Delivering the evidence for health system improvement, every day of the year
To say that the Australian Institute of Health Innovation is productive is an understatement. Every day of the year we publish in the leading international journals or present keynote, plenary or other talks to conferences across the world—way more than 365 publications and presentations annually.

But academic productivity as measured by the number and prestige of the articles we publish and talks we give is not the sole metric—or even the most important metric—of our research enterprise. Nor is the number of staff, students and visiting personnel, although there are more than 260 of us. Nor is funding, although we currently manage over $60.6m of grants and other contracts, and we secured substantial new funding during 2023 including from the National Health and Medical Research Council (NHMRC), the Medical Research Future Fund (MRFF), European Union, various Fellowships, and government and industry contracts.

Despite being a very treasured metric, it’s not the number of collaborations and partnerships, of which we have over 133 including with the United Nations, the World Health Organisation (WHO), the Organisation for Economic Co-operation and Development (OECD) and the International Society for Quality in Health Care (ISQua).

And it’s not the number of projects, although we have well over 100 going on at any point in time.

Key new projects funded during 2023:

- Improving the health system’s response when patients are harmed
- Embedding genomics in primary care, nationally
- Leveraging informatics to optimise pharmacist-led medication reviews in residential aged care
- Utilising near real-time electronic general practice data to establish effective care and best-practice policy
- Undertaking evaluations for the Pharmaceutical Benefits Advisory Committee (PBAC) and Medical Services Advisory Committee (MSAC)
- Enhancing human reasoning with generative AI
- Designing new models of integrated primary care for Long COVID
- Strengthening resilience and mental wellbeing for leaders in aged care
- Utilising AI to examine chest X-rays
So if it’s not any of those important numbers, what’s the key metric? It’s the impact that our research makes on patients and families first and foremost, and other stakeholders in the health system. I’m mindful of the young people living with bowel cancer in Australia and the UK who told us about their diagnostic journey—of the healthcare professionals they met, how they felt cared for, or let down and where they thought the system could have served them better. By trusting us with their stories we were able to publish research that underpinned the national awareness campaign of Bowel Cancer Australia and saw a change in Australian clinical guidelines to lower the bowel cancer screening age from 50 years old to 45.

Another example of our impact is the Health Innovation Series. Focused on e-medication safety and reporting evidence-based recommendations to improve care delivery and outcomes. Each issue provides very practical tips for organisations and system-users to optimise e-medication systems and how they are used. Since the launch of the series in September 2022, 17 issues have been published with more than 5000 downloads by December 2023. Feedback has been extremely positive including this statement from one of our key stakeholders: “The Society of Hospital Pharmacists of Australia is involved in advocating for optimisation of electronic medication system design to support patient safety. The issues highlighted by the Health Innovation Series are therefore highly relevant.”

In what follows you can read about these achievements and many other aspects of our research. The Annual Report is a treasure trove of data, stories and evidence about making care better.

It remains for me to record my appreciation to all those associated with AIHI—students, partners, staff, and visiting personnel, here and overseas—for their passion, expertise, and commitment to our cause. A special note of appreciation, too, to our Board members; the Deans of the Faculty of Medicine, Health and Human Sciences and Macquarie Business School, Professor Patrick McNeil and Professor Eric Knight; and the University’s Executive, led by Professor S Bruce Dowton, for their generous support of AIHI. On behalf of my fellow Directors, Professors Johanna Westbrook, Enrico Coiera and Henry Cutler, a genuine thank you to all who help make our research meaningful and valuable.

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MACQUARIE UNIVERSITY

Australia’s first fully integrated health precinct created around our on-campus hospital

Ranked in the top 100 universities globally and top 25 in 3 UN Sustainable Development Goals
(TIMES HIGHER EDUCATION IMPACT RANKINGS, 2023)
Who we are

The Australian Institute of Health Innovation (AIHI) stands as a globally recognised, research-driven institute committed to enhancing healthcare services, health systems, and health policy both in Australia and on the international stage. Situated within Macquarie University’s groundbreaking MQ Health, Australia’s first fully integrated academic health sciences centre, AIHI proudly houses the largest team of health services researchers in the country, solidifying its status as one of the premier research groups of its kind globally.

During 2023, AIHI underscored its steadfast commitment to impactful research by managing grants and contracts with an enterprise value exceeding $60 million. AIHI investigators also actively contributed to research endeavours led by other institutions, for projects with an additional enterprise value of $64.7 million.

AIHI’s sustained productivity owes much to the determined efforts of our highly skilled, multidisciplinary team. Consisting of clinicians, scientists, social scientists, psychologists, pharmacists, engineers, epidemiologists, informatics experts, economists, statisticians and data analysts, alongside dedicated professional staff, this cohesive unit works collaboratively to fortify health systems in Australia and internationally.

AIHI’s 61 Higher Degree Research (HDR) students, heralding the next generation of experts, contribute immensely to numerous research projects. Moreover, our involvement extends to teaching in Macquarie University’s Master of Public Health Program, coupled with the administration of research projects and provision of supervision and teaching in the flagship Macquarie University Doctor of Medicine (MD) Research Program.

Instrumental in shaping many important healthcare projects and initiatives, AIHI has formed pivotal partnerships with the Australian Government, state and territory governments, and the private sector. Leveraging our global platform, AIHI collaborates extensively with major international agencies such as the UN, WHO and OECD, engaging in multifaceted health reform initiatives with governments, policymakers and academics worldwide.

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

$60.6m
Enterprise value of projects under AIHI management

120
Number of research projects under AIHI management

$64.7m
Enterprise value of grants administered elsewhere involving AIHI

$21.3m
Enterprise value of grants commenced or awarded in 2023

$46m
Category 1 Funding for grants under management in 2023

261
Researchers, visiting appointees and professional staff

61
PhD and MRes students

246
Peer-reviewed publications including journal articles, books and book chapters

>300
Presentations, including keynote addresses, talks, workshops and seminars
At the core of AIHI’s mission lies research, serving as the driving force behind positive transformations in healthcare policy, practice, and behaviour. Collaborating seamlessly with frontline stakeholders—patients, caregivers, policymakers and health professionals alike—our focus is on ensuring the efficient and effective delivery of sustainable person-centred care.

- We work closely with patients and other stakeholders to design and undertake research into, and for, the health system.
- We examine the performance and quality of the health system.
- We measure the effectiveness and efficiency of interventions.
- We assess the impact of government policy on patients and the health economy.
- Given healthcare is complex, we also investigate how and why interventions work.
- We create new insights into the health system and society from data.
- We introduce new research methods, innovations, and theories.
- We formulate new frameworks and tools to help improve care.

GRANTS UNDER MANAGEMENT 2023 BY FUNDING CATEGORY

- **CATEGORY 1**
  Grants awarded from the Australian Competitive Grants Register

- **CATEGORY 2 AND 3**
  Other Public Sector Research and Development Income

- **OTHER**
  Industry and Other Research and Development Income
Our Board

CHAIR
Professor Patrick McNeil
Deputy Vice-Chancellor
Faculty of Medicine
Health and Human Sciences, MQ

Dr Elizabeth Koff AM
Director
Telstra Health
Health System member

Elizabeth de Somer
CEO
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Professor Adam Jaffé
Paediatric Respiratory Consultant
Sydney Children’s Hospitals Network
Health System member

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Health System member

Dr Karen Owen
Independent member

Emeritus Professor
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Eric Knight
Executive Dean
Macquarie Business School
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Professor
Jeffrey Braithwaite
AIHI member

Professor
Enrico Coiera
AIHI member

Professor
Johanna Westbrook
AIHI member

Professor
Henry Cutler
AIHI member

Chrissy Clay
Board Secretary
AIHI member
The Australian Institute of Health Innovation takes pride in establishing partnerships with government bodies, industries, agencies, health services, and research institutions. Additionally, we greatly appreciate our collaboration with health consumers who are integral to our co-design research approach. For a comprehensive list of our national and international partners, please visit our website at aihi.mq.edu.au. A curated selection is outlined here.

**Our partners**

- Aalborg University, Denmark
- Abbott Diagnostics
- AbbVie
- ACT Government Health Directorate
- ACT Health
- Aged Care Industry Information Technology Council
- Aged Care Quality and Safety Commission
- Agency for Clinical Innovation NSW
- American Medical Informatics Association
- Amgen Australia
- Anglicare
- Annalise.ai
- Australasian Institute of Digital Health (AIDH)
- Australian and New Zealand Hip Fracture Registry
- Australian Commission on Safety and Quality in Health Care (ACSQHC)
- Australian Council on Healthcare Standards (ACHS)
- Australian Defence Force
- Australian e-Health Research Centre
- Australian General Practice Accreditation Ltd (AGPAL)
- Australian Genomics Health Alliance
- Australian Government Department of Social Services
- Australian Health Insurance Association (AHIA)
- Australian Healthcare and Hospitals Association (AHHA)
- Australian Hearing Hub (AHH)
- Australian National University
- Australian Research Council (ARC)
- Australian Social Prescribing Institute of Research and Education
- BaptistCare
- BCAL Diagnostics
- BESTMED (Best Health Solutions Pty Ltd)
- Black Dog Institute
- Blacktown Hospital
- Bond University
- Bowel Cancer Australia
- Brain and Mind Centre, University of Sydney
- Bupa Health Foundation Australia
- Bureau of Health Information
- Cancer Australia
- Cancer Institute NSW (CINSW)
- Canon Institute for Global Studies, Japan
- CanTeen
- Children’s Cancer Institute, Australia
- Clinical Excellence Commission NSW
- Cochlear Ltd
- Consumers Health Forum of Australia
- CSIRO Australian e-Health Research Centre
- CSIRO Data61
- Deebie Institute for Health Policy Research
- Department of Health (Commonwealth) plus State and Territory departments of health
- Digital Health Cooperative Research Centre (DHCRC)
- eHealth NSW
- Evidenti
- Federal University of Rio Grande do Sul, Brazil
Our Directors

Professors Henry Cutler, Enrico Coiera, Johanna Westbrook and Jeffrey Braithwaite
Professor Jeffrey Braithwaite is well known for bringing management and leadership concepts and evidence into the clinical arena.

Professor Braithwaite has published extensively about organisational, social and team approaches to care (over 835 refereed contributions and 1,490 publications) with more than 34,650 citations. He has presented at or chaired international and national conferences, workshops, symposia and meetings on more than 1,470 occasions, including over 135 keynote addresses. Theories and ideas he has shaped or devised are now in common use; for example, multi-method, triangulated approaches to research, the boundary-less hospital, accreditation models in general practice and beyond, clinician-managers as key players in reform initiatives, fundamental principles for the governance of health systems, diversity in clinical professional groups, and inter-professional learning and culture change as a more sustainable strategy for reform. His empirical results have exposed the distinctive attitudes of clinical professional groups, how clinician-managers enact their leadership responsibilities, the behavioural displays of clinicians in service structures and the status of system-wide patient safety improvement initiatives.

Professor Cutler has attracted over $15 million in research funding from government and non-government organisations.

Professor Cutler has undertaken projects for the Department of Health and Aged Care (DoHAC), Aged Care Financing Authority, NSW Health, and NSW Treasury.
Professor Cutler is also a chief investigator on multiple MRFF, NHMRC and other academic grants worth $32 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 is the Group Leader for the Macquarie University Health Technology Evaluation team, which evaluates the cost effectiveness of pharmaceuticals and medical devices for the Pharmaceutical Benefits Advisory Committee (PBAC) and the Medical Services Advisory Committee (MSAC). 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 subsidise medicines and medical devices.

