Research and innovation as core functions in transforming the health system

A vision for the future of health in Australia

Executive summary

Australian Academy *of* Health and Medical Sciences

Australian Academy
of Health and
Medical Sciences

The Australian Academy of Health and Medical Sciences acknowledges the traditional custodians of the lands on which our offices stand and on which we hold our meetings and events across the country. Aboriginal and Torres Strait Islander peoples were the nation's first scientists, and they remain the spiritual and cultural custodians of their land. We pay our respects to elders past and present. We especially thank those who have shared their knowledge and perspective as this project has progressed.

The Australian Academy of Health and Medical Sciences would like to thank the working group Chair, Professor Christina Mitchell AO FAHMS, for her leadership of this project, and all members of the working group for their significant contributions and commitment to this work. The Academy would also like to thank the review group, roundtable participants, interviewees, survey respondents and all other individuals who contributed to the project.

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About the Australian Academy of Health and Medical Sciences

The Australian Academy of Health and Medical Sciences is the impartial, authoritative, cross-sector voice of health and medical science in Australia. We advance health and medical research in Australia and its translation into benefits for all, by fostering leadership within our sector, providing expert advice to decision-makers, and engaging patients and the public.

We are an independent, interdisciplinary body of Fellows – elected by their peers for their outstanding achievements and exceptional contributions to health and medical science in Australia. Collectively, they are a representative and independent voice, through which we engage with the community, industry and governments.

The Academy is uniquely positioned to convene cross-sector stakeholders from across Australia to address the most pressing health challenges facing society. We focus on the development of future generations of health and medical researchers, on providing independent advice to government, and on providing a forum for discussion on progress in health and medical research with an emphasis on translation of research into practice.

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Executive summary

Australia's health system is facing significant challenges. An expert committee convened by the Australian Academy of Health and Medical Sciences has prepared this report to argue a case for urgently developing and implementing plans to further integrate health and medical research and innovation within the health system, in order to transform health outcomes for the community, enhance health system management, and optimise the economic benefits of Australian innovation.

During the COVID-19 pandemic, health, research and innovation worked together to deliver an effective response to one of the biggest health threats in a generation, based on the best available evidence. We must use this experience to turbocharge improvements across the health system that will ensure we can address current and future health challenges facing the nation.

Australia's health system and our health and medical research and innovation sector are both individually outstanding and competitive on the world stage. However, by bringing them into closer alignment, Australia can elevate both sectors and create a world-leading health system, which is driven by cutting-edge research and the latest evidence. As demonstrated in this report, this strategy has been shown to be effective internationally.

We believe this is possible in Australia, and we have a vision for a system and culture that embeds research and innovation as core functions. It is built on four pillars that use the current environment as a springboard to create a research-rich health system in Australia, outlined in Figure 1 below.

The conclusions, recommendations and commitments set out in this report outline a three-year plan that we believe will set Australia on a path to:

- address the ongoing challenges of delivering high-quality healthcare, and bring about more effective, more efficient care that meets the needs of the community
- further build health and medical research and innovation as a sector of the economy, which is in increasing demand and which brings substantial growth opportunities
- continue to improve the quality of care and patient outcomes
- deliver better patient and staff experiences
- generate a world-leading health and medical research environment that fosters innovation and attracts global investment.

Our vision and the underlying pillars provide a blueprint for the whole system to work together to build momentum towards these aims and deliver impactful change. This report will be of interest to governments, health service providers, research funders, consumers, academia, health professionals, clinician researchers, medical research institutes, industry, policymakers, and peak and professional bodies.

