



ANNUAL REPORT

YEAR 4

July 2020 to June 2021



CONTENTS

| | |
|--|----|
| Executive Summary | 3 |
| PCHSS Year 4 Outcomes | 4 |
| Who We Are | 5 |
| Why Is the PCHSS Needed? | 6 |
| Our Vision | 6 |
| Our Research Approach | 6 |
| Our Research and Projects | 6 |
| Using Analytics, Technology & Shared Data | 7 |
| Reducing Waste and Low-Value Care | 8 |
| Promoting Better Value for the Health Dollar | 9 |
| Observatory on Health System Sustainability | 10 |
| Outreach | 12 |
| Research Related to the COVID-19 Pandemic | 14 |
| Our Partners and Collaborators | 15 |
| Selected Publications | 16 |

“ I’m always taken with that aphorism *none of us is as smart as all of us together*. If I’m thinking about the concerted, collaborative effort across the Partnership Centre over the last four years, that really is the truest of adages.”

– Prof. Jeffrey Braithwaite



EXECUTIVE SUMMARY

As the NHRMC Partnership Centre for Health System Sustainability (PCHSS) begins its fifth year, we reflect on the ways in which our research is building capacity within the health system and informing policy and practice as we develop and evaluate interventions that provide integrated, patient-centred, value-based care. Our research involves close collaborations with system partners, including healthcare professionals, health system managers, policy makers, and health consumers. This ensures that our innovations are fit for purpose and implementable.

The past year was particularly challenging as the ongoing COVID-19 pandemic tested the capacity of the health system and society. Many of our key partners were engaged on the frontlines of the pandemic response and accessing essential personnel in the health systems to facilitate changes became a significant obstacle. However, PCHSS researchers quickly adapted to accommodate the new normal of online working and virtual collaboration.

This adaptability is one of the hallmarks of any successful Centre. Our researchers pivoted to take advantage of the natural experiment caused by the response to the pandemic. This included research on how healthcare usage in Australia changed during the pandemic, tracking the meteoric rise in the use of telehealth consultations, and understanding the emotional and economic stress of the pandemic on doctors.

In our fourth year (1 July 2020 to 30 June 2021), we continued to make strong progress towards our vision of producing research that contributes to the development of a resilient health system – one that is affordable, cost effective, and delivers improved health outcomes for all Australians. We published 200 peer-reviewed papers and reports related to health system sustainability. PCHSS researchers gave over 300 presentations at stakeholder meetings, scientific conferences, and other events. Our research was featured in over 180 media engagements, including popular press articles, radio, and television interviews.

We extended our collaborations with consumer organisations, such as Consumers Health Forum of Australia (CHF) and Health Consumers NSW, through webinars and masterclasses, and strengthened our connections with system partners, which resulted in in-kind support from 38 non-academic organisations. Examples include workshops, webinars, and stakeholder



+ **Professor Jeffrey Braithwaite**

Chief Investigator (A), NHRMC Partnership
Centre for Health System Sustainability
Founding Director, Australian Institute of
Health Innovation

meetings about the co-design or implementation of research, and assistance and support for data access.

PCHSS engaged with over 50 health system researchers and 45 research academics in research co-design, running research projects and implementing research outcomes. This helped build much needed capacity now and for the future for embedding research translation into health systems for continued learning and improvement.

In Year 4, our investigators and system partners were awarded over \$40,830,255 in new leveraged funding through grants and contracts. Our members also received significant recognition for their contribution to research and society. In 2021, Professor Paul Glasziou became an Officer of the Order of Australia for distinguished service to medical education and standards, and to evidence-based medical research and Professor Helena Teede was awarded Member of the Order of Australia for significant service to medical education and research, to endocrinology, and to women's health.

As we enter our fifth year, we will continue to focus on generating world-class research evidence and translating and assisting with the implementation of innovations to strengthen our health system. We look forward to working with our current collaborators and to building new connections to improve the health system.

PCHSS YEAR 4 OUTCOMES



PCHSS
publications



Leveraged
funding



Conference presentations,
webinars



Media
engagements



WHO WE ARE

The **NHRMC Partnership Centre for Health System Sustainability (PCHSS)** is a \$10.75 million, five-year collaboration involving 17 lead investigators, 20 expert advisors and over 40 system implementation partners from around Australia. The Centre includes five funding partners: The National Health and Medical Research Council, Bupa Health Foundation, NSW Health, the Department of Health Western Australia, and the University of Notre Dame. The Centre is led by Professor Jeffrey Braithwaite.

- + **CIA** Chief Investigator first listed
- + **RL** Research Lead Investigator
- + ***** System-based implementation partner organisation

National Collaborators

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

Western Australia

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

South Australia

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

Victoria

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

Queensland

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

NSW

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

ACT

- Ms Leanne Wells ^{RL}
- ACT Health*

Tasmania

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

Funding Partners



Australian Government
National Health and Medical Research Council



Government of Western Australia
Department of Health



THE UNIVERSITY OF
NOTRE DAME
AUSTRALIA



WHY IS THE PCHSS NEEDED?

Even before this pandemic, health systems worldwide were being challenged by multiple threats to their capacity to deliver high-quality care. These threats include ageing populations, increasing rates of chronic and complex diseases, growing cost pressures from new medical technologies and medicines, wasteful spending on low-value care, inefficiencies arising from system fragmentation, and limited use of data and evidence to support health system changes. In the face of these seemingly insurmountable challenges, how can health systems provide high-quality care to the right patient, at the right time, in the right place, and for the right cost?

To provide practical, innovative solutions to answer this question, the PCHSS was established in 2017.

OUR VISION

The vision of the PCHSS is to produce research that contributes to the development of a resilient health system – one that is affordable, cost effective, and delivers improved health outcomes for all Australians.

