully integrated and digitally enabled Australian healthcare system.

The CREiDH commenced in 2018 and builds on the work of the previous CRE in e-health directed by Professor Enrico Coiera (2011-2017). Chief Investigators are drawn from Macquarie University, Bond University, University of Melbourne, RMIT University, UNSW Sydney, University of South Australia, University of Sydney and CSIRO.

CREiDH is administered by CHI, and more information is available on our website: digitalhealth.edu.au 

SYSTEMATIC REVIEWS AND SCOPING REVIEWS

A 2-week systematic review (2weekSR) is a full systematic review completed in a vastly accelerated timeframe, whilst using standard systematic review methodology. 2weekSRs are made possible by utilising systematic review automation (SRA) tools and agile development processes.

In 2022, we successfully adapted the 2weekSR methodology to another type of evidence synthesis – scoping reviews. The first 2weekScR (2-week scoping review) was completed in 18 days, and was a collaboration of clinicians, researchers, and consumers.

The team has continued to develop the automation tools which support the 2weekSRs, and are freely available on the Systematic Review Accelerator website. The top five most used tools had over 70,000 user sessions and over 305,000 user views in 2022.

THE SAFETY INFORMATICS STREAM

Much of what is known about AI safety comes from case studies and the theoretical limitations of machine learning (ML). We contributed a systematic analysis of ML safety problems captured as part of the

United States Food and Drug Administration's (FDA) routine post-market surveillance. By analysing events from the US FDA's MAUDE database over six years, we can contribute a better understanding of safety problems and risks associated with real-world use of ML based systems.

The results highlighted the need for a whole-of-system approach to safer implementation, with a special focus on how users interact with devices. More than Algorithms: An Analysis of AI Safety Events Reported to the US FDA was accepted for oral presentation at the Annual Symposium of the American Medical Informatics Association – the top international scientific meeting for medical informatics (Washington DC).

PRECISION HEALTH STREAM

In recent years we have seen a growth in automation technology applications within emergency healthcare, monitoring patients, medical billing systems, and computer-aided detection. These automation technologies have benefits that can save effort and cost in healthcare processes, but there are associated risks. We researched radiologists' trust in automated machines with demonstrated accuracy.



CHIEF INVESTIGATORS

Professor Enrico Coiera

AIHI, Macquarie University

Professor Paul Glasziou

Bond University

Professor William Runciman

University of South Australia

Dr David Hansen

CSIRO Australian e-Health
Research Centre

Professor Teng Liaw

University of New South Wales

Professor Farah Magrabi

AIHI, Macquarie University

Professor Vitali Sintchenko

University of Sydney

Professor Karin Verspoor

RMIT, Melbourne

Associate Professor

Blanca Gallego-Luxan

University of New South Wales

Dr Annie Lau

AIHI, Macquarie University

NHMRC Centre of Research Excellence

IN IMPLEMENTATION SCIENCE IN ONCOLOGY



Dr Gaston Arnolda

The NHMRC Centre of Research Excellence in Implementation Science in Oncology (CRE-ISO) undertakes research to facilitate the efficient provision of evidence-based cancer service provision. As cancer services are overwhelmingly provided in hospital outpatient settings, much of the initial work focused on characterising care in these settings and exploring clinician views of cancer clinical practice guidelines. CRE-ISO also seeks to facilitate the shift from a narrow focus on morbidity and mortality – outcomes where Australia has long excelled – to increase focus on patient experience; COVID-19-related impediments to hospital-based research have led CRE-ISO to increase efforts in this space.

CRE-ISO is led by Professor Braithwaite with Dr Gaston Arnolda.

To examine patient experience and how it can be researched, CRE-ISO has focused on a phenomenon, in high-resource settings, of an increasing incidence of colorectal cancer in patients under 50 years of age, against a background of reducing incidence as a result of successful screening programs in older groups.

CRE-ISO has pioneered novel methodologies for exploring these patients' experiences using patient-written materials published online by patient-organisations (in Australia, New Zealand and the United Kingdom) and is separately analysing freely available cancer patient experience data in the UK, to create a template for future analyses using Australian patient experience data. This was a major focus in 2022, and the first of a series of five publications of results has recently been published with others to follow.

In 2022, CRE-ISO was successful in its application to join the Enduring Cancer Data Linkage (CanDLe) community of practice. CanDLe members have pre-approved access to Cancer Registry data linked to hospital administrative data, under an ongoing ethics

approval. CRE-ISO researchers, in collaboration with AIHI linked-data expert Associate Professor Mitchell, are undertaking a series of studies using linked data to explore service utilisation by different groups of cancer patients (e.g., younger vs older colorectal cancer patients) at different points of the care process (e.g., end of life care). Separately, CRE-ISO is advocating for adding the New South Wales cancer patient experience survey data to the routine linkage.



CHIEF INVESTIGATORS

Professor Jeffrey Braithwaite
AIHI, Macquarie University

Professor Jonathan Karnon
Flinders University

Professor Geoff Delaney
South-Western Sydney LHD

**Associate Professor
Winston Liauw**
South-Eastern Sydney LHD

Professor Ian Olver AM
University of Adelaide

Professor David Currow
University of Wollongong

Professor Robyn Ward AM
University of Sydney

Professor Johanna Westbrook
AIHI, Macquarie University

Professor Richard Kefford AM
Macquarie University

Professor Phil Crowe
University of New South Wales

Higher degree research program

2022 HIGHLIGHTS



PhD

43 Candidates



MRes

11 Candidates

REAL WORLD LEARNING WITH PACE

The multi-award-winning PACE (Professional and Community Engagement) program at Macquarie University supports undergraduate students with authentic workplace experiences. Each year, AIHI hosts PACE students, placing them alongside academics and professional staff to participate in projects ranging from medical informatics to aged care.

The Australian Institute of Health Innovation offers two Higher Degree Research (HDR) programs. Students learn alongside internationally recognised researchers, who are leaders in health innovation and who offer astute supervision and responsive guidance. In addition to extensive collaboration with healthcare organisations, AIHI's research efforts are supported by Macquarie University Hospital, Australia's most technologically advanced private hospital on a university campus. High calibre candidates are also supported to apply for scholarships.