Professor Cutler has contributed extensively to government policy thinking. He sits on the National Suicide Prevention Office Expert Advisory Board, the DoHAC Expert Advisory Panel for the Review of General Practice Incentive Programs and the Review of Primary Care After Hours Programs, and Chairs the Research Australia Health Economics Working Group.

Professor Cutler has been a member of the 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. In the last five years, he also sat on an expert committee for the Victorian Royal Commission into Mental Health, and was an expert witness in the Royal Commission into Aged Care Quality and Safety. He also sat on the National Mental Health Commission National Workplace Initiative Evaluation Group.

Professor Cutler is collaborating with several Macquarie University research centres, including the Lifespan Health and Wellbeing Consilience Centre and MindSpot. He is also collaborating with several external research centres on multi-million dollar academic grants, such as the Black Dog Institute and the UNSW Centre for Healthy Brain Ageing. Professor Cutler was invited to become a Visiting Researcher at the Nuffield Department of Population Health, University of Oxford in 2024.

PROFESSOR ENRICO COIERA

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

Professor Coiera led development of the National Policy Roadmap for AI in Healthcare.

He is the founding Professor in Medical Informatics at Macquarie University and the founding Director of the Centre for Health Informatics (CHI). CHI is the longest running biomedical and health informatics academic research group in Australia. Professor Coiera is also founder of the Australian Alliance for Artificial Intelligence in Healthcare (AAAiH) formed in 2018, and responsible for the National Policy Roadmap for AI in Healthcare launched in 2023.
In 2022, Professor Coiera was invited 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)*, and in 2023 launched a new research stream at CHI: Climate Change and Digital Health.

Professor Coiera is a Fellow of the Australian Academy of Health and Medical Sciences, and 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, served as chief investigator on multiple competitive grants (including two NHMRC Centres of Research Excellence), and currently has over 417 publications exceeding 25,180 citations, and an h-index of 77 (Google Scholar).

Of Professor Coiera's publications, 31 have greater than 200 citations, six have more than 600 citations and one has over 2,400 citations.

**PROFESSOR JOHANNA WESTBROOK**
Director, Centre for Health Systems and Safety Research
Professor of Health Informatics and Patient Safety, Macquarie University
Co-Director, Safety, Quality, Informatics and Leadership Program, Harvard Medical School, Harvard University
NHMRC Elizabeth Blackburn Investigator Leadership Fellow

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.

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 66 research teams across 17 countries, who have generated > 80 publications.

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, and systemic information technology changes. Her research findings informed the recommendations of the Royal Commission into Aged Care Quality and Safety (2021). 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.

Awarded over $79 million in research grants, Professor Westbrook has over 600 publications.

In 2023, Professor Westbrook was elected to the Australian Academy of Health and Medical Sciences in recognition of her outstanding contribution to the field of health services research. 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. 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.
Key new grants and contracts for 2023
(Commenced or awarded in 2023)

**MEDICAL RESEARCH FUTURE FUND**

$1.97m
Embedding genomics in primary care: using implementation science to design a robust national approach

**Professor Jeffrey Braithwaite**
**Dr Janet Long**

**Partners:**
- Australian Genomics
- Human Genetics Society of Australasia
- Royal College of Pathologists Australia
- Cystic Fibrosis Australia
- Fragile X Association of Australia
- Genetic Support Network of Victoria
- Rare Voices Australia

$1.5m
Leveraging informatics to optimise pharmacist-led medication reviews in residential aged care to improve outcomes and cost-effectiveness: a pragmatic cluster randomised controlled trial

**Associate Professor Magda Raban**
**Dr Karla Seaman**

**Partners:**
- Best Health Solutions (BESTMED)
- Heritage Care
- Aged Care Industry IT Council
- Aged Care Quality and Safety Commission
- Pharmaceutical Society of Australia
- Consumers Health Forum of Australia

**NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL**

$1m
Using AI to create smarter, personalised, and scalable interventions for psychological distress

**Professor Henry Cutler**

**Partners:**
- Black Dog Institute
- Deakin University
- UNSW
- QIMR Berghofer Medical Research Institute
- Leiden University
- Harvard Medical School
- Kyoto University

Part of a $5m Synergy grant awarded to CI Scientia Professor Helen Christensen Black Dog Institute

$500,000
NHMRC-EU Collaborative Research Grant Scheme
Strengthening resilience and mental wellbeing through the Support4Resilience toolbox for leaders in elderly care

**Dr Louise Ellis**
**Professor Jeffrey Braithwaite**
**Professor Robyn Clay-Williams**

**Partners:**
- €6 million Horizon Europe grant led by Professor Siri Wiig, University of Stavanger, Norway, partnering with six EU countries as well as Australia through AIHI

**CONTRACT**

$1.4m
Fujitsu Macquarie AI Research Centre
Enhancing human reasoning with generative AI: personalised digital coach for effective feedback

**Professor Shlomo Berkovsky**
**Professor Enrico Coiera**

$1m
Australian Government Department of Health and Aged Care
Medical Services Advisory Committee Evaluations

**Professor Henry Cutler**
**Associate Professor Bonny Parkinson**
Recommendations released for the safe use of AI

A national plan for the safe and ethical use of AI in healthcare led to broad support from the health and technology sectors during 2023. The Australian Alliance for AI in Healthcare (AAAiH), founded by Professor Enrico Coiera, delivered a National Policy Roadmap for AI in Healthcare, with recommendations including:

- Adoption of a unified approach to AI safety, quality and ethics so that healthcare AI does not harm patients;
- Establishment of strategies to improve AI literacy in health for consumers and the clinical workforce;
- Support of the local healthcare AI industry to grow, successfully navigating between investment in innovation and the requirements for compliance and regulation; and
- Building on the research and development sector to generate the evidence, technologies and products that will underpin AI-driven healthcare and enable Australia to retain world-class sovereign capability.

The Roadmap, which recognises the existing entities responsible for oversight of AI in Australia, was developed by AAAiH after extensive consultation with representatives from federal, state and territory government departments, research, regulatory and professional bodies, as well as consumer and industry representatives.
Cancer care made safer for people from multicultural backgrounds

With one in three people from a culturally or linguistically diverse (CALD) background experiencing some form of harm during cancer care, research by Professor Reema Harrison has led to new awareness and measures to make care safer.

The Cancer Australia and NHMRC funded research project, CanEngage, sought to enhance patient safety amongst CALD consumers through the development and validation of co-designed patient engagement practices.

A key component of CanEngage was the development of a co-facilitator network of consumers and multilingual fieldworkers within the community with lived experience of cancer to help co-design the research project and interventions.

Results from the three-year project were presented at the CanEngage Symposium held at Macquarie University in September.

Professor Harrison was awarded the NSW Premier’s Award for ‘Outstanding Cancer Research for Improving Equitable Outcomes through Cancer Research’ for the CanEngage project. This is the leading NSW awards program to celebrate excellence and innovation in cancer research.

Consumers and multilingual fieldworkers co-designed the research project and interventions

The CanEngage team includes co-facilitators with lived experience of cancer
Gaps in aged care reveal opportunities to make care safer

New world-first research revealing that most residents of aged care homes in Australia receive best practice care for continence issues, but not for six other common conditions including mental health, end-of-life care and urinary tract infections, is leading to opportunities for targeted improvement.

This research from the NHMRC funded CareTrack Aged study is the first to evaluate adherence to evidence-based care for people in long term residential aged care across multiple common conditions.

With aged care nurses conducting specialised reviews, the researchers found that on average, residents received care in line with guidelines 53.2% of the time. Six conditions (skin integrity, end-of-life care, infection, sleep, medication, and depression) had less than 50% adherence with indicators for best care.

According to the project leaders, internationally recognised patient safety experts Professors Jeffrey Braithwaite and Peter Hibbert, the results point to the continued difficulties faced by the aged care sector including workforce shortages with medical, nursing and allied health staff.

The research demonstrated that a lack of ongoing systematic monitoring of the performance of the sector also contributes to the lower rates of evidence-based care. Results provide valuable insights into specific conditions and clinical processes where improvements should be targeted.

A lack of ongoing systematic monitoring of the performance of the sector contributes to lower rates of evidence-based care.

Scan the QR code to learn more about CareTrack Aged on our website.
IMPACT STORIES
Delivering the evidence for health system improvement, every day of the year

New research to tackle climate change

A new collection of research publications reveals and addresses the bi-directional problem faced by health systems in the face of climate change.

On the one hand, health systems are major emitters of greenhouse gases. Between 4–8.5% of a country’s emissions are generated by health systems. On the other hand, health systems are on the front lines of dealing with climate-induced harm to affected populations—from bushfires, floods, heatwaves, cyclones and other forms of extreme weather events, and rising infectious diseases. These demands will increasingly stretch health services, in particular emergency departments and primary care providers.

Professor Jeffrey Braithwaite has been invited to advise the UN, WHO and OECD and led several systematic reviews weighing up what the data says on climate change and healthcare.

The Routledge Handbook of Climate Change and Health System Sustainability, edited by Professors Braithwaite and Yvonne Zurynski and Dr K-lynn Smith, will be published in May 2024. With 36 chapters across a myriad of topics including digital support for climate change, mitigation and decarbonisation strategies, this book provides a platform for action, and for future research on the bi-directional problem.

This word cloud represents key terms and phrases related to climate change publications sourced from the following AIHI led publications:

- Braithwaite et al., 2024. Analysing health system capacity and preparedness for climate change. Nature Climate Change.
- Braithwaite et al., 2024. Ways to reduce healthcare’s impact on climate change: A systematic review. BMJ.
- Braithwaite, Pichumani and Crowley, 2023. Tackling climate change: the pivotal role of clinicians. BMJ.
- Braithwaite et al., 2021. Climate change, human health, and health care systems. MJA InSight+.
- Coiera et al., 2022. What did you do to avoid the climate disaster? A call to arms for health informatics. JAMIA.
- Rahimi-Ardabili et al., 2022. Digital health for climate change mitigation and response: a scoping review. JAMIA.

Scan the QR code to visit the Observatory on the Future of Healthcare.
Federal Budget explained for health and aged care

The MUCHE Health Report, produced by AIHI health economics and health services researchers, provides the most comprehensive analysis of Federal Budget announcements and their potential impact on health and aged care.

Released annually, the MUCHE Health Report discusses budget announcements within the context of the healthcare system, including aged care, hospitals, mental health, pharmaceuticals, pharmacy, primary care, and private health insurance.

Professor Henry Cutler said about the 2023 Federal Budget: “This Budget is about optimising the health and aged care workforce, using evidence to make hard decisions and investing in digital health to enable reform. It’s not perfect, with some questions looming over the centrepiece bulk billing announcement, but it’s a good start.”

The MUCHE Health Report is requested by journalists around the country and distributed to key stakeholders within the health and aged care system.

A comprehensive analysis of budget announcements and their potential impact on health and aged care
Higher degree researchers at AIHI represent the future leaders in healthcare, embodying innovative ideas and a dedicated approach. Here, recent candidates share their perspectives.

Researchers of the future

**DR ANTOINETTE PAVITHRA**
My research training at AIHI was crucial in developing the skills to build fit-for-purpose interventions within complex systems. While at AIHI, I worked on understanding how social-cultural and structural factors influence human behaviours, as well as staff and patient experiences and outcomes in healthcare organisations.

I am now at the NSW Premier’s Department working across areas of social policy and community engagement on projects related to youth and community safety and wellbeing. I am passionate about centring the voices and experiences of frontline staff, youth and community advocates and the individuals who government programs are designed to serve.

**DR DAVID FRAILE NAVARRO**
I recently completed my PhD focusing on the use of natural language processing and automation in clinical medicine, specifically within primary care. My previous experience in general practice, coupled with my expertise in large language models, enabled me to examine various aspects of text automation for clinicians and their user experience with AI. My work ranged from automatically extracting information from clinical records to synthesising accurate notes from clinical conversations and summaries.