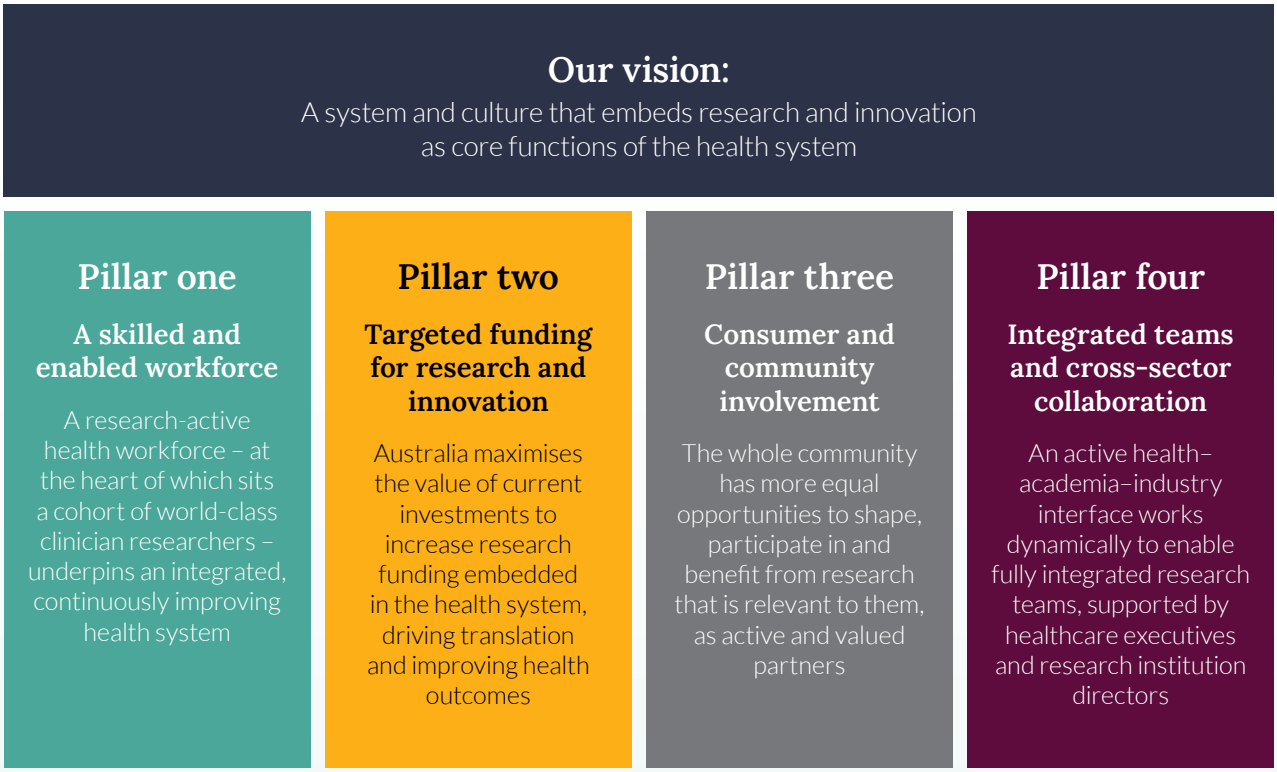

Figure 1: The Academy's vision for embedding research and innovation in the health system and the four underlying pillars for delivering that vision

Current challenges facing the health system

Australia's health system delivers high-quality care, and our population experiences an above-average overall health status compared to other OECD countries.[1] Nevertheless, the system faces considerable challenges. Many of these are not unique to Australia, but rather, signify the emergence globally of more complex health needs over time. Our population is ageing, and many more people are living with chronic and complex conditions, increasing demand on health services. One in five people in Australia have experienced a mental health condition, and there are considerable inequities in health outcomes and access to care.[2–5] Antimicrobial resistance is a growing threat, and climate change is an urgent health priority. New technologies are continually evolving and offer opportunities for better health, but must be integrated appropriately to reap the benefits.

Additionally, we face new health issues, with the COVID-19 pandemic providing a stark example of the additional health burden that an unexpected disease outbreak can create.[6] The pandemic has taken its toll on Australia's health system and on the staff who provide world-class care to Australians every day – further exacerbating existing issues, reflecting international experience.7 There have been delays in surgery, increased demands on emergency departments resulting in capacity overflow and ambulance ramping, and staff reports of very challenging work environments with high levels of burnout.[6,7]

A combination of these and other factors have led to an inevitable increase in the costs of maintaining a quality, safe and affordable health system for all.

Health system expenditure is rising faster than economic growth and is predicted to do so until 2030 in almost every OECD country.[8] Australia is no exception – we currently spend 10.2% of GDP on

health, and the OECD projects that this will rise to 13% by 2030.[1,9] Compounding this trend of increasing expenditure, it has been estimated that, on average, only 60% of healthcare aligns with evidence or consensus-based guidelines.[10] Within the remaining 40% a considerable amount is comprised of some form of waste or is of low value (30%) and, alarmingly, 10% of care is associated with harm.[10] This suggests that there are inefficiencies in the system, and illustrates the urgent need to get research translation right. This is more likely to happen where research and innovation are integral to healthcare delivery.

We believe that hospitals and health services can better integrate and invest in research and innovation to drive and sustain improvements for the whole population.

Research and innovation to drive improvement in health

Embedding high quality research and innovation in healthcare can fast-track Australia's efforts to rise to the multiple challenges facing the health system outlined above. Implementing health and medical research findings throughout the health system will result in improved health outcomes. Despite the current economic climate, Australia can, with the right focus and strategies, use existing resources in health, research and innovation to improve health outcomes.