MASTER OF RESEARCH (MRES)

The MRes allows the candidate to study and research what they are interested in and prepares candidates for a future PhD.

THE DOCTOR OF PHILOSOPHY (PHD)

The Doctor of Philosophy (PhD) is an ungraded degree awarded for research that demonstrates that the candidate has the capacity to conduct research independently, and form a distinct contribution to the knowledge of the subject and to afford evidence of coherence and originality shown either by the discovery of new facts or by the exercise of independent critical power. The candidate's program of study will be supervised by at least two supervisors.

Read about our programs and be inspired with profiles of our PhD and Masters graduates on our website. [↗](#)



AIHI provides a supportive and encouraging environment for PhD students and Early Career Researchers to grow as researchers, share knowledge and learn from others through its collaborative and collegial spirit.

DR ASHFAQ CHAUHAN, PHD
CANDIDATE
AND RESEARCH ASSISTANT 2022

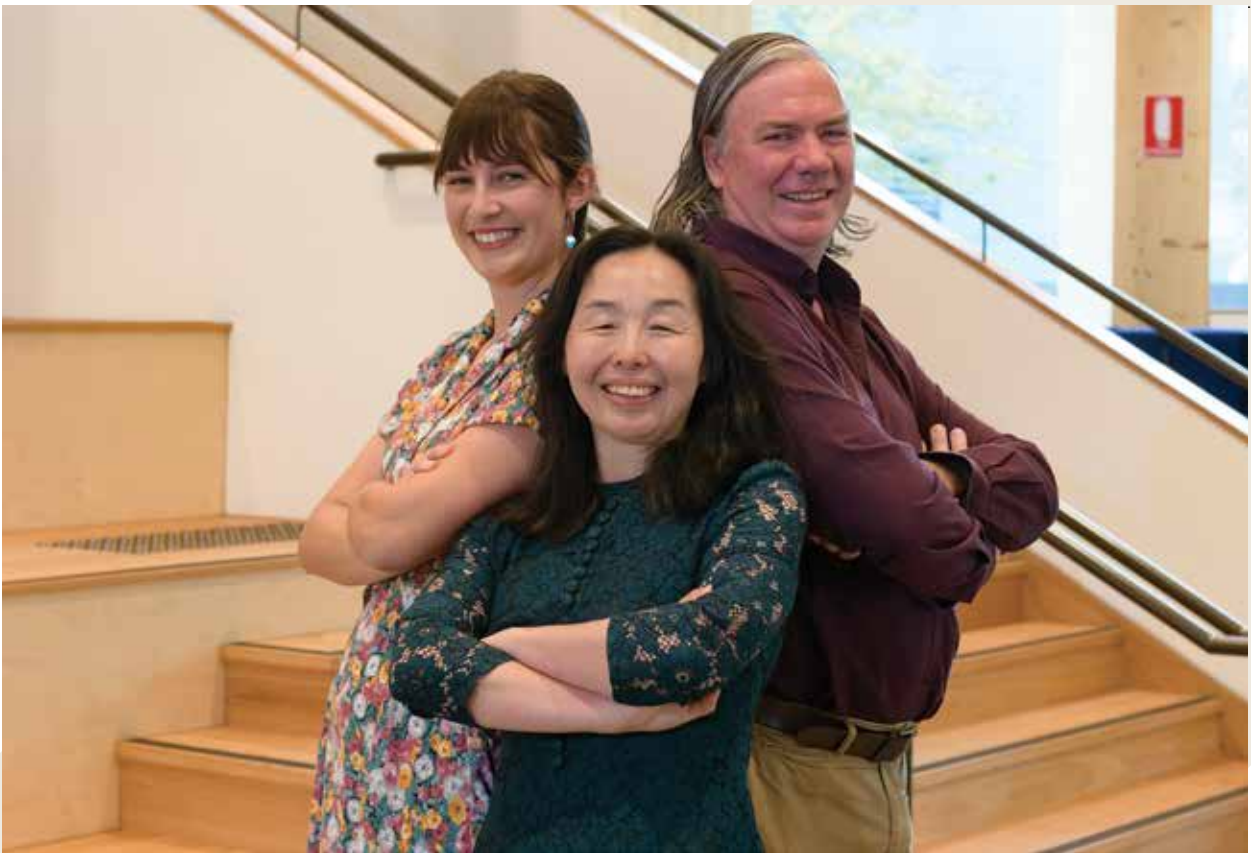
Doctor of Medicine Research Program

Macquarie University's Doctor of Medicine (MD) Program encourages students to expand their knowledge and medical understanding through a discrete, eighteen-month research project, with eight linked assessments. At the end of the project, students will not only have written a publication-ready manuscript, but presented their research at a Symposium-style forum to enhance both their knowledge and oratory.

At Macquarie University, MD students learn how to observe and act on the signs and symptoms of disease while also appreciating the value of keeping up to date with the research evidence through literature appraisal. The program, which is run under the auspices of the Faculty of Medicine, Health and Human Sciences, prides itself in offering rigorous, well thought-through projects and teaching students research techniques and self-management skills – skills that will be of value throughout their careers.

The Australian Institute of Health Innovation has a small team of committed staff overseeing the MD students' projects. With four cohorts' already under its belt, in 2022 58 MD students successfully graduated from the MD research program.

Our staff



The AIHI team of staff and students deserve the highest regard for the way they embraced the changing nature of work and research during 2022. With COVID-19-induced restrictions gradually lifting and new flexible working arrangements being introduced, their enthusiasm to thrive was commendable. With dedication and professionalism, we were able to maintain or adjust our programs of research, form new collaborations, and build on long established relationships across the health system, locally and internationally.

AIHI attracts highly skilled clinicians, pharmacists, scientists, engineers,

epidemiologists, statisticians, psychologists, and analysts who develop expert communities of practice, multi-disciplinary research teams, and synergistic networking and co-authorship. During 2022, AIHI was home to 296 academic and professional staff and honorary appointments.

Each year we are proud to present an event to celebrate the UN Women International Women's Day. We also shine a light on WHO World Patient Safety Day and World Sepsis Day.