I have now joined AIHI as a postdoctoral research fellow to continue and expand my research, concentrating on the use of generative AI to revolutionise healthcare delivery.
DR MIA BIERBAUM
I recently completed my PhD with AIHI, looking at clinician perceived barriers and facilitators to oncology clinical practice guidelines in Australia. During my candidature, I won an AIHI Student Award in 2021 and 2023. Prior to my PhD, I completed a Master of Public Health, a Bachelor of Science (Biomed), and a Bachelor of Education. As a research officer at AIHI, my research included cochlear implant user experiences, and playground falls and head injury incidence rates. I have also worked at Cancer Council SA.

I am now working with Professor Peter Hibbert to evaluate a continuous improvement program aiming to reduce ambulance ramping across a local health network.

MEIMEI CHEN
As a person with a background in statistics and machine learning, I seek to explore their applications in health economics. I was fortunate to find that MUCHE and AIHI offer the perfect supervisory support and guidance needed for my research in both areas. My experience with AIHI began with my Master of Research, during which I proposed a machine learning algorithm based on multi-task learning to enhance prediction accuracy in survival analysis, ultimately benefiting the assessment of health technologies.

Now, having started my PhD, I am shifting my focus towards employing machine learning and econometric frameworks to derive unbiased causal parameters and assess patient preference heterogeneity.

I am grateful to begin my academic journey with the multidisciplinary and world-class team at AIHI, which provides not only incredible supervision and guidance but also substantial student support. MEIMEI CHEN
Organisational structure
Introducing our Centres

AIHI is committed to enhancing the services and systems that provide healthcare to individuals and communities. At the heart of this mission lie four highly productive and complementary Research Centres integral to the Institute:

- Centre for Healthcare Resilience and Implementation Science
- Macquarie University Centre for the Health Economy
- Centre for Health Informatics
- Centre for Health Systems and Safety Research

These Centres serve as specialised hubs for expert research initiatives, as evidenced in the subsequent reports. Furthermore, they engage in extensive collaboration with each other, MQ Health, the rest of the University and partners elsewhere. The success of this collaborative model is underscored by three additional centres funded by the NHMRC and spearheaded by AIHI, as illustrated in the organisational structure. Highlights for each of the Research Centres is showcased in the following pages.
Centre for Healthcare Resilience and Implementation Science

The world has become more worrisome than in previous eras. We can’t solve all the problems in politics, international relations and climate change. But we can do what Team AIHI does very well: create, through our research, the best, most evidence-based healthcare system we can.

PROFESSOR JEFFREY BRAITHWAITE

Enhancing healthcare systems’ performance poses a formidable challenge, shaped by a convergence of factors including ageing populations, resource constraints, technological advancements, and rising consumer expectations. The Centre for Healthcare Resilience and Implementation Science (CHRIS) tackles complex issues by leveraging research, incorporating evidence into practice for system enhancement, and innovating new care models. Our expertise spans complexity science, human factors, healthcare resilience, implementation science, and patient safety.

Under Professor Jeffrey Braithwaite’s leadership, CHRIS is reshaping healthcare models through research that focuses on building resilient systems. Our approach involves extensive collaboration and multidisciplinary teams, ensuring that our research translates into improved, cost-effective, and sustainable care. As an integral part of its work via the NHMRC Partnership Centre for Health System Sustainability and the NHMRC Centre of Research Excellence in Implementation Science in Oncology, CHRIS extends its reach nationally and internationally. Our long-established collaborations with prestigious entities such as the UN, WHO, OECD, ISQua, and the Society for Organisational Behaviour in Health Care contribute to global healthcare reform.

During 2023, we were the only team outside the European Union (EU) to be included in a prestigious €6 million EU Horizon grant to improve the resilience and wellbeing of aged care professionals. With our team bringing an implementation science focus, we were also awarded an NHMRC-EU Collaborative Research grant to extend the work into the Australian context.

For a detailed overview of our research, please refer to the CHRIS research stream reviews and other sections in this Annual Report.
Professor Jeffrey Braithwaite with Mr Ban Ki-moon, 8th Secretary General of the United Nations (2007–2016) and Founder of the Ban Ki-moon Foundation, at the 39th ISQua International Conference held in Seoul, South Korea, 2023.
CHRIS Streams of Research

COMPLEX SYSTEMS AND IMPLEMENTATION SCIENCE
Professor Jeffrey Braithwaite
Dr Janet Long, Dr Louise Ellis, Dr Kate Churruca
janet.long@mq.edu.au

Our Complex Systems and Implementation Science stream 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), an 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 genomic medicine and mental health.

Three significant new grants were secured including a MRFF grant in implementation of genomic testing in primary health; a NHMRC-EU collaboration grant to build resilience in the aged care workforce; and a HCF grant on consensus-based pathways for patients undergoing common surgeries (with Macquarie University Hospital).

In key research progress, a survey of Australian consumer perspectives on digital health technologies was conducted and the MRFF Keeping Australians out of Hospital grant was concluded. An edited book, the Routledge Handbook of Climate Change and Health System Sustainability, will be released in May 2024.

HEALTH AND SOCIETAL OUTCOMES
Professor Rebecca Mitchell
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The Health and Societal Outcomes stream conducts population-level epidemiological and mixed-method research to guide improvements in health service delivery and health policy. We examine different aspects of injury and disease in the population and identify where health and social outcomes could be improved.

We developed an international consensus statement using a modified-Delphi study to aid the consistent management of hip fracture patients taking direct oral anticoagulants, published in Anaesthesia.

We also completed a cross-country comparison of bone protection medication prescriptions for hip fracture patients, published in Archives of Osteoporosis.

Our research identifying the impact of a concussion in childhood on later academic performance, was published in the journal Concussion.

HUMAN FACTORS AND RESILIENCE
Professor Robyn Clay-Williams
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The Human Factors and Resilience stream focusses on creating health systems that function effectively in the face 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.

We completed final validation of Cognitive Work Analysis and Functional Resonance Analysis Models of NSW hospital Emergency Departments (EDs). These models can be used to design, implement, and test new interventions in EDs to improve patient care.

We continue to advance MyED, a large 5-year MRFF funded project, working with consumers and clinicians to understand their needs and co-design new models of care that improve their outcomes and experience. The research is being conducted in Westmead, Blacktown and Mount Druitt ED’s where we have completed Phase 1 data collection and analysis, including observation data, interviews with clinicians, and interviews/focus groups with CALD and older adult consumers.

Three students were awarded PhDs (Magali Goirand, Mariam Saﬁ and Natália Ransolin), and one student was awarded an MRes (Clare McCarthy).

We were awarded Best Paper for ‘An exploratory study of intensive care units’ published in Human Factors and Ergonomics in Manufacturing & Service Industries.
INTERNATIONAL HEALTHCARE REFORM

Professor Jeffrey Braithwaite
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The question at the heart of International Healthcare Reform is profound: how can we furnish top-tier research evidence that countries, regardless of income levels, can effectively employ in their ongoing endeavours to reform and enhance healthcare systems?

Addressing this challenge, two distinct edited book series have been crafted. One series of six books delves into global initiatives aimed at understanding and applying ideas to sharpen resilient healthcare practices, while the other, comprising three books, explores the reform activities of 152 diverse countries.

Over 42 abstracts, posters and talks were accepted from AIHI at ISQua’s 39th annual conference. The event this year was held in Seoul, South Korea, on various aspects of systems improvement and healthcare reform. Of all international research groups and agencies, AIHI is consistently the largest contributor to this prestigious international conference.

LEARNING HEALTH SYSTEMS

Professor Jeffrey Braithwaite,
Professor Yvonne Zurynski,
Dr Louise Ellis
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To do their best, clinicians, patients, policymakers, and other stakeholders require timely and relevant information. Learning Health Systems (LHS) integrate data, clinical information, test results, and patient histories with patient-reported outcomes, preferences, and experiences, placing these diverse datasets at the disposal of these decision-makers.

The LHS stream released a seminal white paper presenting the case for building the “Learning Health System 2.0” — a learning health system that is increasingly better prepared for, and adaptive to, the pressures of future pandemics and climate change.

The team conducted several rapid reviews on key themes to understand how healthcare organisations can be strategically enabled to become next generation LHSs.

Working with international colleagues, our stream played an important role in the development of the International Network for Activating Learning Health Systems (INACT-LHS) Toolkit and accompanying website, and participated in the Toolkit launch and LHS workshops at the ISQua conference in Seoul, South Korea.

Stemming from our ongoing collaboration with Macquarie University General Practice, two additional papers on reinvigorating general practice as a LHS were published in the British Journal of General Practice and BMC Primary Care.

PATIENT SAFETY AND APPROPRIATENESS OF CARE

Professor Peter Hibbert,
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 that 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. They can also suffer harm from treatments or medications they do not need.

The team commenced a NHMRC Partnership Grant working together with our partners, the Clinical Excellence Commission NSW, Clinical Excellence Queensland, Safer Care Victoria, ACT Health and the ACSQHC on a major project to 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.

We published the first paper in the world that measured the level of evidence-based care delivered to residents of aged care facilities. The paper, published in BMC Medicine, found 53% of care was delivered in line with the evidence.
Six conditions (skin integrity, end-of-life care, infection, sleep, medication, and depression) had less than 50% adherence with indicators for best care.

Professors Hibbert and Braithwaite taught for Harvard University, in the International Safety, Quality, Informatics and Leadership Program on conducting patient safety investigations, and Professor Braithwaite also taught in the Leadership in Medicine: Southeast Asia Program.

Multiple studies and systematic reviews are underway on climate change and human health. An edited book, the Routledge Handbook of Climate Change and Health System Sustainability, will be released in May 2024 and several large grants are being designed for submission.

Arising from our ongoing collaborations with the OECD, ISQua, WHO and the UN, several sessions, plenaries, keynote addresses and conference symposia are under development.

**CLIMATE CHANGE AND HEALTH SYSTEM STRENGTHENING**

Professor Jeffrey Braithwaite, Professor Yvonne Zurynski, Dr K-Lynn Smith

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The world is facing an existential problem — climate change. But that phrase doesn’t do the scale of the problem sufficient justice. The Secretary-General of the United Nations, António Guterres, called this time we are in not a period of climate change, or global warming, but the era of “global boiling”.

Healthcare has a special responsibility in this era. The Climate Change and Health System Strengthening stream has developed multiple systematic reviews and a seminal white paper presenting the case for building the Learning Health System 2.0 — a LHS that is increasingly better prepared for, and adaptive to, the pressures of future pandemics and climate change.
Macquarie University Centre for the Health Economy

Constrained government funding, increased healthcare needs, and workforce gaps mean healthcare decision makers must extract more value from every health dollar spent. This requires greater system productivity, cost-effective integrated care and funding models that promote better health outcomes. There has never been a greater need for health economic research to guide decision makers through the quagmire of reform.

PROFESSOR HENRY CUTLER

The Macquarie University Centre for the Health Economy (MUCHE) 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, attracted more than $15 million in funding and contributed to research grants valued at over $70 million.

MUCHE team members regularly contribute to policy decisions, such as through the National Suicide Prevention Office Expert Advisory Group, Independent Health and Aged Care Pricing Authority (IHACPA) Interim Aged Care Working Group, and the DoHAC Expert Advisory Panel for the Review of General Practice Incentive Programs and the Review of Primary Care After Hours Programs. MUCHE also evaluates applications for new listings on the Pharmaceutical Benefits Scheme and on the Medicare Benefits Schedule on behalf of the DoHAC.