International evidence tells us that research-rich health environments are better for patients and staff, delivering higher quality of care, reduced mortality, improved patient experience, increased staff satisfaction, and more efficient uptake of new innovations (as explained in Chapter 2). Indeed, a culture of enquiry and improvement in health delivery settings brings benefits that:

- extend beyond the patient population involved in a particular trial or study
- are not restricted to academic or university-affiliated services, but are also seen in smaller local hospitals, primary care settings and public health systems.
- cannot simply be attributed to practical factors that might be associated with research activity, but relate to the presence of research and clinician researchers
- occur across a range of specialties and disease areas.

We know this is also an approach that patients and the public support. Australian consumers consistently rank health, including health research and innovation, among the most important areas for public investment, recognising the value of health and medical research in delivering societal benefits.[11] Data from 2022 show that most Australians think medical research is vitally important to the country's future, and 83% agree that medical research plays a critical role in securing Australia's health and prosperity.[12]

> "By taking part in a clinical trial, I can contribute to the advancement of scientific knowledge and in some cases improve health for myself and others"
>
> Roundtable participant (consumer)

In short: research and innovation should be core functions of the health system, and integral to patient care.

Building a health system in which research and innovation are better integrated will also benefit research institutions and help Australia reap economic benefits, since we know that, at the national level, investing in health research and innovation:[13–17]

- drives economic growth and productivity
- creates jobs
- opens up opportunities for commercialisation and inward investment.

How can Australia harness these benefits to improve health?

Australia has established a strong platform for reaping the benefits of research to improve the health of our patients and communities. It is home to a vibrant health and medical research and innovation ecosystem.[18–20] Australia's researchers are some of the best in the world. Discoveries and innovations here in Australia have had profound impacts on health at home and globally. This has been brought into sharp focus by the pandemic. Never has the importance of being able to efficiently undertake and translate research in a health setting been so clear, and so dependent on basic biomedical research – translation is not possible without discovery.

However, as a nation we are not reaching our full potential of making research and innovation core functions of the health system. There are barriers that prevent us from doing so, which need to be addressed. Throughout our project, we heard the same message from across sectors, disciplines, professions and career stages: the key is an organisational culture that values research and innovation. One senior healthcare executive summed it up when they said, "I think when it comes to setting up a good system that supports research, it starts with leadership, it starts with having the right culture, and having a vision and strategy that embeds research into it."

The health system does not currently harness all the benefits that research and innovation offer. We have not put in place the mechanisms to underpin such a culture. For instance, clinician researchers (who combine clinical and academic roles) are central to a workforce that can embed research in the health system. At present, we do not know how many clinician researchers there are in Australia, and they have no clear training pathway and face many barriers in pursuing this career path.

The contribution of federal, state and territory government expenditure to health and medical research is not clear, making it difficult to assess the efficiency of the system, where the investment is occurring and who is paying. In addition, coordination across the research pipeline from bench to bedside, and then into clinical practice and health policy, is not set up to enable innovation for patient benefit. This is indicative of the need for better integration across the fragmented components of Australia's system – across state, territory and federal governments, public and private health services, primary and acute care, public health, rural, regional, remote and urban settings, and at the academia–health–industry interface.

> "We know that all the best hospitals around the world are academic hospitals that are renowned for their research."
>
> Roundtable participant (healthcare executive)

These challenges are not new. Researchers, health professionals and others across the sector have been calling for this for decades – for instance, many of the same issues were raised in the 2013 McKeon Review.[21] Many positive changes have been implemented as a result, but there is still much work to be done, especially at the interface of health, academia and industry.

Our three-year plan involves 14 Recommendations. While all recommendations are equally important, to facilitate planning and delivery, we identify the priorities that are most urgent — an overarching recommendation and one recommendation under each of our four pillars:

- The Australian Government and the state and territory governments should establish an inclusive, continuing mechanism that is empowered to develop and implement strategies for embedding research and innovation as core functions of the health system. An Australian alliance for transforming healthcare through research would bring key partners together to enable collective working towards this aim.

- The Australian Federal Government should develop a national strategy and implementation plan for building a world-class clinician researcher workforce, including a formal, harmonised clinician researcher training and career pathway. The strategy should be developed in partnership with state and territory health departments, and should address issues such as the need for a standard dual employment contract template for clinician researchers.
- The Australian Federal Government should introduce a mechanism for stronger strategic harmonisation between funders, particularly the NHMRC and the MRFF, so that there is an optimal coordinated research response to established and new threats to the nation's health.
- A more consistently applied framework should be developed to improve and broaden consumer and community involvement in health and medical research. An Australian alliance for transforming healthcare through research would provide the leadership necessary to achieve this outcome. This work should be supported from the outset by consumer members and a consumer advisory panel.
- The NHMRC-accredited Research Translation Centres should receive meaningful, continuing funding to stimulate the formation of integrated research teams at their local health–academia–industry interface.