OUR RESEARCH APPROACH

The PCHSS takes an innovative, system-wide approach to research. Our multi-disciplinary research team includes health economists, experts in artificial intelligence and machine learning, and in complexity and implementation science, as well as clinician and health consumer researchers. The work is co-designed with health system partners and industry partners, including private health insurers (e.g., Bupa, HCF, and Medibank), state health departments and independent governmental organisations (e.g., the Independent Hospital Pricing Authority (IHPA)). We also have researchers embedded within the health system, such as those working with MQ Health, the South Adelaide Local Health Network (SALHN), and the Sydney Children's Hospitals Network (SCHN). All of these connections ensure that our research is targeted and implementable by policy makers.

Health consumers and consumer organisations are also integral to our research and our success in translating results. We work closely with Consumers Health Forum of Australia (CHF) embedding consumer-researchers in several projects, including a unique national survey of Australian health consumers, which highlighted a decline in healthcare affordability and access, especially among people with chronic and complex conditions. Consumer-researchers were co-authors on four publications last year. We have also created master classes for consumers on implementation science and facilitated panel discussions with health consumer groups. We are currently working closely with the CHF to develop of an Australian Consumer Leadership Academy.

OUR RESEARCH & PROJECTS

PCHSS's research falls under three main themes: Using Analytics, Technology & Shared Data, Reducing Waste and Low-Value Care, and Promoting Better Value for the Health Dollar. The Centre is also home to the Observatory on Health System Sustainability, which conducts research on factors that affect the sustainability of health systems nationally and internationally.



RESEARCH THEME

USING ANALYTICS, TECHNOLOGY & SHARED DATA

Under this Research Theme, we tackle important questions in informatics and healthcare, including using big data to improve care, diagnostic testing, and medication management, as well as designing analytics to guide better healthcare decisions. Our researchers are also examining how telehealth might best be deployed and funded to improve healthcare across the country.

PCHSS research has previously demonstrated the benefits of electronic medication management systems. Now our work in this area is being implemented into the health system. For example, the Sydney Children's Hospitals Network (SCHN) has made several changes to specific design features in their electronic medication management system based on findings from our research trial. One of the aged care partners that we are working with has also agreed to implement a quality-of-life tool as part of their electronic health record system.

Professor Enrico Coiera and colleagues are finalising an international study of hospital dashboards (systems to monitor patient status and workflows). Hospitals with these systems tended to have a reduction in mortality, an increase in patient satisfaction with care, a reduction of length of stay, and a reduction of costs of hospital care. This research will inform the implementation of these types of systems in Australian hospitals.

During the COVID-19 pandemic, there was a meteoric rise in the number of telehealth consultations. PCHSS had been working on this model of care since its inception and was well placed to provide valuable evidence of the health and economic impacts of adopting this model of care. Our research demonstrated numerous benefits of telehealth, including increasing attendance at appointments, improving the lives of people with asthma through remote monitoring, and reducing costs to patients and the system by avoiding travel.

RESEARCH LEADS

Professor Johanna Westbrook

Macquarie University



Professor Enrico Coiera

Macquarie University



Professor Leonard Gray

The University of Queensland





RESEARCH THEME

REDUCING WASTE AND LOW-VALUE CARE

The cost of healthcare worldwide is rising unsustainably. Contributing to this trend are growing levels of wasteful and low-value healthcare along with outdated care delivery models that are unable to meet current needs and adapt to new realities. This Research Theme examines ways to reduce wasteful or low-value care, which accounts for 30% of all healthcare, and to deliver needed care more efficiently.

Previous research by investigators in this Theme revealed that ~41% of prostate cancers are overdiagnosed. That is, identified cancers that, if they had not been found, would not have impacted the person's life. Building on this research, Professor Paul Glasziou and colleagues convened a focus group of men to co-design an intervention with general practitioners (GPs) to reduce unnecessary prostate-antigen (PSA) testing. Other research to reduce low-value care includes work with Brisbane Metro North to co-design an intervention to reduce elective surgery waitlist times, and a plan to implement a clinical decision support tool to increase adherence to guidelines in the emergency departments.

Cost-effective and high-quality care are cornerstones of a sustainable health system. Professor Rachelle Buchbinder and her team are exploring alternative models of care delivery to determine their effect on patient outcomes and experiences and on the health system. They are analysing the usage of the hospital-in-the-home model as an alternative to in-patient care by Australian private hospitals,

and the impacts of delivering intravenous anti-cancer therapy at home rather than in hospital or community healthcare settings. They have recently commenced a new trial, supported by funding from HCF Research Foundation, of early supported discharge and care at home for people undergoing elective total knee and hip replacement surgery in a private hospital setting.

RESEARCH LEADS

Professor Paul Glasziou

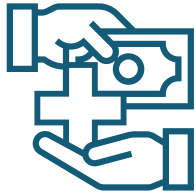
Bond University



Professor Rachelle Buchbinder

Monash University and
Cabrini Health





RESEARCH THEME

PROMOTING BETTER VALUE FOR THE HEALTH DOLLAR

This Research Theme covers four major areas: using financial incentives to promote value-based healthcare; priority setting and decision-making in healthcare organisations; the impact of markets, competition, and choice in healthcare; and the impact of a collaborative research program on cost savings and efficiencies in healthcare settings.

Research by Professor Tony Scott and his colleagues, in partnership with the Independent Hospital Pricing Authority (IPHA), directly influenced the risk adjustment for hospital acquired complications and readmissions. This research will change the distribution of Commonwealth funding for public hospitals.

Researchers from this Theme also investigated the impact of competition on aged care quality and pricing. They found that competition was not associated with better care quality or lower prices. The results were presented to the Royal Commission on Aged Care, at a Melbourne Institute Virtual Colloquium, and at a PCHSS webinar.

Professor Jonathon Karnon gave a five-part seminar series as part of the Medical Research Future Fund (MRFF) Embedded Economist program on the use of economic evaluation to support decision making in local health services. He and his colleagues are working with the SALHN executive on the economic evaluations of three interventions: 1) reducing hypoglycaemic hospital acquired complications, 2) implementing allied health interventions to

reduce the number of long-stay patients, and 3) extending the scope of practice of physiotherapists in emergency departments. Based on their research, they are developing a common framework for economic analyses to inform local health service decisions.