L-R Research Assistant Khalia Ackermann, Associate Professor Ling Li and Dr Tim Badgery-Parker

Awards and recognition



Dr Elizabeth Koff with Professor Johanna Westbrook at the Telstra Brilliant Women in Digital Health Awards

Professor Westbrook was awarded the prestigious Health Services Research Award at Research Australia's 19th Health and Medical Research Awards for her leadership in health services research and defining contributions to the development of the field.

Professor Westbrook was also recognised for outstanding achievements and contributions in digital health in the Telstra Brilliant Women in Digital Health Awards and was named Distinguished Senior Investigator by the Health Services Research Association Australia and New Zealand (HSRAANZ).

Professor Cutler was awarded the Inaugural Deeble Institute Fellowship to examine the shifts in financial risks associated with advancing value-based healthcare in Australia.

IN MACQUARIE UNIVERSITY AWARDS

Dr Anam Bilgrami won the 2022 Macquarie Business School Impact Competition for “The Evaluation of Health Policies Using Longitudinal Data: Impacts on Australian Policy Debate.”

Professor Hoyle, Professor Cutler, Associate Professor Parkinson, Alicia Norman, Dr Varinder Jeet, Elizabeth Seil, Dr Rajan Sharma, Rachel Song, Dr Antonio Ahumada Canale, Dr Rezwanul Rana, Dr Virginia Mumford and Professor

Janaki Amin won the 2022 Macquarie Business School Impact Competition for “Improving Health and Spending Money Wisely: Evaluating Medical Tests, Devices, Procedures for the Australian Government.”

IN NEW FELLOWSHIPS

Dr Lystad was inducted as a Fellow of the Australian Sports Medicine Federation (Sports Medicine Australia).

Associate Professor Harrison was awarded a Cancer Institute NSW Career Development Fellowship.

IN NEW APPOINTMENTS

Alicia Norman was appointed as a member of the International Society for Pharmacoeconomics and Outcomes Research-Australian chapter Management Committee and also appointed as a reviewer for Economic Modelling Journal.

Associate Professor Harrison was elected as a member of HSRAANZ.

Corey Adams was selected as a Board Member for The Beryl Institute’s “Patient Experience Advisory Board” and joined the Editorial Board for the Patient Experience Journal (PXJ).

Dr Raban was appointed as a reviewer for the World Health Organisation’s and Alliance for Health Policy and Systems Research’s proposals on “Health

policy and systems research on the role of digital interventions in strengthening health systems in low- and middle-income countries.”

Professor Braithwaite was appointed to Safer Care Victoria’s Quality and Safety Executive Committee – Leadership in Improvement and Innovation.

Professor Cutler was appointed a member of the National Disability Insurance Agency Investment Effectiveness Program Academic Advisory Panel.

Professor Cutler was appointed to the Independent Health and Aged Care Pricing Authority Interim Aged Care Working Group.

Professor Cutler was appointed to the National Suicide Prevention Office Expert Advisory Group.

Professor Berkovsky was appointed Editor-in-Chief of the Association for Computing Machinery Transactions on Interactive Intelligent System (ACM TiiS).

Professor Georgiou was appointed an Honorary Visiting Professor at the University of Applied Sciences, Neu Ulm (HNU), Germany, in recognition of contributions to the establishment of a joint PhD program between HNU and Macquarie University.

Professor Magrabi was appointed to the Global Partnership for AI.

IN PRIZES

Associate Professor Harrison received the Health Systems Award from the Industrial Engineering and Operations Management (IEOM) Society International.

Associate Professor Parkinson received the 2022 Australian Health Economics Society Rising Star Award.

Dr Lystad was awarded Best Paper in Sports Injury Prevention (Senior Career Researcher) and the ASICS Medal for best overall paper at the 2022 Sports Medicine Australia Conference for research into the impact of concussion on child and adolescent academic performance.

Dr Hutchinson was awarded Best Oral Presentation at the Research & Innovation Symposium, Central Coast Local Health District.

Dr Raban received the Elaine Graham Robertson Award for Best Oral Presentation at the 9th International Australasian College for Infection Prevention and Control Conference for “Reducing antibiotic prescribing using nudges: a systematic review of interventions in primary care.”

Julie Li and Professor Georgiou received poster awards at the Australia New Zealand Asia Society for Diagnostic Improvement (ANZA-SIDM) 2022 Virtual Conference – Improving Diagnosis.

Kanasha Ward was voted People's Choice Top Presenter at the Emerging Researchers in Health Informatics Symposium.

Tanja Schroeder was awarded Best paper for Data Privacy Concerns Using mHealth Apps and Smart Speakers: Comparative Interview Study Among Mature Adults by The Specialist Interest Group on IT in Healthcare of the Association for Information Systems.

Professor Braithwaite, Dr Long and co-authors won highly commended paper at the Mito Foundation Awards for Excellence in Mitochondrial Research—Long JC, Best S, Hatem S, Theodorou T, Catton T, Murray S, Braithwaite J, Christodoulou J. The long and winding road: perspectives of people and parents of children with mitochondrial conditions negotiating management after diagnosis. *Orphanet Journal of Rare Diseases*. 2021 Dec;16(1):1-2.

Professor Braithwaite, Dr Mitchell Sarkies, Dr Emilie Francis-Auton, Dr Janet Long, Dr Natalie Roberts, Professor Westbrook, Dr Jean-Frederic Levesque, Dr Diane Watson, Dr Chiara Pomare and Dr Andrew Partington were awarded the overall Meritorious Abstract Award at the 2022 HSRAANZ conference, for “Implementing large-system value-based healthcare programs: a realist study for seven natural experiments”.

IN RECOGNITION

Dr Antonio Ahumada-Canale was recognised on the Dean's List for outstanding PhD Thesis of the University of Technology Sydney Faculty of Health.

Professor Berkovsky was highly commended in the Data Innovation category at Research Australia's 19th Health and Medical Research Awards.

Professor Magrabi delivered a Masterclass on AI in Healthcare for Austrade's Study Australia campaign to build awareness of Australia's high-quality education.

Conferences and Symposia

AIHI understands the importance of sharing ideas, fostering new research, and supporting calls to action that stimulate debate and contribute to improving the health system in Australia and internationally. The AIHI Webinar Series attracted an international audience for these popular presentations by highly respected researchers and clinicians. Recordings of the webinars are available on the AIHI YouTube channel. [🔗](#)

Reflections on 30-years of cross-border collaboration on healthcare and research between North Norway and Russia

Tor Ingebrigtsen, Professor of Clinical Neurosurgery in the Department of Clinical Medicine, UiT The Arctic University of Norway, Tromsø, Norway, and a AIHI visiting professor.