MUCHE has developed a strong reputation for answering complex health economics research questions using a collaborative and multidisciplinary approach. MUCHE is affiliated with several other academic research centres, within and beyond Macquarie University, and collaborates on international health economics projects with world-leading research groups in the UK, Europe and China.

Further information on our research follows in the research stream highlights.

MUCHE partnered with the Black Dog Institute and Deakin University to successfully attract an NHMRC Synergy Grant worth $5 million to explore the use of AI in the delivery of mental health treatments.

MUCHE hosted the 14th Meeting of the International Academy of Health Preference Research, one of the most prestigious conferences in the field.

MUCHE assessed the efficacy and cost of newborn bloodspot screening for X-linked adrenoleukodystrophy for the DoHAC.
MUCHE Streams of Research

AGED CARE
Professor Henry Cutler
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An aged care system that delivers high quality and respectful care is the cornerstone of a caring society. Our aged care research stream leads in aged care policy and focuses on evaluating the aged care system and government policy to improve financial sustainability, improve the role of markets, and to improve the allocation of government funding across different types of aged care. We contributed expertise to the IHACPA and to the Royal Commission into Aged Care Quality and Safety.

MUCHE explored whether recent increases in Government funded Home Care packages have substituted informal care delivered by family and friends. We had several articles accepted in leading journals on how informal carers make financial decisions for the elderly and the role of financial literacy.

As part of the IHACPA Interim Aged Care Working Group, Professor Henry Cutler provided advice to IHACPA on the development of aged care pricing methodology for residential aged care.

We hosted C-suite executives at an event to discuss what the 2023-24 Federal Budget could mean for the health and aged care sectors.

HEALTH TECHNOLOGY ASSESSMENT
Associate Professor Bonny Parkinson
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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 in a form that can be used by policymakers to decide whether a health intervention is value for money.

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

Highlights include:
• Eight PBAC evaluations and two MSAC protocols or evaluations.
• Associate Professor Parkinson and Alicia Norman were panel members at three sessions at the Health Technology Assessment International Annual Meeting, on topics covering real world evidence in HTA, early HTA, and managing uncertainty in HTA.

HEALTH PREFERENCE RESEARCH
Associate Professor Yuanyuan Gu
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We investigate healthcare stakeholder preferences, choices, and behaviour by employing stated and revealed preference techniques such as discrete choice experiments (DCEs) and economic experiments. Our primary objective is understanding individual decision-making processes and underlying preferences that drive healthcare choices. That includes treatment choices, healthcare service use and medication adherence, choices made by healthcare providers, and preferences for healthcare policy options. Our research seeks to improve health outcomes by providing valuable insights for designing incentives and strategies that enhance healthcare quality, access, value, and equity at a systems level.

Highlights include:
• Associate Professor Gu co-organised and hosted the 14th Meeting of the International Academy of Health Preference Report on the health economics of medicine shortages.
• MUCHE hosted a visit by the Fudan University HTA group, China.
• Associate Professor Gu was invited to give the keynote speech at the 16th China HTA Forum in Shanghai.
Research, one of the most prestigious conferences in the field, and six AIHI members presented their research.

- Associate Professor Parkinson chaired a panel discussion on data quality control methods for DCE surveys at the Australian Health Economics Society conference.
- MUCHE collaborated with Macquarie School of Education and Macquarie Business School in a project where the DCE was adopted to design jobs for the attraction and retention of workers in the Australian early childhood education sector.

INTEGRATED CARE
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An integrated healthcare system is characterised by many healthcare providers across different disciplines working together in a coordinated way, to provide a seamless care pathway for patients that aligns with their needs and preferences. Integrated care is particularly valuable for people who suffer from chronic conditions and mental ill health, given they often receive services in the community and hospital, and other non-health services that can impact outcomes.

Our integrated care stream focuses on the evaluation of integrated care models being delivered within local health networks. We also seek to help healthcare system managers develop value-based payment models that break down traditional siloed funding structures.

Highlights include:
- National Mental Health Commission grant to understand how to embed greater value into mental healthcare funding models and investment decisions.
- Luminescence Alliance grant to undertake a five-year evaluation with partners of a program to provide enhanced access to child health services.
- MRFF grant to undertake a five-year project with partners to evaluate a program that seeks to improve mental health and functional outcomes of Australian adults with epilepsy.
- Professor Cutler sits on the DoHAC Expert Advisory Panel for the Review of General Practice Incentive Programs and the Review of Primary Care After Hours Programs.

MENTAL HEALTH
Associate Professor Jonas Fooken
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The cost of mental ill health to patients, communities and the healthcare system continues to rise in Australia and other developed countries. This requires a greater understanding of the economic determinants of mental ill health and how to efficiently improve outcomes. Addressing inequities in mental healthcare is also becoming more pressing. Our mental health stream seeks to address these issues.

Together with clinical partners, we evaluate innovative care models and consumer preferences for care attributes, explore better ways to pay for mental healthcare, and use linked national datasets to assess the impact of policy on mental healthcare use and outcomes.

We are leading several government grants (e.g., National Mental Health Commission and Mental Health Commission of NSW) exploring mental healthcare funding and investment models, inequities in access to pharmaceuticals and the efficiency of preventative care. The research stream is also involved in an NHMRC Synergy grant and an NHMRC Centre for Research Excellence grant in collaboration with UNSW and Deakin University to explore preferences and outcomes within new precision treatments for depression.

Professor Cutler presented to the OECD on ‘Getting more value from mental healthcare funding and financing’. Professor Cutler also served on the Expert Advisory Committee for the National Suicide Prevention Office.
The next decades will challenge our health system to the core. Technologies like AI are going to be critical to building a system that is adaptive and resilient, no matter what is thrown at it.

PROFESSOR ENRICO COIERA

In a year which saw the world react to the emergence of generative AI, researchers at the Centre for Health Informatics (CHI) played a pivotal role in the national conversation on how best to take advantage of AI in building a better health system.

CHI led development of an initial discussion paper with policy advice for AI in healthcare that was tabled at a workshop hosted by Dr Norman Swan AM. This workshop assembled leaders from federal, state and territory governments, peak bodies, industry and academia. Further deliberations culminated in the release of the National Policy Roadmap for AI in Healthcare.

Researchers at CHI have been instrumental in developing the Fujitsu Macquarie AI Research Centre, the first Fujitsu Lab located in the southern hemisphere, fostering a partnership between Fujitsu and Macquarie to drive AI research in healthcare, as well as other sectors.

This year saw a number of strong research partnerships with organisations such as the Therapeutic Goods Administration (TGA), ACSQHC, Digital Health Cooperative Research Centre (DH CRC), Annalise.AI, Telstra Health, Nuvilab and BCAL Diagnostics.

2023 saw CHI launch two new research streams: Climate Change and Digital Health, with the aim of creating a more responsive and sustainable health system for future crises; and, Translational AI for Healthcare, addressing the challenges of developing and implementing real-world intelligent systems that support human decision-making.

Further information on our research follows in the research stream highlights.
CHI Streams of Research

**AI SYSTEMS SAFETY**
Professor Farah Magrabi
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Ensuring patients receive safe care from AI enabled health services is extraordinarily complex, yet it is critical to get right. Our research shows that poorly designed and implemented AI can lead to patient harm or death. To effectively incorporate AI into healthcare, its safety risks need to be understood, evaluated and monitored. Current methods are ill equipped to incorporate generative AI (e.g., ChatGPT), which dynamically adapts its behaviour as it learns.

The AI Systems Safety stream is generating new knowledge about safety risks of next generation digital health and AI technologies, revolutionising methods to monitor AI safety in healthcare.

Highlights include:
- The world’s first study of the clinical safety risks of AI, including analysing six years of post-market surveillance data from the US Food and Drug Administration, was published in the number one field journal JAMIA and awarded Editor’s Choice.
- In collaboration with Telstra Health and the DHCRC, the team are developing a novel digital clinical safety climate survey and improvement cycle for use in complex digital health settings.
- Developing a safe and responsible governance framework for AI in health services in collaboration with Alfred Health, and the DHCRC.
- Professor Magrabi co-chaired the 19th World Congress on Medical and Health Informatics, MedInfo 2023.
- Professor Magrabi was the content expert for the world’s first community jury on AI in healthcare.
- Dr David Lyell was a guest on the RACPs’s Pomegranate Health Podcast’s series on AI in medicine.
- Dr Lyell presented on AI in healthcare at the NSW Nurses and Midwives’ Association Professional Day.

**CLIMATE CHANGE AND DIGITAL HEALTH**
Professor Enrico Coiera
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This research stream investigates the potential for digital solutions to help manage the health impacts of climate change by:
- Conducting comprehensive multidisciplinary syntheses of current research literature to collate existing knowledge and identify gaps;
- Delving into the lived experiences of affected communities and healthcare professionals, to gain an understanding of specific needs during climate events like floods and fires;
- Using this evidence to guide the design, development and evaluation of digital solutions.

Highlights include:
- Contribution of book chapter to the Routledge Handbook on Climate Change and Health System Sustainability regarding the role of digital health in climate change.
- Qualitative research is underway to investigate the lived experience and health needs of communities impacted by climate change.
- A series of systematic reviews are in progress to examine the role of digital technologies in addressing health consequences of climate change.
- Two manuscripts were submitted to peer-reviewed international journals that explored health system responses during COVID-19 to guide responses to future crises such as climate change events.
- A new PhD student and three MD students joined the team.

**CLINICAL AI AND SENSING TECHNOLOGIES**
Professor Shlomo Berkovsky
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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 research undertaken by the stream covers three areas:
- Clinical AI addresses emerging approaches for personalised disease treatment and prevention, taking into consideration individual variability in genes, environment, or lifestyle.
- Human-technology interaction focuses on improving human interactions (clinicians and patients) with medical technologies.
- Sensing and signals focuses on sensing technologies that collect rich data about human behaviour, collating insightful information to assist with monitoring medical conditions.

Highlights include:

- Professor Berkovsky served as the General Chair of the 17th Recommender Systems Conference (RecSys) and the 28th International Conference on Intelligent User Interfaces (IUI), both ranked ERA-A (Excellence in Research for Australia ranking).

New grants secured include:

- Assessment of a vision-based food intake logging app, NuviLab.
- Enhancing human reasoning with generative AI: personalised digital coach for effective feedback, Fujitsu Research and Macquarie University.

CONSUMER INFORMATICS

Associate Professor Annie Lau
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The Consumer Informatics team investigates the science, design, and impact of digital technologies for patients and consumers. In taking the consumer perspective, the team seeks to understand the challenges in navigating an increasingly digitised healthcare system, and co-design solutions to improve patient experience and health outcomes.

The Consumer Informatics research stream is a collaboration of researchers, patients, consumers, and clinicians. Deep industry connections are leveraged to apply rigorous scientific methods to real world problems. We endeavour to innovatively leverage digital health to provide the best outcome for patients and consumers.

Highlights for the stream include:

- Participant recruitment has commenced for a project to examine a virtual care initiative at a major Sydney hospital, with a focus on the patient experience.
- Dr Tim Jackson won the CHI Rising Star Award.
- Nida Afzal was awarded CHI Student of the Year and won the Macquarie University People’s Choice Award for her 3-minute PhD presentation.
- CHI graduate research candidates are progressing well, publishing in leading international journals. Specifically, Kate Tong and Takashi Sota completed their Master of Research degrees.
- Supervised MD students have completed their research training and manuscripts have been submitted for publication.

TRANSLATIONAL AI FOR HEALTHCARE

Dr Sidong Liu

The Translational AI research stream aims to develop intelligence systems to enhance human decision-making. Leveraging advanced analytics and machine learning, complex datasets including imaging, EHRs and multi-omics, are analysed to support clinical tasks, such as diagnosis and treatment personalisation. The team also seeks to develop novel methods and frameworks for assessing and enhancing the transportability of healthcare AI, ensuring the safe and effective integration of AI into real-world scenarios.