Increasing the uptake of research outcomes is an ongoing challenge in health systems, despite numerous programs designed to address this problem. Dr Delia Hendrie and colleagues are conducting a review of the Western Australia Department of Health Research Translation Program (RTP) to evaluate the impact of research translation processes on health system sustainability. Their work will inform the design of future programs to more fully embed research translation efforts into the health system.

RESEARCH LEADS

Professor Anthony Scott

Melbourne University



Professor Jonathan Karnon

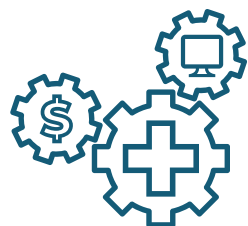
Flinders University



Dr Delia Hendrie

Curtin University





OBSERVATORY ON HEALTH SYSTEM SUSTAINABILITY

The Observatory on Health System Sustainability conducts research on factors that affect the sustainability of health systems nationally and internationally. It generates research on how to make healthcare more cost effective, of higher quality, and more responsive to unforeseen stressors, and it works across stakeholder groups to see that such research is translated into changes in practice. Tackling activities ranging from consumer engagement to the evaluation of health interventions and domains ranging from implementation science to patient safety, the Observatory aims to foster the development of resilient, learning health systems.

RESEARCH LEADS

Professor Jeffrey Braithwaite

Macquarie University



Associate Professor Yvonne Zurynski

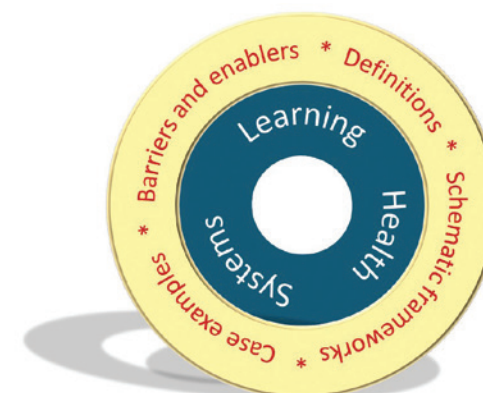
Macquarie University



This year, the Observatory published papers on learning health systems, funding models to improve research translation, lifestyle modification programs, and an international review of health systems' responses to the COVID-19 pandemic. We continued the evaluation of implemented programs, such as our work with the Black Dog Institute on evaluation of the LifeSpan suicide prevention program, and a new evaluation of living stroke guidelines with the Stroke Foundation of Australia. Working with MQ Health and Sydney North Health Network, we are undertaking an evaluation of the HeartConnect program, a rapid access cardiology clinic, which links GPs with specialist cardiologists.

There are also several projects underway aimed at creating more integrated models of care, such as the RuralKidsGPS. Previously, Associate Professor Yvonne Zurynski and colleagues evaluated the Sydney Children's Hospitals Network (SCHN) Kids Guided Personalised Service (KidsGPS) program. The SCHN KidsGPS provides child- and family-centred care through service coordination, care closer to home, telehealth and interdisciplinary

shared care plans for children with medical complexity. New funding from the NSW Health Translational Research Grants Scheme will support scaling up this model of care to four rural health districts.



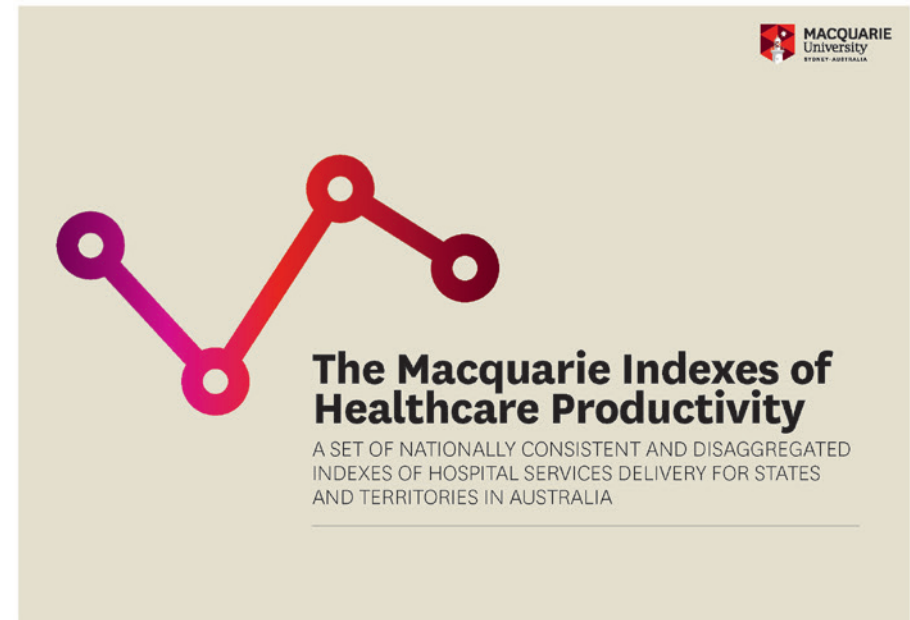


OBSERVATORY ON HEALTH SYSTEM SUSTAINABILITY (CONTINUED)

The Observatory continued to work closely with consumer health organisations, such as CHF. Professor Braithwaite presented a plenary session and Associate Professor Zurynski hosted a panel discussion with health consumers as part of the CHF's Shifting Gears Conference. Professor Braithwaite, Associate Professor Zurynski, and colleagues also conducted an Implementation Science Master Class (live webinar) for members of CHF. The presentation was designed to inform health consumers about research on strategies that facilitate the uptake of evidence-based practice and research into regular use by practitioners and policymakers.

The Observatory has published 15 peer-reviewed papers, a stimulus paper and book chapter, and two reports with direct involvement and authorship by consumer researchers and advocates.

The Observatory also continued to work closely with industry partners. For example, PCHSS, in conjunction with IHPA and the Macquarie University Centre for the Health Economy (MUCHE), developed the Macquarie Indexes of Healthcare Productivity. The new indexes describe the quantity, price, and combined expenditure on hospital services in Australia. The indexes provide potential measures for health sector providers and payers to better identify drivers of productivity in the health system.