Frontline Patient Safety: 20 strategies to keep you and your patient safe

Dr Glen Farrow, clinician and former Director of Clinical Governance at Sydney Children's Hospital Network 2012-2019.

How can we achieve diverse consumer engagement in health service research and improvement?

Associate Professor Harrison, stream lead for Healthcare Engagement and Workplace Behaviour research at AIHI and Cancer Institute NSW Career Development Fellow.

Innovation in the management of patients with heart conditions

Macquarie University Heart Connect and the Royal Hobart Hospital Rapid Access Chest Pain Clinics, hosted by Professor Yvonne Zurynski, AIHI.

Smoothing the way – models of paediatric integrated care that make a difference

Raghu Lingam, Professor in Paediatric Population Health, University of New South Wales, Honorary Professor, Black Dog Institute, and Consultant Community Paediatrician in the Sydney Children's Hospitals Network, hosted by Professor Yvonne Zurynski, AIHI.

Inequalities in dementia care: What are the barriers and how can we overcome them?

Dr Clarissa Giebel, Senior Research Fellow, University of Liverpool, UK, and Professor Mark Gabbay, University of Liverpool, hosted by Associate Professor Rebecca Mitchell, AIHI.

Changes in the assessment of medicines at NICE (England) and relevance to Australia

Ian Watson, Senior Technical Adviser, NICE, Lorna Dunning, Technical Adviser, NICE, and Zoe Garrett, Senior Technical Adviser, NICE, Associate Professor Bonny Parkinson, MUCHE and Professor Kirsten Howard, Menzies Centre for Health Policy and Economics.

Publications

1 JANUARY TO 31 DECEMBER 2022

1

Edited
book

21

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chapters

10

Book chapters
– conference

277

Peer reviewed
journal articles

9

Letters to
the editor and
editorials

10

Full conference
papers

89

Conference
abstracts/posters

EDITED BOOK

1. Rapport F, Clay-Williams R, Braithwaite J. Implementation science: the key concepts. United Kingdom: Routledge, Taylor and Francis Group; 2022.

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AIHI grants awarded or under management in 2022

NHMRC GRANTS

PROJECT TITLE	SCHEME	INVESTIGATORS	TOTAL FUNDING
NHMRC Partnership Centre in Health Systems Sustainability (Partners: BUPA, NSW Health, WA Health)	Partnership Centre Grant	Braithwaite J Coiera E Westbrook J Glasziou P Karnon J Scott A Buchbinder R	\$5,250,000
Working together: innovation to improve Emergency Department (ED) performance, and patient outcomes and experience for five complex consumer cohorts	Medical Research Future Fund	Clay-Williams R Braithwaite J Harrison R Zurynski Y Hibbert P Mitchell R Cutler H Vukasovic M Ali R Holt L	\$2,836,551
Delivering safe and effective medication management technology now and for the future	Investigator Grant	Westbrook J	\$2,500,000
Centre of Research Excellence in Digital Health	CRE	Coiera E Glasziou P Runciman W Hansen D Liaw S Magrabi F Sintchenko V Verspoor K Gallego Luxan B Lau A	\$2,498,649
Centre of Research Excellence in Implementation Science in Oncology (CRE-ISO)	CRE	Braithwaite J Ward R Currew D Delaney G Kefford R Olver I Karnon J Liauw W Westbrook J	\$2,495,783

PROJECT TITLE	SCHEME	INVESTIGATORS	TOTAL FUNDING
NHMRC Partnership Centre in Health Systems Sustainability (Partner funds: BUPA)	Partnership Centre Grant	Braithwaite J Coiera E Westbrook J Glasziou P Scott A Buchbinder R	\$2,000,000
Medical Research Future Fund (MRFF) Keeping Australians Out of Hospital	Medical Research Future Fund	Braithwaite J Westbrook J Day R Levesque J Mitchell R Rapport F Cutler H Tran Y Clay-Williams R	\$1,505,612
Bringing artificial intelligence into the real world of healthcare- the implementation challenge	Investigator Grant	Coiera E	\$1,500,000
A National Aged Care Medication Roundtable – Translating aged care data into action to improve quality of care through collaboration and co-design (Partners: BaptistCare, Scalabrini, Anglicare, Australian Commission on Safety and Quality in Health Care)	Partnership Projects	Westbrook J Gray L Bucknall T Etherton-Beer C Newell B Raban M Caughey G Beattie E Makeham M Braithwaite J	\$1,444,499
Designing and implementing a real-world learning healthcare system: operational knowledge, data and practice for clinical microsystems of the 21st Century	Investigator Grant	Braithwaite J	\$1,350,000
A dashboard of predictive analytics and decision support to drive care quality and person-centred outcomes in aged care (Partners: Anglicare, Sydney North PHN, Deeble Institute for Health Policy Research, Northern Sydney LHD, Aged Care Quality and Safety)	Partnership Projects	Westbrook J Georgiou A Lord S Gray L Day R Ratcliffe J Baysari M Braithwaite J	\$1,315,150

PROJECT TITLE	SCHEME	INVESTIGATORS	TOTAL FUNDING
Establishing a digital health foundation for outcomes-based diagnostic excellence, safety and value (Partners: Abbott Diagnostics, South Eastern Sydney Local Health District, NSW Health Pathology, Australian Commission on Safety and Quality in Health Care)	Partnership Projects	Georgiou A Center J Westbrook J Rawlinson W Curtis K Post J Horvath A Hillman K Amin J Endre Z	\$1,027,501
NHMRC Partnership Centre in Health Systems Sustainability (Partner funds: NSW Health)	Partnership Centre Grant	Braithwaite J Coiera E Westbrook J Glasziou P Karnon J Scott A Buchbinder R	\$1,000,000
Transforming residential aged care through evidence-based informatics (Partners: BESTMED, Aged Care Industry Information Technology Council, Aged Care Quality and Safety Commission, Consumers Health Forum, Southern Cross Care, Bupa Aged Care)	MRFF Dementia Ageing and Aged Care Mission	Westbrook J Raban M Manias E Cameron I Coiera E Bucknall T Etherton-Beer C Seaman K Zwar N Braithwaite J	\$992,386
Creating a culture of safety and respect: a controlled, mixed methods study of the effectiveness of a behavioural accountability intervention to reduce unprofessional behaviours (Partner: St Vincent's Health Australia).	Partnership Projects	Westbrook J Braithwaite J Day R Middleton S Scott D Rapport F Mitchell R Baysari M Li L Taylor N	\$875,978
The Australian Consortium for Aged Care - Quality Measurement Toolbox (ACAC-QMET): Improving Quality of Care through Better Measurement and Evaluation	MRFF Dementia Ageing and Aged Care Mission	Inacio M Caughey G Westbrook J Gray L Braithwaite J Hibbert P Comans T Crotty M Wesselingh S Sluggett J	\$655,400