Highlights for the stream include:

- Dr Liu and collaborators received an NHMRC Ideas grant.
- The team experienced significant expansion in 2023, welcoming a postdoctoral research fellow and three PhD students.
- Dr Priyanka Rana was honoured as Research Gallery Winner at the 2023 Macquarie University ECR Showcase.
- Homay Danaei Mehr, Sahar Moradi and Somayeh Farahani were awarded in the prestigious domestic and international Macquarie University Research Excellence Scholarship Program and Cotutelle PhD scholarship program, respectively.
- Dr Liu co-edited a special issue for the journal Information, highlighting the latest advancements for AI in healthcare and medicine.
- Dr Liu was Chair of Computer Intelligence for the 2023 International Conference on Nano Bio Intelligence.
As Co-Chairs of MedInfo23, Professor Farah Magrabi and Dr Martin Seneviratne opened the international conference in Australia.
As the technological foundations of our healthcare system evolve, our approaches to implementation, evaluation, and optimisation must evolve in tandem. By focusing on high-quality evidence, we work to ensure a future where advancements enhance patient care, safety, and efficacy.

PROFESSOR JOHANNA WESTBROOK

In settings spanning hospitals to aged care services, health information technologies support service delivery efficiency to enhance patient safety. Implementing these technologies is an intricate process, often resulting in varying degrees of disruption to healthcare delivery. Under the leadership of Professor Johanna Westbrook, the Centre for Health Systems and Safety Research (CHSSR) is addressing pivotal research questions concerning the design, utilisation, and outcomes of health information technologies. Effective information exchange, communication, and teamwork are vital components of the patient safety puzzle. Our research, facilitated by the application of sophisticated multi-method evaluation models, furnishes high-quality evidence to guide decision-making and drive transformative changes in healthcare policy and practice.

Our work continues to inform policy and practice, including:

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

- An 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—regular bulletins with evidence-based recommendations to improve care delivery and outcomes by optimising electronic medication management systems.

- A Cancer Institute NSW Career Development Fellowship project to co-design quality end of life care for CALD people with cancer.

- An NHMRC Partnership Project with Anglicare to develop a dashboard of predictive analytics and decision support to drive care quality and person-centred outcomes.

- An MRFF Project that leverages informatics to optimise pharmacist-led medication reviews in residential aged care settings.

- An NHMRC Partnership Project to explore virtual care integration in health systems with a focus on achieving equitable health outcomes.

Further information on our research follows in the research stream highlights.
Professor Johanna Westbrook
CHSSR Streams of Research

AGED CARE EVALUATION AND RESEARCH
Dr Nasir Wabe
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People using community and residential aged care services deserve high quality services that improve quality of life and health outcomes.

The goal of the Aged Care Evaluation and Research (ACER) team is to generate research evidence, develop and trial interventions that are translated to improve health and service delivery outcomes for people receiving residential or community aged care.

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

Stream highlights include:
- Awarded a Research Acceleration Scheme grant to develop a Novel Informatics Approach for Automated Reporting of Aged Care Quality Measures.
- Five journal articles published with 13 papers under review at the end of 2023.
- Presentations at influential conferences including MedInfo 2023, the International Congress on Modelling and Simulation, the Australian Association of Gerontology.
- Developed a dashboard of key indicators and embedded decision support to guide care decisions in residential and community-based aged care settings for the NHMRC Partnership Dashboard project.

DIAGNOSTIC INFORMATICS
Professor Andrew Georgiou
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Diagnostic informatics encompasses major areas of research across the diagnostic analytical process. This ranges from the clinical choice of a diagnostic request, the quality and efficiency of the analytical process, right through to the interpretation and follow-up of test results and their impact on patient care outcomes.

The Diagnostic Informatics research team is committed to generating quality evidence to enhance clinical excellence, patient safety and the value of care. This involves:
- An outcomes-based approach to diagnostic research.
- Optimised clinical workflows, engagement, governance and accountability.
- Shared decision-making and patient-centred care.
- IT-enhanced decision support, data analytics and knowledge management systems.

Research findings were presented at MedInfo 2023 and at Victoria’s first conference on Long COVID. Also, Dr Abbish Kamalakkannan addressed a roundtable during Open Day at the annual WONCA International Classification Committee meeting in Australia on the challenges with defining and identifying Long COVID patients from general practice data.

HEALTH ANALYTICS AND PATIENT SAFETY
Associate Professor Ling Li
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Information and communication technologies play a significant role in improving the efficiency, effectiveness and safety of the health system. These technologies continue to make inroads into healthcare at all levels, generating huge volumes of dynamic data from electronic health record systems. Health data analytics provides insights into these rich data.

The Health Analytics and Patient Safety team focuses on:
- Developing and applying rigorous research methods to evaluate the impact of eHealth interventions on patient safety and outcomes.
- Utilising rich dynamic electronic health record data to improve patient care delivery.
- Providing real-time information to support decisions and deliver actionable insights.

Stream highlights include:
- Six publications on sepsis research.
- Engaging students from the MD, PhD and PACE programs in sepsis research including on the sepsis morbidity burden, and mobile health to support sepsis care and management.
• Publishing an article titled ‘What is sepsis’ in The Lighthouse for World Sepsis Day awareness.
• Associate Professor Ling Li was awarded MQ Safety Net funding to establish sepsis surveillance using electronic health record data.
• PhD student Khalia Ackermann placed third in the University 3 Minute Thesis competition, after winning the AIHI and Faculty rounds. Ms Ackermann also came first in the Visualise Your Thesis round at Macquarie.

HEALTH ENGAGEMENT AND EQUITY RESEARCH
Professor Reema Harrison
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Central to the work of the Health Engagement and Equity Research stream (formerly known as Healthcare engagement and workplace behaviours) is ensuring that healthcare staff and consumers are involved in decision-making about healthcare and the system in which it operates.

Stream highlights include:
• The CanEngage Project concluded with three co-designed tools to enhance safety for CALD consumers accessing cancer care across NSW and Victoria.
• A research article led by Dr Ashfaq Chauhan won the Health Services Research Association of Australia and New Zealand PhD Publication Prize.
• CanEngage was recognised with the 2023 NSW Premier’s Award for Improving Equitable Outcomes through Cancer Research.
• The Medibank out-of-pocket cost and quality study was completed with findings presented at the BMJ Quality and Safety Conference and the Emerging Health Policy and Economics Research Conference.
• Clinical Researcher, Corey Adams, discussed results of an ED noise study on national television and radio.
• iCanCarePlan completed qualitative data collection with healthcare staff and Mandarin speaking consumers and commenced review of patient records. Dr Upma Chitkara commenced her Master of Philosophy on the project.
• Professor Westbrook presented keynotes on interventions to reduce unprofessional behaviours to the Medical Board of Australia and the Royal College of Surgeons in Ireland at the Medical Professionalism Conference.

MEDICATION SAFETY AND ELECTRONIC DECISION SUPPORT
Associate Professor 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 research stream evaluates 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 and poorly designed system features.

Stream highlights include:
• Awarded MRFF funds towards ‘Leveraging informatics to optimise pharmacist-led medication reviews in residential aged care to improve outcomes and cost-effectiveness: a pragmatic cluster randomised controlled trial’ led by Associate Professor Magda Raban and Dr Karla Seaman.
• Established a panel of consumers with lived experience of a loved one in residential aged care to advise on medication use and safety.
• In its first 12 months, the Health Innovation Series on e-Medication Safety released 17 issues, accumulating more than 5000 downloads.

Professor Westbrook presented on medication safety at the Global Ministerial Summit on Patient Safety, Switzerland; and the Australia and New Zealand Intensive Care Society Rapid Response, Patient Safety and Quality conference on optimising electronic systems to reduce medication errors.
NHMRC Partnership Centre for Health System Sustainability

A snapshot of five years of success (2017–2023)

921 Publications

$143.8m Leveraged funding

1,056 Media engagements

69 Health system collaborators

The NHMRC Partnership Centre for Health System Sustainability (PCHSS) began as a $10.75 million, five-year collaboration in 2017. Led by Professor Jeffrey Braithwaite, the Centre involved 17 lead investigators from seven universities, 20 expert advisors, and over 40 system implementation partners from around Australia. In 2022, PCHSS was granted a one-year extension until July 2023 to continue its internationally recognised research into improving health services and systems. Supported by the over $143 million in leveraged grant funding we attracted over the five years, PCHSS investigators have expanded on the groundbreaking work initiated under the grant, publishing a substantial body of world class research.

Through three broad streams of research, the PCHSS sought to understand the challenges facing current health systems and to develop and evaluate practical, long-term solutions that are appropriate and implementable from clinical, patient, and economic perspectives.

Leads

Professor Jeffrey Braithwaite
Professor Enrico Coiera
Professor Johanna Westbrook
Professor Yvonne Zurynski
Achievements in 2023

PCHSS researchers published over 220 peer-reviewed papers and reports in 2023. Examples of our publications include a review of the barriers and facilitators of healthcare program sustainability; a study focusing on the effect of Medicare Benefits Schedule (MBS) item changes on health provider expenditure; an exploration of Vitamin D testing in children and adolescents in primary care settings; a study that examined the effect of electronic medication management systems on paediatric prescribing errors; and a review examining models of care for older adults living in aged care facilities.

PCHSS researchers have also embarked upon projects that focus on the preparedness of health systems for future uncertainty and crises, such as climate change and pandemics. Climate change-related publications include a White Paper Learning Health Systems 2.0 that highlights what needs to be done to get to zero carbon; a discussion of the role of clinicians in tackling climate change; a scoping review of the use of digital health responses and mitigation approaches to climate change; and a review examining the impacts of climate change on the health workforce.

As in previous years, PCHSS received substantial media attention. Over 90 radio, television, news articles, and commentaries in the popular press covered our research in 2023. This includes articles published in The Conservation focusing on the overdiagnosis of gestational diabetes, and telehealth challenges for First Nations people, as well as articles in the Sydney Morning Herald that discussed the rise of the telehealth industry, and the use of artificial intelligence in healthcare. This extensive coverage reveals broad interest by the public in the outcomes of PCHSS’s research.

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 Consumers Health Forum of Australia, Health Consumers NSW, and Rare Voices Australia, through the co-design of research, joint presentations, and new policy advocacy to support health system improvements.

During 2023, PCHSS investigators generated over $24 million in new leveraged funding. Examples of new grants include a project that leverages informatics to optimise medication reviews and outcomes in residential aged care; the establishment of a musculoskeletal clinical trial network in Australia and New Zealand; and a project focused on reducing hospital readmission for high-risk cardiology patients.