OUTREACH

With the ongoing restrictions due to the pandemic, we moved our webinars to an online platform. This allowed us to reach a broader audience in Australia and to attract an international audience. The webinars are also posted on our [YouTube channel](#), enabling us to create a resource for health professionals and health consumers to consult at their leisure.

Each year, we host an extended conference on a topic relating to health system sustainability. This year's event was entitled:



Creating a value-based, integrated health system in Australia

On June 3, 2021, PCHSS researchers and system partners took part in an online workshop on value-based care. The webinar involved unpacking the challenges to and opportunities for developing and implementing a health system that is based on providing value to patients, rather than focused on the volume of care provided. During the webinar, we also examined how integrated care can contribute to a value-based system. The presenters drew on examples from some successfully implemented programs and discussed how to determine which health services should be scaled up (and which should be scaled down).

We also launched a new, one-hour webinar series to showcase PCHSS research outcomes and to increase engagement with health professionals, policy makers, and health consumers.

PCHSS 2020-2021 Webinar Series



Shaping a sustainable health system through collaboration

In this webinar, our speakers discussed the importance of collaboration with health consumers to create a resilient health system that serves the needs of the community. Leanne Wells (CEO of CHF) and our health consumer panellists discussed the challenges that Australia's health system face, and highlighted the need for consumer voices, leadership and insights contributing at all levels of the health system: research, policy, and service design.

Not yet business as usual: How alternative models of care are changing the health system

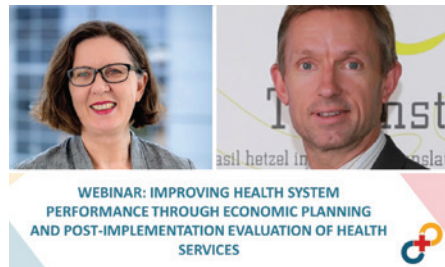
As healthcare costs continue to rise and inequities in access grow, the need for a greater diversity in models of care – models that are high-value, effective, and affordable – has never been more apparent. Moderated by Professor Len Gray (The University of Queensland), the session featured presentations by Professor Rachelle Buchbinder (PCHSS and Monash University) and Dr Tracey Tay (NSW Agency for Clinical Innovation).



Can new payment models support the provision of value-based healthcare?

With the rising costs of healthcare, health systems are looking for ways to incentivise high-quality care while keeping costs down. So, does paying healthcare providers for their performance improve value for money and hold providers accountable? In this webinar, Professor Tony Scott (University of Melbourne) summarised new evidence from two recently published systematic reviews on the impact of different payment methods for healthcare providers.

Although high quality evidence remains scarce, the key messages remain consistent over time. Different payment methods, in the right context, can influence clinical behaviour in desired directions but require careful design.



Improving health system performance through economic planning and post-implementation evaluation of health services

In this webinar, our two speakers discussed the importance of embedding evaluation within health systems to inform decisions to improve, to expand or to contract existing services. In a constantly evolving healthcare landscape, formative and ongoing embedded evaluations provide a robust way to assess which programs should be broadly implemented, maintained, or ultimately abandoned. Moderated by Professor Henry Cutler (Macquarie University), the session featured presentations from Professor Jon Karnon (Flinders University), and Associate Professor Yvonne Zurynski (Macquarie University).

Harnessing digital technologies to enhance patient safety

In this webinar, Professor Johanna Westbrook (Macquarie University) discussed how implementing electronic medications management systems in Australian hospitals, if done correctly, can reduce medication prescription errors and improve patient safety. Associate Professor Shlomo Berkovsky (Macquarie University) then talked about his work on the use of artificial intelligence for categorising frail elderly patients.



Impact of COVID-19 on the Australian health workforce

COVID-19 has had far-reaching effects on all sectors of our society, but few sectors have been as directly affected as the health workforce. In this webinar, our distinguished speakers Associate Professor Liam Caffery (The University of Queensland) and Professor Tony Scott (University of Melbourne) discussed how the Australian health workforce has been changed by the pandemic. Professor Scott explored the effects of COVID-19 on the working patterns, mental health and finances of Australian GPs and non-GP specialists working in private practices. Associate Professor Caffery then discussed telehealth in Australian general practices – before, during and after the pandemic.

Dr K-lynn Smith, Ms Genevieve Dammary, and Ms Chrissy Clay coordinated the outreach activities for the Centre. For more details about our upcoming and past events, please visit the PCHSS website: <https://healthsystemsustainability.com.au>



RESEARCH RELATED TO THE COVID-19 PANDEMIC

One of the hallmarks of a successful Centre is to flexibly contribute to problems as they arise. Over 30 papers and reports were published by PCHSS researchers about the COVID-19 pandemic. Examples of COVID-19 related outputs include:

- **Impact of COVID-19 pandemic on utilisation of healthcare services: a systematic review.** Moynihan R, Sanders S, Michaleff ZA, Scott AM, Clark J, To EJ, Jones M, Kitchener E, Fox M, Johansson M, Lang E, Duggan A, Scott I, Albarqouni L. *BMJ Open*. 2021. This paper provided valuable insight into patient behaviours that changed during the pandemic (e.g., treatment for serious illness continued, but treatment for lower severity illness was reduced through either patient action or health services unavailability).
- **The 40 health systems, COVID-19 (40HS, C-19) study.** Braithwaite J, Tran Y, Ellis LA, Westbrook J. *International Journal for Quality in Health Care*. 2020. This research showed that extensive testing was the key to slowing the spread of the virus at the start of the pandemic.
- **International survey of COVID-19 management strategies.** Tartaglia R, La Regina M, Tanzini M, Pomare C, Urwin R, Ellis LA, Fineschi V, Venneri F, Seghieri C, Lachman P, Westbrook J, Braithwaite J. *International Journal for Quality in Health Care*. 2021 This paper examined the opinions of healthcare professionals in 97 countries across the World Health Organization (WHO) regions during the early stages of the pandemic. They found that, in general, the world's responses to the pandemic were improving, after substantial missteps at the start.
- **Telehealth uptake in general practice as a result of the coronavirus (COVID-19) pandemic.** Snoswell CL, Caffery LJ, Haydon HM, Thomas EE, Smith AC. *Australian Health Review*. 2020. This paper used Medicare Benefits Schedule (MBS) statistics for general practitioner activity and the associated costs. It found a small increase in both activity and costs for the new MBS telehealth items. The results suggest the need to adjust telehealth support to patients while controlling costs.
- **Who is avoiding necessary health care during the COVID-19 pandemic?** Zhang Y, Liu J, Scott A. *Research Insights* 13/20. Melbourne Institute. 2020. They found that Australians experiencing high levels of financial stress and mental distress were not seeking needed healthcare during periods of lockdown.
- **The future of healthcare after COVID-19.** Zhang Y, Scott A, Liu J, Mendez S. Melbourne Institute. 2020. This report examined the causes of the continuing fall in private health insurance over the course of the pandemic. They found that younger Australians did not perceive insurance as providing value for the cost.