PROJECT TITLE	SCHEME	INVESTIGATORS	TOTAL FUNDING
Building a culture of safety in Australian residential aged care facilities	Investigator Grant	Churruca K	\$650,740
Implementing and scaling an evidence-informed model for hip fracture management: harnessing implementation science for complex adaptive healthcare systems	Investigator Grant	Sarkies M	\$617,583
NHMRC Partnership Centre in Health System Sustainability (Partner funds: WA Health)	Partnership Centre Grant	Braithwaite J Coiera E Westbrook J Glasziou P Scott A Karnon J Buchbinder R	\$500,000
A dashboard of predictive analytics and decision support to drive care quality and person-centred outcomes in aged care (Partner funds: Anglicare)	Partnership Projects	Westbrook J Georgiou A Lord S Gray L Day R Ratcliffe J Baysari M Braithwaite J	\$500,000
Creating a culture of safety and respect: a controlled, mixed methods study of the effectiveness of a behavioural accountability intervention to reduce unprofessional behaviours (Partner funds: St Vincent's Health Australia)	Partnership Projects	Westbrook J Braithwaite J Day R Middleton S Scott D Rapport F Mitchell R Baysari M Li L Taylor N	\$350,000
Enhancing safety and care quality for culturally and linguistically diverse cancer consumers: A consumer engagement approach	Ideas Grant	Harrison R Walton M Manias E Wilson C Seale H Girgis A Smith AB Chin M	\$292,179
Medical Research Future Fund (MRFF) Developing a Comprehensive Care Pathway for those at Risk of Suicide But Not in Care: The Under the Radar Project	Medical Research Future Fund	Christensen H Harvey S Carter G Venkatesh S Boydell K Cutler H Kneebone I Newton-John T Han J Huckvale K	\$275,000

PROJECT TITLE	SCHEME	INVESTIGATORS	TOTAL FUNDING
Medical Research Future Fund (MRFF) P-OMICs-flow: Intergrating precision oncology into clinical programs	Medical Research Future Fund	Taylor N Thomas D Tucker K Mallinger M Zaheed M Lin F Goldstein D Morrow A Leaney K Gough M Parkinson B Butow P Young J Middleton S Jeet V	\$266,033
Giving patients an EPIC-START: An evidence based, data driven model of care to improve patient care and efficiency in emergency departments	Medical Research Future Fund	Curtis K Dinh M Shetty A Fry M Shaw T Lung T Murphy M Li L Alkhouri H Considine J	\$263,998
Delivering safe and effective test result communication, management and follow-up (Partner funds: South Eastern Area Laboratory Service)	Partnership Projects	Georgiou A Westbrook J Greenfield D Horvath A Wakefield D Li L Hillman K	\$250,001
Establishing a digital health foundation for outcomes-based diagnostic excellence, safety and value (Partner funds: Abbott Diagnostics)	Partnership Projects	Georgiou A Center J Westbrook J Rawlinson W Curtis K Post J Horvath A Hillman K Amin J Endre Z	\$250,000

PROJECT TITLE	SCHEME	INVESTIGATORS	TOTAL FUNDING
Medical Research Future Fund (MRFF) SENSECog aged care: Hearing and vision support to improve quality of life for people living with dementia in residential aged care	Medical Research Future Fund	Dawes P Westbrook J Martins R Martini A Keay L Leroi I Browning C Heine C Sohrabi H Gu Y	\$230,080
Delivering safe and effective care for children in hospital with eHealth systems (Partner funds: Sydney Children's Hospitals Network)	Partnership Projects	Westbrook J Georgiou A Day R O'Brien T Karnon J Dalla-Pozza L Cowell C Li L Baysari M Ambler G	\$200,000
MQ DVC(R) Co-funding: Transforming residential aged care through evidence-based informatics	MRFF Dementia Ageing and Aged Care Mission	Westbrook J Raban M Manias E Cameron I Coiera E Bucknall T Etherton-Beer C Seaman K Zwar N Braithwaite J	\$198,477
Building on newborn hearing screening success: towards national standards and data management	NHMRC Targeted Call for Research	Sung V Beswick R Kelvin K Wake M Leigh G Ching T Kluk K Parkinson B King A Shepherd D	\$156,000

PROJECT TITLE	SCHEME	INVESTIGATORS	TOTAL FUNDING
Understanding intergenerational change in the health and well-being of older adults and its effects: The Sydney Memory and Ageing Study 2.	NHMRC CTC	Brodady H Sachdev P Masters C Singh M Dobson A Schutte A Cutler H Brayne C Kochan N Numbers K	\$150,000
Delivering safe and effective care for children in hospital with eHealth systems (Partner funds: eHealth NSW)	Partnership Projects	Westbrook J Georgiou A Day R O'Brien T Karnon J Dalla-Pozza L Cowell C Li L Baysari M Ambler G	\$150,000
A National Aged Care Medication Roundtable – Translating aged care data into action to improve quality of care through collaboration and co-design (Partner funds: BaptistCare)	Partnership Projects	Westbrook J Gray L Bucknall T Etherton-Beer C Newell B Raban M Caughey G Beattie E Makeham M Braithwaite J	\$150,000
A National Aged Care Medication Roundtable - Translating aged care data into action to improve quality of care through collaboration and co-design (Partner funds: Scalabrini)	Partnership Projects	Westbrook J Gray L Bucknall T Etherton-Beer C Newell B Raban M Caughey G Beattie E Makeham M Braithwaite J	\$150,000
Integrated Multimodal Precision Liquid biopsy to Enhance MELanoma and NSCLC Treatment (IMPLEMENT)	Medical Research Future Fund	Rizos H Gray E Lee J Long G Millard M Ellis L Coiera E Kao S	\$126,466