PCHSS researchers continued to be recognised for excellence in their field of research and Professor Rachelle Buchbinder AO was awarded the 2023 Australian Rheumatology Association Distinguished Service Medal.
Governance authority

NHMRC and funding partners

CI
Professor Jeffrey Braithwaite

Partnership Centre Executive (Chaired By CI)

OBSERVATORY ON HEALTH SYSTEM SUSTAINABILITY

CI
Professor Jeffrey Braithwaite

Partnership Centre Executive (Chaired By CI)

OBSERVATORY ON HEALTH SYSTEM SUSTAINABILITY

International Advisory Group

Scientific Advisory Committee

System Partners Advisory Forum

RESEARCH THEME 1
ANALYTICS, TECHNOLOGY AND SHARED DATA
Co-lead Investigators:
Professors Johanna Westbrook, Enrico Coiera and Len Gray

RESEARCH THEME 2
WASTE AND LOW-VALUE CARE
Co-lead Investigators:
Professors Paul Glasziou AO and Rachelle Buchbinder AO

RESEARCH THEME 3
BETTER VALUE FOR THE HEALTH DOLLAR
Co-lead Investigators:
Professors Tony Scott, Jon Karnon and Associate Professor Della Hendrie

SYSTEM LEAD INVESTIGATORS
Professor Robyn Ward
Dr Teresa Anderson
Professor Helena Teede
Ms Leanne Wells
Professor Leonard Gray
Mr James Downie

DESIGNATED SYSTEM-BASED INVESTIGATORS
Dr Darren Gibson
Dr Jean-Frederic Levesque
Ms Annette Schmiede
Professor Christine Bennett AO

Note: System Investigators work across the whole enterprise
PCHSS Lead Investigators and Partner Organisations

WESTERN AUSTRALIA
A/Prof Delia Hendrie RL
Prof Elizabeth Geelhoed RL
Dr Darren Gibson RL
WA Dept of Health*

NORTHERN TERRITORY
Dept.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 AO 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 Schmied RL
Sydney LHD and Sydney Health Partners*
Macquarie University Hospital*
PHN Sydney North Health Network*

ACT
Ms Leanne Wells RL
ACT 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.
The NHMRC Centre of Research Excellence (CRE) in Digital Health is a national research centre which brings together the major Australian centres of health informatics research. Administered by the Centre for Health Informatics, the CRE in Digital Health focuses on healthcare data and AI tools and techniques.

Working with our partners, collaborators and front-line healthcare providers, the CRE in Digital Health addresses key issues to drive the development of a fully integrated and digitally enabled Australian healthcare system.

Investigators in the CRE come from Macquarie University, Bond University, the University of Melbourne, RMIT University, UNSW, University of South Australia, University of Sydney and CSIRO.

**SYSTEMATIC 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 2023, methodologies for the 2weekSR and 2weekScR (2-week scoping review), which had been developed in 2022, were disseminated across the collaboration of clinicians, researchers, and a consumer through a series of workshops held at AIHI.

As part of this program Associate Professor Anna Scott, working with Professor Paul Glasziou AO at Bond University, conducted a one hour lecture at AIHI, followed by a workshop.

**PUBLICATIONS**
In June the Medical Journal of Australia published “We need to chat about artificial intelligence”, a perspective article authored by Professor Enrico Coiera, Professor Karin Verspoor and Dr David Hansen, exploring the implications of AI technology on healthcare, considering the preparedness of the Australian healthcare system to respond to the opportunities and risks generated by AI. doi: 10.5694/mja2.51992

In September the Internal Medicine Journal published “Artificial Intelligence in medicine: has the time come to hang up the stethoscope?” by Professor Farah Magrabi and Dr David Lyell from Macquarie University.

In November Professor Enrico Coiera launched a National Policy Roadmap for Artificial Intelligence in Healthcare, co-led by Professor Karin Verspoor, Dr David Hansen and Professor Farah Magrabi and produced by the Australian Alliance for AI in Healthcare.

**CHIEF INVESTIGATORS**
Professor Enrico Coiera  
AIHI, Macquarie University

Professor Paul Glasziou AO  
Bond University

Professor William Runciman  
University of South Australia

Dr David Hansen  
CSIRO Australian e-Health Research Centre

Emeritus Professor Teng Liaw  
University of New South Wales

Professor Farah Magrabi  
AIHI, Macquarie University

Professor Vitali Sintchenko  
University of Sydney

Professor Karin Verspoor  
University of Melbourne

Associate Professor Blanca Gallego-Luxan  
University of New South Wales

Associate Professor Annie Lau  
AIHI, Macquarie University
Dr Norman Swan AM with co-founders of the Australian Alliance for AI in Healthcare, Dr David Hansen, Professor Enrico Coiera and Professor Karin Verspoor, at the launch of the National Policy Roadmap for AI in Healthcare.
The research team of Dr Gaston Arnolda and Dr Klay Lamprell had a highly productive year with eight studies published and four additional studies under peer review.

Four studies looked at different aspects of cancer experience of patients with colorectal cancer, one focussing on patient-written reports and the other two using data from the UK Cancer Patient Experience Survey. This work was highlighted by Bowel Cancer Australia as part of its 2023 campaign, and Dr Arnolda accompanied the organisation and 50 young colorectal cancer patients to Canberra to attend parliament and meet with political representatives as part of Bowel Cancer Australia’s now successful advocacy for a reduction in the age of colorectal cancer screening.

Two of the 2023 studies grew out CRE-ISO’s participation in the Enduring Cancer Data Linkage (CanDLe) project, focusing on end-of-life care and health service use trajectories of cancer patients diagnosed with depression. As CanDLe steering group rules only permit discussion of one project at a time, and CRE-ISO had five projects planned, we continued to participate in CanDLe but shifted to using linked data where no such restrictions exist. These CanDLe / CHEREL projects are led by or conducted under the guidance of Professor Rebecca Mitchell. The NSW CRE-ISO team also contributed to a separate study protocol by the South Australian CRE-ISO team.

Other 2023 studies focused on a variety of matters: two focused on cancer clinicians’ views of clinical practice guidelines; two focused on skin cancer care in primary care; and one focused on qualitative studies of patients considering or receiving immunotherapy.

Six further projects will be submitted to peer review, to complete CRE-ISO, including: three additional publications using linked data; two additional publications relating to patient experience; and a publication exploring the views of chairs of cancer multidisciplinary teams on what is needed to optimise team meetings.
Bowel cancer incidence rates up 266% among 15–24-year-olds

Research has found age bias as a perceived barrier to getting a diagnosis for the deadly cancer – but a GP expert says there are other factors.
Graduate research program

The Australian Institute of Health Innovation proudly presents two distinguished Graduate Research programs for higher degree research students, offering a collaborative learning experience alongside internationally renowned researchers. Our Institute comprises leaders in health innovation, providing unparalleled supervision and responsive guidance to students. AIHI’s research initiatives benefit from extensive collaborations with healthcare organisations, further bolstered by the support of MQ Health and Macquarie University Hospital—Australia’s most technologically advanced private hospital situated on a university campus. We also encourage high-calibre candidates to explore scholarship opportunities.

2023 HIGHLIGHTS

**PhD**
- 52 Candidates
- 8 Awarded

**MRes**
- 9 Candidates
- 3 Awarded

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. During 2023, AIHI hosted 25 PACE students, placing them alongside academics and professional staff to participate in projects ranging from medical informatics to medication safety.

MASTER OF RESEARCH

The Master of Research (MRes) program empowers candidates to delve into their areas of interest, fostering a foundation for a future research career, especially next-generation doctoral studies.

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy (PhD) is an esteemed, high-level degree recognising research accomplishments showcasing the candidate’s ability to independently conduct research. Demonstrating a unique contribution to the subject, this degree signifies coherence and originality through the discovery of new facts or the application of independent critical thinking. Each candidate benefits from the guidance of a minimum of two dedicated supervisors throughout their program.

Explore detailed program information and discover inspiring profiles of our accomplished PhD and MRes graduates on our website.
We are extremely proud of the outstanding candidates in our Graduate Research program and offer a special congratulations to the following who were awarded during 2023:

**PhD**
- Dr Ashfaq Chauhan
- Dr Hossai Gul
- Dr Antoinette Pavithra
- Dr Thomas Bowden
- Dr Belinda-Jane St Clair-Fenech
- Dr Magali Goirand Ampaire
- Dr Mia Bierbaum
- Dr David Fraile Navarro

**MRes2**
- James Du Preez
- Claire McCarthy
- Takashi Sota

Professor Sakkie Pretorius, Deputy Vice-Chancellor, Research, presents PhD candidate Khalia Ackermann with the second runner-up award for the Macquarie University 3 Minute Thesis competition.
Doctor of Medicine Research Program

Leads
Professor Frances Rapport  
(to November 2023)
Professor Robyn Clay-Williams  
(from November 2023)
Associate Professor Veronica Preda

Macquarie University’s Doctor of Medicine (MD) Program encourages MD students to expand their clinical knowledge and understanding of how medical evidence is created through a discrete, 18 month research project. At the end of the project, students will have produced a publication-ready manuscript and presented their research at a symposium-style forum to enhance both their written and oratory skills.

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 by AIHI for the Faculty of Medicine, Health and Human Sciences, prides itself in offering innovative yet practical projects that develop students’ research and time-management skills—skills that will be of value throughout their careers.

AIHI has a committed team overseeing the MD students' projects and providing research supervision. With four cohorts already under its belt, AIHI supported a further 60 MD students in successfully graduating from the MD Research Program in 2023.
Our staff

AIHI extends its appreciation to our exceptional staff for their dedication and remarkable contributions to advancing healthcare research. This year has been very productive, with every team member playing a crucial role in shaping innovative studies, fostering collaborations, and making significant strides in understanding and improving the health system. The commitment, expertise, and collaborative spirit demonstrated by our team stand AIHI in good stead for the coming years.

AIHI consistently attracts highly skilled professionals from diverse fields, including clinicians, pharmacists, scientists, engineers, epidemiologists, statisticians, psychologists, economists and analysts. Together, they establish expert communities of practice, multi-disciplinary research teams, and foster synergistic networking and co-authorship.

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

IN NEW FELLOWSHIPS
Professor Johanna Westbrook was inducted as a Fellow of the Australian Academy of Health and Medical Sciences.
Professor Reema Harrison was awarded the 2023 Deeble Institute Fellowship to examine voluntary patient registration reforms and equitable access to healthcare.

IN NEW APPOINTMENTS
Professor Henry Cutler was appointed to the DoHAC Expert Advisory Panel for the Review of General Practice Incentive Programs and the Review of Primary Care After Hours Programs. Professor Cutler was also appointed as Chair of the Research Australia Health Economics Working Group and as Visiting Research Fellow within the Health Economics Research Centre, Nuffield Department of Population Health, University of Oxford, UK.

IN PRIZES
Khalia Ackermann won the Macquarie round of the international Visualise Your Thesis competition.
Dr Ashfaq Chauhan received the Health Services Research Association of Australia and New Zealand award for the Policy Research Paper of the Year and the Professor Manager Kelaher Best PhD Paper Award.

IN RECOGNITION
Professor Reema Harrison received the UNSW Dean’s Award for Outstanding PhD Thesis.
Dr Karen Hutchinson won the Best Paper Award at the Asia Pacific Integrated Care Conference 2023.
Julie Li won the Best Poster Award at the Context Sensitive Health Informatics conference.

Dr Rajendra Gyawali received the UNSW Dean’s Award for Outstanding PhD Thesis.
Dr Karen Hutchinson won the Best Paper Award at the Asia Pacific Integrated Care Conference 2023.
Julie Li won the Best Poster Award at the Context Sensitive Health Informatics conference.

IN RECOGNITION
Professor Reema Harrison received the NSW Premier’s Award for Outstanding Cancer Research for Improving Equitable Outcomes through Cancer Research for the CanEngage project.
Professor Andrew Georgiou was a finalist for the Diana Forsyte Award by the Awards Committee and People and Organizational Issues Working Group of the American Medical Informatics Association.
Isabelle Meulenbroeks received the 2023 Deeble Institute for Health Policy Research Scholarship.

IN MACQUARIE UNIVERSITY AWARDS
Khalia Ackermann placed second runner-up in the University 3 Minute Thesis competition, after winning the AIHI and Faculty rounds.
Dr Elizabeth Austin won the Spirit of EnCouRage MQ Faculty Citizen Award.