PARTNERS AND COLLABORATORS

Adelaide Primary Health Network
 Anglicare
 Better Care Victoria
 Black Dog Institute
 Blacktown Hospital
 Bond University
 BUPA Health Foundation
 Cabrini Health
 Consumers Health Forum of Australia
 Country South Adelaide Primary Health Network
 Curtin University
 Department of Health and Human Services Victoria
 Department of Health Australia
 ECH
 e-Health NSW
 Gold Coast Hospital and Health Service
 Health Department Western Australia
 Health Translation South Adelaide
 Independent Hospital Pricing Authority
 Loddon Mallee Rural Health Alliance
 Melbourne University
 Metro North Hospital and Health Service
 Metro South Health
 Monash Partners
 Murray Primary Health Network

MQ Health
 NSW Agency for Clinical Innovation
 NSW Health
 NSW Pathology
 NSW Regional Health Partners
 Outcome Health Australia
 Prince of Wales Hospital
 Queensland Health
 University of New South Wales
 University of Tasmania
 University of Western Australia
 Research Australia
 Sax Institute
 SEALS Pathology
 South Adelaide Local Health Network
 Stroke Foundation of Australia
 Spinifex Rural Health Research network
 Sydney Children's Hospitals Network
 Sydney Health Partners
 Sydney Local Health District
 Sydney North Health Network
 The University of Queensland
 Uniting Aged Care
 Victorian Primary Health Network Alliance
 West Victoria Primary Health Network





SELECTED PUBLICATIONS

Selected list of publications from Year 4 (1 July 2020 to 30 June 2021). For a complete list of PCHSS publications, please see our website: <https://healthsystemsustainability.com.au/>

RESEARCH THEME: USING ANALYTICS, TECHNOLOGY & SHARED DATA

- Dai Z, Saffi Franco G, Datta S, McGuire P, Li J, Georgiou A. The impact of the COVID-19 pandemic on general practice consultations in residential aged care facilities. Australian Institute of Health Innovation, Centre for Health Systems and Safety Research; 2021 2021/01/22.
- Gates PJ, Hardie R-A, Raban MZ, Li L, **Westbrook JI**. How effective are electronic medication systems in reducing medication error rates and associated harm among hospital inpatients? A systematic review and meta-analysis. *Journal of the American Medical Informatics Association*. 2020;28(1):167-76.
- Hardie RA, Sezgin G, Zhaoli D, Georgiou A. The uptake of GP telehealth services during the COVID-19 pandemic. Australian Institute of Health Innovation, Centre for Health Systems and Safety Research; 2021 2020/12/02.
- Hardie RA, Sezgin G, Zhaoli D, Wabe N, Georgiou A. Socioeconomic and demographic comparisons in the uptake of telehealth services during COVID-19. Australian Institute of Health Innovation, Centre for Health Systems and Safety Research; 2021 2021/01/22.
- Imai C, Hardie RA, Thomas J, Wabe N, Georgiou A. The impact of the COVID-19 pandemic on general practice-based HbA1c monitoring in type 2 diabetes. Australian Institute of Health Innovation, Centre for Health Systems and Safety Research; 2021 2021/03/31.
- Imai C, Hardie RA, Zhaoli D, Thomas J, Sezgin G, Li J, Georgiou A. The impact of the COVID-19 pandemic on cancer screening in general practice. Australian Institute of Health Innovation, Centre for Health Systems and Safety Research; 2021 2021/06/10.
- Imai C, Li L, Hardie RA, Georgiou A. Adherence to guideline-recommended HbA1c testing frequency and better outcomes in patients with type 2 diabetes: a 5-year retrospective cohort study in Australian general practice. *BMJ Quality & Safety*. 2021;bmjqs-2020-012026.
- Imai C, Thomas J, Hardie RA, Badrick T, Georgiou A. The impact of the COVID-19 pandemic on pathology testing in general practice. Australian Institute of Health Innovation, Centre for Health Systems and Safety Research; 2021 2021/02/12.
- Nguyen A, Siette J, Ludlow K, Jorgensen M, Knaggs G, Lind K, Georgiou A, **Westbrook JI**. Sydney North Health Network Digital Health Test Bed Project: Closing Aged Care Integration Gaps. Final Evaluation Report. Macquarie University; 2021.
- Raban MZ, Baysari MT, Jorgensen ML, Tariq A, Georgiou A, **Westbrook JI**. Unmet needs for transdermal patch management in electronic medication administration records: an analysis of data from 66 aged care facilities. *Applied Clinical Informatics*. 2020;11(05):812-20.
- Raban MZ, Lind KE, Day RO, **Gray L**, Georgiou A, **Westbrook JI**. Trends, determinants and differences in antibiotic use in 68 residential aged care homes in Australia, 2014–2017: a longitudinal analysis of electronic health record data. *BMC Health Services Research*. 2020;20(1):883.1*
- Sarkies M, Long JC, Pomare C, Wu W, Clay-Williams R, Nguyen HM, Francis-Auton E, **Westbrook JI**, Levesque J-F, Watson DE, **Braithwaite J**. Avoiding unnecessary hospitalisation for patients with chronic conditions: a systematic review of implementation determinants for hospital avoidance programmes. *Implementation Science*. 2020;15(1):91.
- Sezgin G, Monagle P, Loh TP, Ignjatovic V, Hoq M, Pearce C, McLeod A, **Westbrook JI**, Li L, Georgiou A. Clinical thresholds for diagnosing iron deficiency: comparison of functional assessment of serum ferritin to population based centiles. *Scientific Reports*. 2020;10(1):18233.
- Snoswell C, Taylor ML, Comans TA, Smith AC, **Gray L**, Caffery L. Determining if telehealth can reduce health system costs: scoping review. *Journal of Medical and Internet Research*. 2020;22(10):e17298.
- Snoswell CL, Caffery LJ, Haydon HM, Thomas EE, Smith AC. Telehealth uptake in general practice as a result of the coronavirus (COVID-19) pandemic. *Australian Health Review*. 2020;44:737-740.
- Snoswell CL, Comans TA. Does the choice between a telehealth and an in-person appointment change patient attendance? *Telemedicine and e-Health*. 2020;27(7):733-738.
- Taylor ML, Thomas EE, Snoswell CL, Smith AC, Caffery LJ. Does remote patient monitoring reduce acute care use? A systematic review. *BMJ Open*. 2021;11(3):e040232.
- Thomas J, Dahm MR, Li J, Georgiou A. Can patients contribute to enhancing the safety and effectiveness of test-result follow-up? Qualitative outcomes from a health consumer workshop. *Health Expectations*. 2021;24(2):222-33.
- Thomas J, Dahm MR, Li J, Smith P, Irvine J, **Westbrook JI**, Georgiou A. Variation in electronic test results management and its implications for patient safety: A multisite investigation. *Journal of the American Medical Informatics Association: JAMIA*. 2020;27(8):1214-24.
- Wabe N, Thomas J, Hardie RA, Zhaoli D, Imai C, Sezgin G, Li J, Georgiou A. Changes in medication prescribing in general practice during the COVID-19 pandemic. Australian Institute of Health Innovation, Centre for Health Systems and Safety Research; 2021 2021/05/12.
- Zhaoli D, Franco G, Datta S, McGuire P, Li J, Georgiou A. The impact of the COVID-19 pandemic on general practice consultations in residential aged care facilities. Australian Institute of Health Innovation, Centre for Health Systems and Safety Research; 2021 2021/03/31.