PROJECT TITLE	SCHEME	INVESTIGATORS	TOTAL FUNDING
When sporadic disease is not sporadic – exploiting cryptic relatedness to unravel MND genetics	Ideas Grant	Williams K Henden L Berkovsky S Blair I Iacoangeli A Smith B Dobson-Stone C Kwok J Halliday G Nicholson G	\$120,222
Medical Research Future Fund – Optimising treatments in mental health using AI	Medical Research Future Fund	Christensen H Kummerfield S Kaplan W Venkatesh S Mouzakis K Vasa R Gupta S Rana S Tran T Quinn T Cutler H Knight R Laverty M	\$120,000
CRE in Interactive Digital Technology to Transform Australia’s Chronic Disease Outcomes	CRE	Oldenburg B Maddison R Kostakos V Boyle D Borland R Lau A Furler J Scuffham P Abraham C Taylor C	\$115,000
The impact of COVID-19 and associated health policies on care quality and health outcomes in Australian residential aged care facilities	PhD Scholarship	Meulenbroeks I	\$101,542
Delivering safe and effective care for children in hospital with eHealth systems (Partner funds: NSW Office of Kids and Families)	Partnership Projects	Westbrook J Georgiou A Day R O'Brien T Karnon J Dalla-Pozza L Cowell C Li L Baysari M Ambler G	\$100,000

PROJECT TITLE	SCHEME	INVESTIGATORS	TOTAL FUNDING
Establishing a digital health foundation for outcomes-based diagnostic excellence, safety and value (Partner funds: South Eastern Sydney Local Health District)	Partnership Projects	Georgiou A Center J Westbrook J Rawlinson W Curtis K Post J Horvath A Hillman K Amin J Endre Z	\$100,000
Delivering precision diagnosis to patients with mitochondrial disease: Using digital technologies to enhance the delivery pathway to provide an accurate genetic diagnosis for patients with mitochondrial disease	Partnership Projects	Sue C Kummerfeld S Barlow-Stewart K Schofield D Coiera E Berkovsky S Davis R	\$99,386
BUBs Quit Study: clinical Midwife Specialist to assist pregnant women to quit smoking using counselling and embedded technology	Partnership Project	Richmond R Lingam R Henry A Kumar S Catling C Hartz D Thornton L Flenady V Dobbins T Sinha K Cutler H	\$83,609
A National Aged Care Medication Roundtable - Translating aged care data into action to improve quality of care through collaboration and co-design (Partner funds: Anglicare)	Partnership Projects	Westbrook J Gray L Bucknall T Etherton-Beer C Newell B Raban M Caughey G Beattie E Makeham M Braithwaite J	\$75,000
Transforming residential aged care through evidence-based informatics (Partner funds: BESTMED)	MRFF Dementia Ageing and Aged Care Mission	Westbrook J Raban M Manias E Cameron I Coiera E Bucknall T Etherton-Beer C Seaman K Zwar N Braithwaite J	\$60,000

PROJECT TITLE	SCHEME	INVESTIGATORS	TOTAL FUNDING
Improving Mental Health and Social Participation Outcomes in Older Adults with Depression and Anxiety	Targeted Call for Research	Rapee R Wuthrich V Draper B Brodaty H Cutler H Low L Georgiou A Johnco C Jones M	\$59,000
Translating Evidence-Based Psychological Interventions for Older Adults with Depression and Anxiety into Public and Private Mental Health Settings Using a Stepped Care Framework	Targeted Call for Research	Wuthrich V Rapee R Draper B Brodaty H Cuijpers P Cutler H Hobbs M Johnco C Jones M	\$57,000
A dashboard of predictive analytics and decision support to drive care quality and person-centred outcomes in aged care (Partner funds: Sydney North PHN)	Partnership Projects	Westbrook J Georgiou A Lord S Gray L Day R Ratcliffe J Baysari M Braithwaite J	\$21,000
Total Funding for this report			\$36,085,825

NON NHMRC GRANTS

PROJECT TITLE	FUNDING BODY	INVESTIGATORS	TOTAL FUNDING
Pharmaceutical Benefits Advisory Committee	Department of Health	Cutler H Hoyle M Parkinson B Jeet V Rana R Seil E Sharma R Norman A Ahumada-Canale A	\$1,223,636
Australian Type 1 Diabetes Clinical Research Network "Improving clinical outcomes in young people with T1D – getting evidence and treatments into practice"	Juvenile Diabetes Research Foundation	Jones T Davis E Bloom D Braithwaite J Zurynski Y	\$1,002,532

PROJECT TITLE	FUNDING BODY	INVESTIGATORS	TOTAL FUNDING
Phase 2 – COVID-19: utilising near real-time electronic general practice data to establish effective care and best-practice policy	Digital Health CRC	Georgiou A Prgomet M Sezgin G Thomas J Hardie R Amin J McLeod A Proposch A Wilson J	\$843,816
APRICA – Accelerated Program of translational research in primary liver cancer	Cancer Institute NSW	George J McCaughan G Reddel R R Chant K Clarke SJ Liau W Nagrial AM Agar M Zekry A Zurynski Y	\$800,000
Co-designing quality end of life care to culturally and linguistically diverse consumers in cancer services	Cancer Institute NSW	Harrison R	\$599,755
Hide and seek with hereditary cancer: Improving detection of colorectal cancer patients with a high risk of Lynch syndrome	Cancer Council NSW	Taylor N Tucker K Macrae F Gill A Canfell K Pachter N Parkinson B Solomon M Shaw T Kench J	\$579,140
Murdoch Children's Research Institute Placement Agreement	Murdoch Children's Research Institute	Braithwaite J	\$525,000
Towards an innovative, far-reaching research-based solution for the local community	Health Infrastructure	Clay-Williams R Hibbert P Arnolda G Rapport F Mitchell R Zurynski Y Long J Braithwaite J	\$519,374
PSRACS participation in the CareTrack Aged research, a NHMRC-funded Project Grant	Victoria Department of Health and Human Services	Braithwaite J Hibbert P Wiles L	\$357,603
Risk assessment project proposal	Medical Council of NSW	Clay-Williams R Arnolda G Tran Y Lystad R Mitchell R Hibbert P Braithwaite J	\$353,280