Dr Samantha Spanos won the Early Career Researcher (ECR) 10 minute Oral Presentation Award at the 8th Annual EnCouRage MQ ECR Symposium.
Dr Anam Bilgrami was a Highly Commended Finalist for ECR of the Year (Humanities, Arts and Social Sciences).
Dr Ashfaq Chauhan received the University ECR Showcase Impact Award for his research proposal on examining the impact of the ‘Making-it-Meaningful’ medication discharge tool.

Professor Henry Cutler, Associate Professor Yuanyuan Gu, Dr Anam Bilgrami, Ms Mona Aghdæe, Mr Andrew Partington and colleagues were awarded the 2023 Macquarie Business School Impact Story Prize for ‘Improving the Australian aged care system through robust and policy-relevant research’.

Professor Reema Harrison was a highly commended finalist in the University Vice Chancellor’s Award for Research Integrity and received a University Lighthouse Program award for enablement of the team.
Image: Julie Li receiving the Best Poster Award at the Context Sensitive Health Informatics conference from conference committee member Professor Melissa Baysari.
2023 awards

RESEARCHER OF THE YEAR
CHRIS
Professor Peter Hibbert

CHI
Professor Farah Magrabi
Professor Shlomo Berkovsky

CHSSR
Professor Reema Harrison

MUCHE
Dr Anam Bilgrami

PUBLICATION PRIZE
CHRIS
Dr Louise Ellis

CHI
Dr David Lyell

CHSSR
Associate Professor Magda Raban

MUCHE
Associate Professor Yuanyuan Gu

RISING STAR
CHRIS
Dr Reidar Lystad

CHI
Dr Tim Jackson

CHSSR
Dr Rajendra Gyawali

MUCHE
Elizabeth Seil

STUDENT PRIZE
CHRIS
Dr Mia Bierbaum

CHI
Nida Afzal

CHSSR
Khalia Ackermann

MUCHE
Noura Saba

PROFESSIONAL EXCELLENCE
CHRIS
Elle Leask, Romika Patel, Lieke Richardson, Christina Rojas, Maree Saba, Shalini Wijekulasuriya

CHI
Pippa Dorricott

CHSSR
Erin Fitzpatrick and Alison Merchant

MUCHE
Chrissy Clay
AUSTRALIAN INSTITUTE OF HEALTH INNOVATION
ANNUAL REPORT 2023

Symposia

AIHI recognises the importance of exchanging ideas, promoting innovative research, and endorsing calls to action that spark debate and contribute to the enhancement of health systems both in Australia and around the world. AIHI runs in person seminars as well as the AIHI Webinar Series each of which have garnered international audiences, showcasing popular presentations by esteemed researchers and clinicians, and fostering a platform for valuable insights and discussion. Following is a selection of our recent webinars and all recordings are available on AIHI YouTube.

TOWARD HEALTHCARE IMPROVEMENT
In this webinar, speakers from AIHI are joined by Professor Trish Greenhalgh OBE, General Practitioner and Professor of Primary Care Health Sciences at the University of Oxford, UK, to discuss aspects of healthcare improvement including ‘Patient safety in remote primary care encounters—what can we learn from incident reports and ethnography’.

CAN WE HAVE A BETTER HEALTH SYSTEM TO 2030
How might healthcare unfold around the world, by 2030? What are the demands on the system and where are the opportunities for health systems to improve care for communities under increasing pressure? In this webinar, Professor Jeffrey Braithwaite explores what healthcare will look like in 2030.

LONG COVID—UTILISING REAL-TIME ELECTRONIC GP DATA
Up to 10% of people who have had COVID-19 may continue to experience symptoms for more than three months with a condition known as Long COVID. Professor Andrew Georgiou is joined by Associate Professor Christopher Pearce, Research Director, Aurora Primary Care Research Institute, to discuss an Australian first initiative into how Long COVID can be best managed in general practice.

WHAT IMPLEMENTATION SCIENCE CAN OFFER PATIENT SAFETY
Professor Jeremy Grimshaw, Senior Scientist in the Clinical Epidemiology Program, Ottawa Health Research Institute and Full Professor in the Department of Medicine, University of Ottawa, joined AIHI researchers for this seminar exploring implementation science.

CHANGES IN THE ASSESSMENT OF MEDICINES AT NICE
Speakers from the National Institute for Health and Care Excellence (NICE), England, and MUCHE discuss recent changes in the assessment of medicines at NICE.

Scan the QR code to visit our AIHI YouTube channel.
# Publications

1 January to 31 December 2023

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<td>Book chapters</td>
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<td>Peer reviewed journal articles</td>
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<td>Letters to the editor and editorials</td>
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<td>Full conference papers</td>
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<td>Conference abstracts or posters</td>
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<td>Commissioned reports</td>
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BOOK CHAPTERS


BOOK CHAPTERS - CONFERENCE


PEER REVIEWED JOURNAL ARTICLES


193. Staccini, P, Lau, AYS & Section Editors for the IMIA Yearbook Section on Consumer Health Informatics 2023, ‘Consumer informatics and One Health: shifting the focus from the individual to the globe. Findings from the Yearbook 2023 Section on Education and Consumer Health Informatics’, *Yearbook of Medical Informatics*, vol. 32, no. 1, pp. 158-168. https://doi.org/10.5555/1043-1768749


design and development of a prototype to reduce low value care', *Health Services and Outcomes Research Methodology*. https://doi.org/10.1016/j.shsrom.2023.00314-1


LETTERS TO THE EDITOR AND EDITORIALS


FULL CONFERENCE PAPERS


CONFERENCE ABSTRACTS/POSTERS


26. Leask, E, Ellis, LA, Dammery, G & Braithwaite, J 2023, 'Climate change and the increased burden on mental health services: the importance of workforce preparedness', 8th annual EnCouRage Research Symposium, Sydney, Australia, 25/09/23 - 25/09/23.


34. Proctor, C, Dean, C & Preda, V 2023, ‘Mapping the Macquarie MD program for graduate capabilities in research’, Australian & New Zealand Association for Health Professional Educators (ANZAHE) 2023 Conference, 26/06/23 - 29/06/23.

35. Proctor, C, Dean, C & Preda, V 2023, ‘Mapping the Macquarie MD program for graduate capabilities in research’, Australian & New Zealand Association for Health Professional Educators (ANZAHE) 2023 Conference, 26/06/23 - 29/06/23.


41. Silva, SSM, Wabe, N & Westbrook, JI 2023, ‘Dynamic health status monitoring using aged care quality indicators for better care: an innovative approach using mixture...
## AIHI grants awarded or under management in 2023

### NHMRC and MRFF Grants

<table>
<thead>
<tr>
<th>PROJECT TITLE</th>
<th>SCHEME</th>
<th>INVESTIGATORS</th>
<th>TOTAL FUNDING</th>
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<tr>
<td>NHMRC Partnership Centre in Health Systems Sustainability (Partners: BUPA,</td>
<td>NHMRC Partnership</td>
<td>Braithwaite J, Coiera E, Westbrook J, Glasziou P, Karnon J, Scott A, Buchbinder R</td>
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<td>NSW Health, WA Health)</td>
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<td>and patient outcomes and experience for five complex consumer cohorts</td>
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<td>Cutler H, Vukasovic M, Ali R, Holt L</td>
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<td>Delivering safe and effective medication management technology now and for</td>
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<td>the future</td>
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<td>Verspoor K, Gallego Luxan B, Lau A</td>
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<td>Liauw W, Westbrook J</td>
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<td>Project Title</td>
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<td>Smarter hospitals: Unlocking the promise of virtual models of care through infrastructure innovation in Australian healthcare facilities (Partners: Health Infrastructure, Western Health, Northern Health, Western NSW LHD, South Western Sydney LHD, Townsville Cancer Centre)</td>
<td>NHMRC Partnership Projects</td>
<td>Harrison R, Clay-Williams R, Braithwaite J, Westbrook J, Taylor N, Manias E, Mitchell R, Lawton R</td>
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<td>Bringing artificial intelligence into the real world of healthcare – the implementation challenge</td>
<td>NHMRC Investigator Grant</td>
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<td>Designing and implementing a real-world learning healthcare system: operational knowledge, data and practice for clinical Microsystems of the 21st Century</td>
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<td>Using AI to create smarter, personalised, and scalable interventions for psychological distress</td>
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<td>Christensen H, Venkatesh S, Cutler H, Newby J, Gupta S, Whitton A, Mitchell B, O'Dea B</td>
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<td>Building a culture of safety in Australian residential aged care facilities</td>
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<td>Developing a Comprehensive Care Pathway for those at Risk of Suicide but Not in Care: The Under the Radar Project</td>
<td>Medical Research Future Fund</td>
<td>Christensen H, Harvey S, Carter G, Venkatesh S, Boydell K, Cutler H, Kneebone I, Newton-John T, Han J, Huckvale K</td>
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<td>Understanding intergenerational change in the health and well-being of older</td>
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<td>Brodaty H, Sachdev P, Masters C, Singh M, Dobson A, Schutte A, Cutler H, Brayne C, Kochan N, Numbers K</td>
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<td>adults and its effects: The Sydney Memory and Ageing Study 2.</td>
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<td>Introducing Mitochondrial Donation into Australia: The mitoHOPE (Healthy</td>
<td>Medical Research Future Fund</td>
<td>Carroll J, Herbert M, Christodoulou J, Thorburn D, Mills C, Zander-Fox D, Robker R, Rombatus L, Sallevelt</td>
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<td>Integrated Multimodal Precision Liquid biopsy to Enhance MElanoma and NSCLC Treatment (IMPLEMENT)</td>
<td>Medical Research Future Fund</td>
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<td>Optimising treatments in mental health using AI</td>
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<td>Christensen H, Kummerfeld S, Kaplan W, Venkatesh S, Mouzakis K, Vasa R, Gupta S, Rana S, Tran T, Quinn T, Cutler H, Knight R, Laverty M</td>
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<td>The impact of COVID-19 and associated health policies on care quality and health outcomes in Australian residential aged care facilities</td>
<td>NHMRC Postgraduate Scholarship</td>
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<td>$101,542</td>
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<td>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</td>
<td>NHMRC Partnership Projects</td>
<td>Sue C, Kummerfeld S, Barlow-Stewart K, Schofield D, Coiera E, Berkovsky S, Davis R</td>
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## PROJECT TITLE

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<th>Project Title</th>
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<tr>
<td>Improving Mental Health and Social Participation Outcomes in Older Adults with Depression and Anxiety</td>
<td>NHMRC Investigator Grant</td>
<td>Rapee R, Wuthrich V, Draper B, Brodaty H, Cutler H, Low L, Georgio A, Johnco C, Jones M</td>
<td>$59,000</td>
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<tr>
<td>Translating Evidence-Based Psychological Interventions for Older Adults with Depression and Anxiety into Public and Private Mental Health Settings Using a Stepped Care Framework</td>
<td>NHMRC Investigator Grant</td>
<td>Wuthrich V, Rapee R, Draper B, Brodaty H, Cuijpers P, Cutler H, Hobbs M, Johnco C, Jones M</td>
<td>$57,000</td>
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Total Funding from NHMRC and MRFF Grants