* This publication was co-authored by multiple streams and is listed more than once but was only counted once in the total number of publications.



+ SELECTED PUBLICATIONS

RESEARCH THEME:

REDUCING WASTE & LOW-VALUE-CARE

- Beeken RJ, Scott AM, Sims R, Cleo G, Clifford H, **Glasziou P**, Thomas R. A Community Jury on initiating weight management conversations in primary care. *Health Expectations*. 2021;00:1–9.
- Blom JW, Muth C, **Glasziou P**, McCormack JP, Perera R, Poortvliet RKE, Numans ME, Thürmann P, Thiem U, Thio SL, Van Driel M, Beyer M, Van den Akker M, Knottnerus JA. Describing deprescribing trials better: an elaboration of the CONSORT statement. *Journal of Clinical Epidemiology*. 2020;127:87-95.
- Byambasuren O, Beller E, Hoffmann T, **Glasziou P**. Barriers to and facilitators of the prescription of mHealth apps in Australian general practice: qualitative study. *JMIR Mhealth Uhealth*. 2020;8(7):e17447.
- Décary S, Zadro J, O'Keeffe M, Michaleff Z, Traeger A, Légaré F. Overcoming overuse part 5: is shared decision making our Excalibur? *Journal of Orthopaedic & Sports Physical Therapy*. 2021;51(2):53-6.
- Gearon E, O'Connor D, Wallis J, Han JX, Shepperd S, Makela P, **Buchbinder R**. Factors influencing the implementation of early discharge hospital at home and admission avoidance hospital at home: a qualitative evidence synthesis. *Cochrane Database of Systematic Reviews*. 2021;3:CD014765.
- González-González AI, Meid AD, Dinh TS, Blom JW, van den Akker M, Elders PJM, Thiem U, De Gaudry DK, Swart KMA, Rudolf H, Bosch-Lenders D, Trampisch H-J, Meerpohl JJ, Gerlach FM, Flaig B, Kom G, Snell KIE, Perera R, Haefeli WE, **Glasziou P**, Muth C. A prognostic model predicted deterioration in health-related quality of life in older patients with multimorbidity and polypharmacy. *Journal of Clinical Epidemiology*. 2021;130:1-12.
- Gunnarsson RK, Orda U, Elliott B, Heal C, Gorges H, **Glasziou P**, Del Mar C. Improving antibiotics targeting using PCR point-of-care testing for group A streptococci in patients with uncomplicated acute sore throat. *Australian Journal of General Practice*. 2021;50(1-2):76-83.
- Hayen A, **Glasziou P**, Doust JA. Coronary artery calcium scoring in cardiovascular risk assessment of people with family histories of early onset coronary artery disease. *Medical Journal of Australia*. 2021;214(9):440-e1.
- Michaleff ZA, Zadro JR, Traeger AC, O'Keeffe M, Décary S. Overcoming overuse part 2: defining and quantifying health care overuse for musculoskeletal conditions. *Journal of Orthopaedic & Sports Physical Therapy*. 2020;50(11):588-91.
- Moynihan R, Sanders S, Michaleff Z, Scott A, Clark J, To E, Jones M, Kitchen E, Fox M, Johansson M, Lang E, Duggan A, Scott IA, Albarqouni L. Impact of COVID-19 pandemic on utilisation of healthcare services: a systematic review. *BMJ Open*. 2021;11(3):e045343.
- O'Keeffe M, Traeger AC, Michaleff ZA, Décary S, Garcia AN, Zadro JR. Overcoming overuse part 3: mapping the drivers of overuse in musculoskeletal health care. *Journal of Orthopaedic & Sports Physical Therapy*. 2020;50(12):657-60.
- Putrik P, Jessup R, **Buchbinder R**, **Glasziou P**, Karnon J, O'Connor DA. Prioritising models of healthcare service delivery for a more sustainable health system: a Delphi study of Australian health policy, clinical practice and management, academic and consumer stakeholders. *Australian Health Review*. 2021;10.1071/AH20160.
- Putrik P, Grobler L, Lalor A, **Karnon J**, Parker D, Morgan M, **Buchbinder R**, O'Connor D. Models for delivery and co-ordination of primary or secondary health care (or both) to older adults living in aged care facilities. *Cochrane Database of Systematic Reviews*. 2021;3:CD013880.*
- Scott A, **Glasziou P**, Cardona M. Telehealth in Primary Care. Department of Health; 2021.
- Sims R, Kazda L, Michaleff ZA, **Glasziou P**, Thomas R. Consequences of health condition labelling: protocol for a systematic scoping review. *BMJ Open*. 2020;10(10):e037392.
- Traeger AC, Checketts J, Tcharkhedian E, O'Connor DA, Klinner C, Sharma S, Vyas P, Albarqouni L, McCaffery K. Patient and general practitioner views of tools to delay diagnostic imaging for low back pain: a qualitative study. *BMJ Open*. 2020;10(11):e039936.
- Traeger AC, Soon J, O'Keeffe M, Décary S, Michaleff ZA, Zadro JR. Overcoming overuse Part 4: small business survival. *Journal of Orthopaedic & Sports Physical Therapy*. 2021;51(1):1-4.
- Wallis JA, Young K, Zayontz S, Risbey P, **Buchbinder R**. Utilisation of inpatient rehabilitation following elective total knee or hip replacements in private hospital setting declined during the COVID-19 pandemic. *Internal Medicine Journal*. 2021;51(3):446-7.