PROJECT TITLE	FUNDING BODY	INVESTIGATORS	TOTAL FUNDING
Socioeconomic disadvantage, COVID symptom persistence and health-related quality of life EQ-5D: An analysis for India	EuroQol	Sinha K Gutacker N Gu Y Haagsma J	\$342,007
EQ-5D with the hearing "bolt-on" items: developing a new quality of life measure for hearing impairment	Cochlear Research Partnership	Gu Y Cutler H Parkinson B Sinha K Dawes P Sharma R Brinson M Gonzalo F Quadri H	\$299,030
Medical Services Advisory Committee Evaluations	Department of Health	Hoyle M Parkinson B Cutler H Seil E Norman A Jeet V Ahumada-Canale A Rana R Sharma R Song R	\$293,100
RarEST Rare disease Awareness, Education Support and Training (RarEST)	The University of New South Wales	Zurynski Y	\$290,349
A novel neuro-cardiac self-regulation therapy to improve autonomic and neural function after SCI: Clinical trials and translation to implementation	NSW Health	Craig A Middleton J Gopinath B Cameron I Davis G Tran Y Krassioukov A Braithwaite J Mitchell R Gustin S	\$273,622
Evaluating Artificial Intelligence (AI) for chest radiograph interpretation in emergency medicine	Digital Health CRC	Magrabi F Coiera E	\$255,120
Longitudinal outcomes of hearing-impaired children: early vs later intervention	National Institutes of Health	Ching T Cupples L Leigh G Dillon H Parkinson B Wong C Sharma R	\$254,478
Mackenzie's Mission	Australian Genomics Health Alliance	Braithwaite J Long J Best S	\$250,000
Economic evaluation of the LifeSpan project launched by the Black Dog Institute	Black Dog Institute	Cutler H Abiona O	\$243,660

PROJECT TITLE	FUNDING BODY	INVESTIGATORS	TOTAL FUNDING
RuralKids GPS delivering equitable care to children in rural NSW	Sydney Children's Hospital Network	Zurynski Y	\$200,632
NHMRC Investigator Grant DVC(R) Co-funding	Macquarie University	Westbrook J	\$200,000
Value based care in mental health	National Mental Health Commission	Cutler H Abiona O Bilgrami A Aghdaee M	\$198,815
MQ DVC(R) Co-funding: Establishing a digital health foundation for outcomes-based diagnostic excellence, safety and value	Macquarie University	Georgiou A Center J Westbrook J Rawlinson W Curtis K Post J Horvath A Hillman K Amin J Endre Z	\$187,564
Communicating to promote engagement in using electronic medical records (AIHI Managed Funds)	ARC	Manias E Gray K Wickramasinghe N Harrison R	\$174,424
ARCHS: Adult recipients of Cochlear implants: Health and Social long-term outcomes	Cochlear Ltd	Mitchell R Lystad R Boisvert I McMaugh A Moore R	\$174,300
ARCHS: Adult Recipients of Cochlear implants: Health and Social long-term outcomes	Macquarie University	Mitchell R Lystad R Boisvert I McMaugh A Moore A	\$174,300
Investigating the relationship between out-of-pocket costs, healthcare quality, experience and outcomes	Medibank Private Limited	Harrison R Mitchell R Braithwaite J Mumford V Hibbert P Westbrook J	\$173,000
Use it or Lose it? Maximising your brain health	NSW Department of Planning, Industry and Environment	Siette J	\$172,280
Computerised decision support to improve efficiency and outcomes of massive blood transfusion	Australian and New Zealand College of Anaesthetists	Sanderson B	\$160,000

PROJECT TITLE	FUNDING BODY	INVESTIGATORS	TOTAL FUNDING
The Emergency Department Pathology Order Support Tool (ED POST) – an intelligent and dynamic electronic tool to facilitate appropriate and effective use of pathology	Australian Government Department of Health	Georgiou A Imai C Hardie R Scowen C Eigenstetter Brown S	\$159,547
Specialised Asset Management Change Methodology	Health Infrastructure	Harrison R Clay-Williams R Mitchell R Churruca K Chauhan A Westbrook J Braithwaite J	\$149,850
NHMRC Investigator Grant DVC(R) Co-funding	Macquarie University	Coiera E	\$120,000
Data mapping in hospital databases	Evidentli	Berkovsky S Coiera E	\$115,000
Developing Privacy Enhancing COVID-19 Symptom Classification Tool	Macquarie University	Uddin Sheikh N	\$105,000
Primary care screening tool to detect, prevent and treat health issues for older Australians	Ian Potter Foundation	Wuthrich V Johnco C Cutler H Willcock S Jones M	\$100,000
Evaluating clinician experiences of value-based care initiatives	NSW Ministry of Health	Harrison R Newman B	\$98,450
Usability and effectiveness of the NICU/PICU version of the electronic Record for Intensive Care (eRIC)	eHealth NSW/Kids Critical Cancer Research	Raban M Westbrook J Wiggins M Harrison R Clay-Williams R	\$98,230
NHMRC Investigator DVC(R) Co Funding	DVCR Macquaire University	Braithwaite J	\$90,000
Sydney North Health Network Digital Test Beds Evaluation	Sydney North Health Network	Georgiou A Jorgensen M Siette J Nguyen A	\$89,991
Cough Sound Assessment Using Deep Learning Techniques	Google Asia Pacific Pte Ltd	Sharan R	\$84,173
Co-designing patient engagement strategies to enhance safety in cancer services for culturally and linguistically diverse (CALD) patients	Cancer Australia	Harrison R	\$82,667
Impact of chronic illness and injury on school performance	Macquarie University	Mitchell R	\$77,639
Developing an implementation strategy for enhancing the detection and management of familial hypertension in Australia	Heart Foundation	Sarkies M Watts G Sullivan D Braithwaite J	\$74,924