$42,438,829

### Non-NHMRC/MRFF Grants

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<tr>
<th>Project Title</th>
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<tr>
<td>Australian Type 1 Diabetes Clinical Research Network &quot;Improving clinical outcomes in young people with T1D - getting evidence and treatments into practice&quot;</td>
<td>Juvenile Diabetes Research Foundation</td>
<td>Jones T, Davis E, Bloom D, Braithwaite J, Zurynski Y</td>
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<tr>
<td>Co-designing quality end of life care to culturally and linguistically diverse consumers in cancer services</td>
<td>Cancer Institute NSW</td>
<td>Harrison R</td>
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<tr>
<td>Luminesce Alliance Implementation and Economic Evaluation Platform providing enhanced access to child health services evaluation – PEACH-E</td>
<td>Sydney Children's Hospital Network</td>
<td>Cutler H, Rana R</td>
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<td>MQ DVC(R) Co-funding: Building a culture of safety in Australian residential aged care facilities</td>
<td>Macquarie University</td>
<td>Churruca K</td>
<td>$351,969</td>
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<td>Socioeconomic disadvantage, COVID symptom persistence and health-related quality of life EQ-5D: An analysis for India</td>
<td>EuroQol</td>
<td>Sinha K, Gutacker N, Gu Y, Haagsma J</td>
<td>$342,007</td>
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<td>Evaluating the performance of a vision-based food intake logging app</td>
<td>NuviLab Inc</td>
<td>Berkovsky S, Ong M</td>
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## PROJECT TITLE

A novel neuro-cardiac self-regulation therapy to improve autonomic and neural function after SCI: Clinical trials and translation to implementation

**FUNDING BODY**  
NSW Health

**INVESTIGATORS**  
Craig A Middleton J  
Gopinath B  
Cameron I  
Davis G  
Tran Y  
Krassioukov A  
Braithwaite J  
Mitchell R  
Gustin S

**TOTAL FUNDING**  
$273,622

---

Evaluating Artificial Intelligence (AI) for chest radiograph interpretation in emergency medicine

**FUNDING BODY**  
Digital Health CRC

**INVESTIGATORS**  
Magrabi F  
Coiera E

**TOTAL FUNDING**  
$255,120

---

Longitudinal outcomes of hearing-impaired children: early vs later intervention

**FUNDING BODY**  
National Institutes of Health

**INVESTIGATORS**  
Ching T  
Cuppes L  
Leigh G  
Dillon H  
Parkinson B  
Wong C  
Sharma R

**TOTAL FUNDING**  
$254,478

---

Economic evaluation of the LifeSpan project launched by the Black Dog Institute

**FUNDING BODY**  
Black Dog Institute

**INVESTIGATORS**  
Cutler H  
Abiona O

**TOTAL FUNDING**  
$243,660

---

MQ DVC(R) Co-funding: Smarter hospitals: Unlocking the promise of virtual models of care through infrastructure innovation in Australian healthcare

**FUNDING BODY**  
Macquarie University

**INVESTIGATORS**  
Harrison R  
Clay-Williams R  
Braithwaite J  
Westbrook J  
Taylor N  
Manias E  
Mitchell R  
Lawton R

**TOTAL FUNDING**  
$236,427

---

Towards new models of integrated primary care for Long COVID and other complex chronic health conditions

**FUNDING BODY**  
Department of Health and Aged Care (Commonwealth)

**INVESTIGATORS**  
Clay-Williams R  
Hibbert P

**TOTAL FUNDING**  
$225,600

---

Development of a novel digital clinical safety climate survey and improvement cycle for use in complex digital health settings

**FUNDING BODY**  
Digital Health CRC

**INVESTIGATORS**  
Magrabi F  
Coiera E  
Irving V  
Ling J  
Blakely B

**TOTAL FUNDING**  
$213,886

---

RuralKids GPS delivering equitable care to children in rural NSW

**FUNDING BODY**  
Sydney Children’s Hospital Network

**INVESTIGATORS**  
Zurynski Y

**TOTAL FUNDING**  
$200,632
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<tr>
<td>Research to measure variation in co-payments for common medicines used to treat mental ill health across Australia</td>
<td>Mental Health Commission of NSW</td>
<td>Cutler H, Fooken J, Bilgrami A, Saba N, Gu Y</td>
<td>$192,046</td>
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<td>Safe and responsible AI in health services</td>
<td>Digital Health CRC</td>
<td>Magrabi F, Coiera E, Win Yee Tan, Harrer S, McKimm A, Potts E</td>
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<td>Communicating to promote engagement in using electronic medical records</td>
<td>Australian Research Council</td>
<td>Manias E, Gray K, Wickramasinghe N, Harrison R</td>
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<td>ARCHS: Adult Recipients of Cochlear implants: Health and Social long-term outcomes</td>
<td>Macquarie University</td>
<td>Mitchell R  Lystad R  Boisvert I  McMaugh A  Moore A</td>
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<tr>
<td>Investigating the relationship between out-of-pocket costs, healthcare quality, experience and outcomes</td>
<td>Medibank Private Limited</td>
<td>Harrison R  Mitchell R  Braithwaite J  Mumford V  Hibbert P  Westbrook J</td>
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<td>NHMRC Investigator Grant DVC(R) Co-funding</td>
<td>Macquarie University</td>
<td>Coiera E</td>
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<td>Data mapping in hospital databases</td>
<td>Evidentli</td>
<td>Berkovsky S  Coiera E</td>
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<td>Primary care screening tool to detect, prevent and treat health issues for older Australians</td>
<td>Ian Potter Foundation</td>
<td>Wuthrich V  Johnco C  Cutler H  Willcock S  Jones M</td>
<td>$100,000</td>
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<td>Usability and effectiveness of the NICU/PICU version of the electronic Record for Intensive Care (eRIC)</td>
<td>eHealth NSW</td>
<td>Raban M  Westbrook J  Wiggins M  Harrison R  Clay-Williams R</td>
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<td>Dynamics and inequality in mental health care use and expenditures after income shocks</td>
<td>MQBS and e61 Institute</td>
<td>Bilgrami A, Best R, Gu Y, Bertoni M, Tran M, Saba N</td>
<td>$94,517</td>
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<td>BCAL Diagnostics</td>
<td>BCAL Diagnostics Ltd</td>
<td>Berkovsky S, Asbe N</td>
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<td>Cough Sound Assessment Using Deep Learning Techniques</td>
<td>Google Asia Pacific Pty Ltd</td>
<td>Sharan R</td>
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<td>Measuring healthcare experiences with diverse populations</td>
<td>NSW Ministry of Health</td>
<td>Harrison R, Manias E, Mitchell R</td>
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<td>Evaluation of Easycare Assisted-Living Technology</td>
<td>Easy Care Technology Pty Ltd</td>
<td>Lau A</td>
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<td>AUSMURI: Cohesive and Robust Human-Bot Cybersecurity Teams</td>
<td>Australian Defence Science and Technology</td>
<td>Rubenstein B, Kaafar D, Berkovsky S, Brown S, Eidels A, Kostakos V, Murray T, Ohrimenko O</td>
<td>$64,000</td>
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<td>Supporting dynamic multidimensional entrepreneurial resilience in Australia</td>
<td>Australian Research Council</td>
<td>Sinha K, Magnani L, Chirico F, Gu Y, Zhu R, Green R</td>
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<td>Ethical Artificial Intelligence (AI) in healthcare: frameworks and facilitators</td>
<td>Digital Health CRC</td>
<td>Magrabi F, Lyell D</td>
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<td>Novel Informatics Approach for Automated Reporting of Aged Care Quality Measures: Towards A Unified Intelligent System</td>
<td>Macquarie University</td>
<td>Wabe N</td>
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<td>Mitochondrial Disease Triage Tool</td>
<td>Kolling Institute</td>
<td>Berkovsky S</td>
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<td>Optimising eHealth systems to improve medication safety and patient outcomes</td>
<td>Macquarie University</td>
<td>Raban M</td>
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<td>Safety assessment of an AI-based clinical decision support system</td>
<td>Healthdirect</td>
<td>Magrabi F</td>
<td>$41,313</td>
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<td>Patient Preferences for Knee Replacement Surgery in Australia</td>
<td>Johnson &amp; Johnson Medical Pty Ltd</td>
<td>Gu Y, Cutler H, Mutowo M</td>
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<td>Supporting materials for patient safety culture measurement: Parts A and B</td>
<td>Australian Commission on Safety and Quality in Health Care</td>
<td>Ellis L, Tran Y, Pomare C</td>
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<td>Predicting Freezing of Gait in Parkinson’s Disease Using Brainwaves</td>
<td>University of Sydney</td>
<td>Berkovsky S, Sharan R</td>
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<td>Co-creating safe spaces: Translational research on innovative alternatives to the emergency department for people experiencing emotional distress and/or suicidal crisis</td>
<td>Suicide Prevention Australia Ltd</td>
<td>Ellis L</td>
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<td>Calvery Health Consultation</td>
<td>Research Australia</td>
<td>Zurynski Y, Smith C</td>
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<td>Clinician Experience of Care for the Southern NSW Virtual Rural Generalist Service (VRGS)</td>
<td>Health System Support Group</td>
<td>Harrison R</td>
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<td>Research plan for the validity and reliability testing of two patient safety culture surveys</td>
<td>Australian Commission on Safety and Quality in Health Care</td>
<td>Tran Y, Ellis L</td>
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<td>Cost effectiveness of Cochlear implants in Finland</td>
<td>Cochlear Limited</td>
<td>Cutler H</td>
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<td>An evaluation of full scope of practice physiotherapy-led assessment and management of paediatric orthopaedic variants</td>
<td>Department of Health QLD</td>
<td>Pendlebury E, Thompson B, Schultz C, George J, Fulton T, Van Der Werff J, Fooken J</td>
<td>$9,000</td>
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### PROJECT TITLE

| Clinical Safety Management System (CSMS) | Australian Digital Health Agency | Magrabi F | $6,916 |
| 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 - STEMM | Macquarie University | Liu S | $5,000 |
| MQ ECR Enabling Scheme | Macquarie University | Austin E | $3,000 |
| MQ ECR Enabling Scheme | Macquarie University | Spanos S | $3,000 |
| MQ ECR Enabling Scheme | Macquarie University | Prgomet M | $3,000 |
| Validation of a foundational model of the Emergency Department system | Macquarie University | Austin E | $3,000 |
| MQ ECR Enabling Scheme | Macquarie University | Rana P | $1,000 |

**Total Funding from Non-NHMRC/MRFF Grants** | **$18,197,590**

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$60.6M

Total enterprise value of grants under AIHI management during 2023
Join us and make a difference to health systems globally. We conduct world-class research with national and international research communities, governments, policymakers, providers of health services, clinicians, patients, and the community. Find out how you could join us to undertake research, partner on a project, or study for a graduate research qualification.
Glossary

FREQUENTLY USED TERMS

ACSQHC Australian Commission on Safety and Quality in Health Care
AI Artificial intelligence
AIHI Australian Institute of Health Innovation
CALD Culturally and linguistically diverse
CHI Centre for Health Informatics, AIHI
CHRIS Centre for Healthcare Resilience and Implementation Science, AIHI
CHSSR Centre for Health Systems and Safety Research, AIHI
DHCRC Digital Health Cooperative Research Centre
DoHAC Commonwealth Department of Health and Aged Care
ED Emergency department
EHR Electronic health records
EU European Union
IHACPA Independent Health and Aged Care Pricing Authority
ISQua International Society for Quality in Health Care
JAMIA Journal of the American Medical Informatics Association
MD Medical Doctor
MedInfo 2023 19th World Congress on Medical and Health Informatics, MedInfo 2023
MPhil Master of Philosophy
MQ Macquarie University
MRes Master of Research
MRFF Medical Research Future Fund
MSAC Medical Services Advisory Committee
MUCHE Macquarie University Centre for the Health Economy, AIHI
NHMRC National Health and Medical Research Council
NSW New South Wales, Australia
OECD Organisation for Economic Co-operation and Development
PBAC Pharmaceutical Benefits Advisory Committee
PBS Pharmaceutical Benefits Scheme
PhD Doctor of Philosophy
RACGP Royal Australian College of General Practitioners
RACP Royal Australasian College of Physicians
WHO World Health Organisation
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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