RESEARCH THEME:

PROMOTING BETTER VALUE FOR THE HEALTH DOLLAR

- Bai T, Mendez S, Yong J, **Scott A**. The falling growth in the use of private healthcare in Australia. Working Paper 18/20. Melbourne Institute. 2020 2020/09/20.
- Bai T, Mendez S, **Scott A**, Yong J. Public or private? [The declining growth in the use of private healthcare in Australia](#). 2020 2020/10/01, Melbourne Institute of Applied Economic and Social Research..
- Jia L, Meng Q, **Scott A**, Yuan B, L. Z. Payment methods for healthcare providers working in outpatient healthcare settings. *Cochrane Database of Systematic Reviews*. 2021;1(1):CD011865.

* This publication was co-authored by multiple streams and is listed more than once but was only counted once in the total number of publications.



+ SELECTED PUBLICATIONS

- Putrik P, Grobler L, Lalor A, **Karnon J**, Parker D, Morgan M, **Buchbinder R**, O'Connor D. Models for delivery and co-ordination of primary or secondary health care (or both) to older adults living in aged care facilities. *Cochrane Database of Systematic Reviews*. 2021;:175.*
- Putrik P, Jessup R, **Buchbinder R**, **Glasziou P**, **Karnon J**, O'Connor DA. Prioritising models of healthcare service delivery for a more sustainable health system: a Delphi study of Australian health policy, clinical practice and management, academic and consumer stakeholders. *Australian Health Review*. 2021;10.1071/AH20160.*
- Roseleur J, Partington A, **Karnon J**. Scoping review of Australian evaluations of healthcare delivery models: are we making the most of the evidence? *Australian Health Review*. 2020;44(4):557-62.
- Roseleur J, Partington A, **Karnon J**. Evaluations of healthcare delivery models in Australia: a scoping review protocol. *JBHI Evidence Synthesis*. 2020;18(1):128-34.
- Russell GM, McGrail MR, O'Sullivan B, **Scott A**. Improving knowledge and data about the medical workforce underpins healthy communities and doctors. *Medical Journal of Australia*. 2021;214(6):50962.
- Scott A**, Bai T, Zhang Y. Association between telehealth use and general practitioner characteristics during COVID-19: findings from a nationally representative survey of Australian doctors. *BMJ Open*. 2021;11(3):e046857.
- Scott A**, Holte JH, Witt J. Preferences of physicians for public and private sector work. *Human Resources for Health*. 2020;18(1):59.
- Searles A, Piper D, Jorm C, Reeves P, Gleeson M, **Karnon J**, Goodwin N, Lawson K, Iedema R, Gray J. Embedding an economist in regional and rural health services to add value and reduce waste by improving local-level decision-making: protocol for the 'embedded Economist' program and evaluation. *BMC Health Services Research*. 2021;21(1):201.
- Yang O, Yong J, Zhang Y, **Scott A**. Competition, prices and quality of residential aged care in Australia. Melbourne Institute. 2021 2021/01/21.
- Yang O, Zhang Y, **Scott A**. Does competition in aged care deliver better outcomes? Melbourne Institute. 2021 2021/06/21.
- Yong J, Yang O, **Scott A**. Nursing home competition, prices and quality: a review and some lessons for Australia. Working Paper 10/20. Melbourne Institute. 2020 2020/06/20.
- Yong J Y, O, **Scott A**. Nursing home competition, prices and quality: a review and some lessons for Australia. Melbourne Institute: Applied Economic and Social Research, The University of Melbourne. 2020 2020/06/20.
- Zaresani A, **Scott A**. Is the evidence on the effectiveness of pay for performance schemes in healthcare changing? Evidence from a meta-regression analysis. *BMC Health Services Research*. 2021;21:175.
- Zhang Y, Liu J, **Scott A**. Who is ditching private health insurance during the pandemic? Research Insights 30/20. 2020 2020/12.
- outcome measures (PROMs): a review of generic and condition-specific measures and a discussion of trends and issues. *Health Expectations*. 2021;10.1111.
- Ellis LA, Churrua K, Tran Y, Long JC, Pomare C, **Braithwaite J**. An empirical application of "broken windows" and related theories in healthcare: examining disorder, patient safety, staff outcomes, and collective efficacy in hospitals. *BMC Health Services Research*. 2020;20(1):1123.
- Ellis LA, Lee MD, Ijaz K, Smith J, **Braithwaite J**, Yin K. COVID-19 as 'game changer' for the physical activity and mental well-being of augmented reality game players during the pandemic: mixed methods survey study. *Journal of Medical Internet Research*. 2020;22(12):e25117.
- Ellis LA, Pomare C, Gillespie JA, Root J, Ansell J, Holt J, Wells L, Tran Y, **Braithwaite J**, **Zurynski Y**. Changes in public perceptions and experiences of the Australian health-care system: a decade of change. *Health Expectations*. 2020;24:95-110.
- Smith K-I, Meulenbroeks I, Mahmoud Z, **Zurynski Y**, Clay-Williams R, Hughes C, Long JC, Sarkies M, Ellis LA, Gibbons K, Pomare C, Nguyen HM, Clay C, Braithwaite J. Reducing surgical waitlist times in Australia. Sydney: Australian Institute of Health Innovation and NHRMC Partnership Centre for Health System Sustainability; 2020 2020/10/21.
- Ludlow K, Churrua K, Ellis L, Mumford V, **Braithwaite J**. Decisions and dilemmas: the context of prioritization dilemmas and influences on staff members' prioritization decisions in residential aged care. *Qualitative Health Research*. 2021;1049732321998294.
- Ludlow K, Churrua K, Mumford V, Ellis L, **Braithwaite J**. Aged care residents' prioritization of care: a mixed-methods study. *Health Expectations*. 2021;24(2):525-536.