PROJECT TITLE	FUNDING BODY	INVESTIGATORS	TOTAL FUNDING
Delivery of training programs on systems	Department of Social Services	Braithwaite J Clay-Williams R Mitchell R	\$70,000
Measuring healthcare experiences with diverse populations	NSW Ministry of Health	Harrison R Manias E Mitchell R	\$70,000
Assessing the clinical benefits of TICI using mixed methods	Cochlear Ltd	Rapport F Clay-Williams R	\$66,890
Review and updating of the six Medication Safety Evidence Briefings	Australian Commission on Safety and Quality in Health Care	Raban M Gates P McMullan R Westbrook J	\$65,100
Evaluation of EasyCare Assisted-Living Technology	Easy Care Technology Pty Ltd	Lau A	\$65,000
Supporting dynamic multidimensional entrepreneurial resilience in Australia	ARC Discovery Project	Sinha K Magnani L Chirico F Gu Y Zhu R Green R	\$64,000
Living Stroke Guidelines Evaluation	Stroke Foundation	Wiles L Hibbert P Zurynski Y Smith KL Arnolda G	\$54,511
Health Outcomes and Patient Experience (HOPE) Process Evaluation [Agency for Clinical Innovation funds]	Agency for Clinical Innovation (ACI)	Harrison R	\$50,498
Mitochondrial Disease Triage Tool	Kolling Institute	Berkovsky S	\$49,409
Optimising eHealth systems to improve medication safety and patient outcomes	Macquarie University	Raban M	\$48,858
Safety assessment of an AI-based clinical decision support system	Healthdirect	Magrabi F	\$41,313
Patient Preferences for Knee Replacement Surgery in Australia	J&J Research Partnership	Gu Y Cutler H Mutowo M	\$40,000
Supporting materials for patient safety culture measurement: Parts A and B	Australian Commission on Safety and Quality in Health Care	Ellis L Tran Y Pomare C	\$35,800
Evaluation Plan: MQ Health HeartConnect Service	MQ Health	Zurynski Y Wilcock S Naliliah C Lopez F Kmet W	\$35,000

PROJECT TITLE	FUNDING BODY	INVESTIGATORS	TOTAL FUNDING
Predicting Freezing of Gait in Parkinson's Disease Using Brainwaves	University of Sydney	Berkovsky S Sharan R	\$35,000
Health Outcomes and Patient Experience (HOPE) Process Evaluation [MOH Funds]	NSW Ministry of Health	Harrison R	\$30,352
Computerised decision support to improve efficiency and outcomes of massive blood transfusion	National Blood Authority	Sanderson B	\$30,000
Exploring the impact of child and placement characteristics, carer resources and perceptions, and life stressors on caregiving	Department of Communities and Justice	Mitchell R Ryder T Zurynski Y	\$30,000
Determining the role and responsibilities of the Australian Epilepsy Nurses in the management of epilepsy across primary and community care	University of Sydney	Rapport F Hutchinson K Herkes G Bleasel A Nikpour A Wong C Ireland C Bartley M Braithwaite J	\$30,000
The Collaboration to Improve Clinical Practice and Research Outcomes in Melanoma and Other Skin Cancers	Macquarie University	Braithwaite J Rapport F Wilkinson D Mann G Cust A Smith A	\$30,000
Co-creating safe spaces: Translational research on innovative alternatives to the emergency department for people experiencing emotional distress and/or suicidal crisis	Suicide Prevention Australia Ltd	Ellis L	\$27,623
Calvary Health Consultation	Research Australia	Zurynski Y Smith KL	\$23,456
MQ Safety Net (MQSN) Scheme	Macquarie University	Hibbert P	\$20,000
Cost effectiveness of Cochlear implants in Finland	Cochlear Research Partnership	Cutler H	\$15,000
The Collaboration to Improve Clinical Practice and Research Outcomes in Melanoma and Other Skin Cancers'	National Skin Cancer Clinics	Braithwaite J Rapport F Wilkinson D Mann G Cust A Smith A	\$12,500
The Collaboration to Improve Clinical Practice and Research Outcomes in Melanoma and Other Skin Cancers	Skin Cancer Institute	Braithwaite J Rapport F Wilkinson D Mann G Cust A Smith A	\$12,500

PROJECT TITLE	FUNDING BODY	INVESTIGATORS	TOTAL FUNDING
Productive and non-productive cough classification using machine learning	Macquarie University	Sharan R	\$12,241
Strategies to address unprofessional behaviours among staff in acute healthcare settings: a realist review	National Institute for Health Research (NIHR)	Maben J Mannion R Jones A Westbrook J Pearson M Abrams R	\$11,120
Evidence review of tools to measure quality of life, consumer satisfaction and consumer experience across residential and in-home aged care. (AIHI managed component)	Department of Health (Commonwealth)	Ratcliffe J Khadka J Gordon S Caughey G Westbrook J	\$9,200
Language Inclusion: Supporting people with intellectual disability and their carers from culturally and linguistically diverse backgrounds	NSW Council for Intellectual Disability	Chik A Orlando M Castle C Gu Y Ollerhead S Gorfinkel L Burridge A	\$5,411
Automation in nursing decision support systems: evaluating effects on risk identification and decision making	Macquarie University	Akbar S	\$5,000
MQ ECR of the Year Award- STEM	Macquarie University	Liu S	\$5,000
Using artificial intelligence to improve care delivery in resource constrained clinical settings	Macquarie University	Susanto A	\$5,000
The impact of COVID-19 and associated health policies on access to allied healthcare, care quality, and health outcomes in Australian residential aged care facilities	Macquarie University Postgraduate Research Fund (PGRF)	Meulenbroeks I	\$4,896
MQ ECR Enabling Scheme	Macquarie University	Prgomet M	\$3,000
MQ ECR Enabling Scheme	Macquarie University	Sharan R	\$2,500
MQ ECR Enabling Scheme	Macquarie University	Imai C	\$2,160
Total Funding for this report			\$13,684,626



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Dr Nasir Wabe


The Australian Institute of Health Innovation acknowledges the traditional custodians of the country on which we work and live and recognise that their cultures and customs have nurtured and continue to nurture this land. We pay our respects to Elders past, present and emerging.



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