RESEARCH THEME:

OBSERVATORY ON HEALTH SYSTEM SUSTAINABILITY

- Braithwaite J**, Tran Y, Ellis LA, **Westbrook JI**. Inside the black box of comparative national healthcare performance in 35 OECD countries: Issues of culture, systems performance and sustainability. *PLoS ONE*. 2020;15(9):e0239776.*
- Churrua K, Pomare C, Ellis LA, Long JC, Henderson SB, Murphy LED, Leahy CJ, **Braithwaite J**. Patient-reported

* This publication was co-authored by multiple streams and is listed more than once but was only counted once in the total number of publications.



+ SELECTED PUBLICATIONS

- Pomare C, Churrua K, Long J, Ellis L, **Braithwaite J**. Misalignment between policy and staff experience: the case of an Australian hospital redevelopment. *Journal of Health Organization and Management*. 2021; 10:e1108.
- Pomare C, Churrua K, Long J, Ellis L, **Braithwaite J**. Work-as-imagined versus work-as-done: the disconnect between policy expectations and staff experiences in hospital redevelopment. In: Kislov R, Burns D, Mørk B, Montgomery K, editors. *Managing Healthcare Organisations in Challenging Policy Contexts*. London, UK: Palgrave Macmillan; 2021.
- Pomare C, Mahmoud Z, Vedovi A, Ellis LA, Knaggs G, Smith CL, **Zurynski Y**, **Braithwaite J**. *Learning health systems*: a review of key topic areas and bibliometric trends. *Learning Health Systems*. 2021;e10265.
- Sarkies M, Long JC, Pomare C, Wu W, Clay-Williams R, Nguyen HM, Francis-Auton E, **Westbrook JI**, Levesque J-F, Watson DE, **Braithwaite J**. Avoiding unnecessary hospitalisation for patients with chronic conditions: a systematic review of implementation determinants for hospital avoidance programmes. *Implementation Science*. 2020;15(1):91.*
- Sarkies MN, Francis-Auton E, Long JC, Partington A, Pomare C, Nguyen HM, Wu W, **Westbrook JI**, Day RO, Levesque J-F, Mitchell R, Rapport F, Cutler H, Tran Y, Clay-Williams R, Watson DE, Arnold G, Hibbert PD, Lystad R, Mumford V, Leipnik G, Sutherland K, Hardwick R, **Braithwaite J**. Implementing large-system, value-based healthcare initiatives: a realist study protocol for seven natural experiments. *BMJ Open*. 2020;10(12):e044049.*
- **Zurynski Y**, Ansell J, Ellis LA, Pomare C, Smith CL, Holt J, Root J, Gillespie J, Wells L, **Braithwaite J**. Accessible and affordable healthcare? Views of Australians with and without chronic conditions. *Internal Medicine Journal*. 2021;51:1060-1067.
- **Zurynski Y**, Smith C, Siette J, Nic Giolla Easpaig B, Simons M, Knaggs G. Identifying enablers and barriers to referral, uptake and completion of lifestyle modification programmes: a rapid literature review. *BMJ Open*. 2021;11(3):e045094.
- **Zurynski Y**, Smith K-I, Siette J, Nic Giolla Easpaig B, Simons M, Knaggs G. Lifestyle modification programs: an Evidence Check rapid review brokered by the Sax Institute (www.saxinstitute.org.au) for the NSW Ministry of Health. Sax Institute; 2020.
- **Zurynski Y**, Smith K-I, Vedovi A, Ellis LA, Gul H, **Braithwaite J**. Diversity of scale and context of implemented learning healthcare systems: a narrative literature review. *Cochrane Database of Systematic Reviews*. 2020;(9 Suppl 1). doi.org/10.1002/14651858.CD202001.
- **Zurynski Y**, Smith K-I, Vedovi A, Ellis LA, Gul H, **Braithwaite J**. The role of health consumers in learning health systems: scoping the literature. *Cochrane Database of Systematic Reviews*. 2020; (9 Suppl 1). doi.org/10.1002/14651858.CD202001.
- **Zurynski Y**, Smith K-I, Vedovi A, Ellis LA, Knaggs G, Meulenbroeks I, Warwick M, Gul H, Pomare C, **Braithwaite J**. [Mapping the learning health system: a scoping review of current evidence](#). A white paper. Partnership Centre for Health System Sustainability; 2020 2020/11/10.

* This publication was co-authored by multiple streams and is listed more than once but was only counted once in the total number of publications.



**+ NHMRC PARTNERSHIP CENTRE
FOR HEALTH SYSTEM SUSTAINABILITY**

Macquarie University
NSW 2109, Australia

L6, 75 Talavera Road
North Ryde, NSW 2113

T (02) 9850 2400

E aihi.pchssadmin@mq.edu.au

healthsystemsustainability.com.au