The role of the Academy

Our vision, described in this report, will help cultivate a system and culture that embeds research and innovation as core functions of the health system. It is based on a wide-ranging evidence-collection process that drew on the expertise, perspectives and lived experience of individuals from across health, academia, industry, government and consumers, as well as evidence from national and international literature.

We are deeply committed to advancing this important agenda, and throughout this report, we outline our own commitments, as Australia's Learned Academy for the health and medical sciences, to support this work. We will work in partnership with all relevant stakeholders to bring our vision to fruition and ultimately benefit of the nation's health.

EXAMPLES OF CURRENT HEALTH SYSTEM CHALLENGES AND PRESSURES

Ageing population
Proportion of Australians aged over 65 will increase from 16% today to as high as 23% in 2066

Chronic diseases
50% of the population have at least one chronic condition

Mental health
1 in 5 Australians have experienced a mental health condition

Managing demand
50% of patients waited at least 48 days for elective surgery in 2020-21

Infectious diseases
COVID-19 state and territory health responses and vaccine rollout have cost the Australian Government $11.6bn

To solve these challenges research and innovation must be embedded as core functions of the health system through:

- A skilled and enabled workforce
- Targeted funding for research and innovation
- Consumer and community involvement
- Integrated teams and cross-sector collaboration

TRANSFORMING HEALTH

- Better quality of care for all
- More evidence-based care and less waste
- Responding to community appetite for research
- Access to cutting edge treatments
- More efficient uptake of new treatments
- Lower mortality
- Better patient experience
- Higher staff satisfaction

Sources:
Ageing: bit.ly/vision-ageing Chronic diseases: bit.ly/vision-chronicdiseases Mental health: bit.ly/vision-mentalhealth Managing demand: bit.ly/vision-demand Infectious diseases: bit.ly/vision-IDs

Recommendations

The Academy proposes these recommendations as a three-year plan, with five key priorities identified for more urgent action. We are keen to work with partners to advance these recommendations, and will undertake an evaluation at the halfway point to track progress.

Overarching

1. PRIORITY: **The Australian Government and the state and territory governments should establish an i and innovation as core functions of the health system. An Australian alliance for transforming healthc**

Pillar one: A skilled and enabled workforce

2. PRIORITY: **The Australian Federal Government should develop a national strategy and implementation plan for building a world-class clinician researcher workforce, including a formal, harmonised clinician researcher training and career pathway. The strategy should be developed in partnership with state and territory health departments, and should address issues such as the need for a standard dual employment contract template for clinician researchers.**

3. Academic institutions and health service providers should work in partnership to support and grow the clinician researcher workforce by establishing formal clinician researcher positions that incorporate time in clinical service and research, and allow for flexible arrangements for different individuals.

4. Professional bodies should work with governments to develop clinician researcher training pathways and implementation plans that deliver clear provision of functional pathways across the full spectrum of clinical training.

- For medicine, this means working with the Specialist Medical Colleges, which should provide flexibility for clinical trainees to take up research training opportunities, and should appropriately recognise and incentivise research activity and its implementation as part of training and continuing professional development.
- For nursing, midwifery and allied health, this means working with universities, state and territory health departments, health providers and industrial bodies to develop systems and structures that enable individuals who undertake research training to continue their careers as clinicians.

5. For health professionals undertaking research, but not formally as clinician researchers, health providers should recognise these activities as a core part of position descriptions, and should allocate dedicated time for these endeavours.

Pillar two: Targeted funding for research and innovation

6. The Australian Federal Government should increase the NHMRC's budget beyond indexation over the next five years to return investment to at least 2010 levels in real terms.

7. PRIORITY: **The Australian Federal Government should introduce a mechanism for stronger strategic harmonisation between funders, particularly the NHMRC and the MRFF, so that there is an optimal coordinated research response to established and new threats to the nation's health.**

8. The Australian Federal Government should provide greater transparency in the use of public funds for health and medical research, to ensure optimal alignment between national priorities for research and the application of resources.

recommendation

nclusive, continuing mechanism that is empowered to develop and implement strategies for embedding research
are through research would bring key partners together to enable collective working towards this aim.

Pillar three: Consumer and community involvement

9. PRIORITY: **A more consistently applied framework should be developed to improve and broaden consumer and community involvement in health and medical research. An Australian alliance for transforming healthcare through research would provide the leadership necessary to achieve this outcome. This work should be supported from the outset by consumer members and a consumer advisory panel.**

10. Health and medical research funders should allow the costs of consumer and community involvement to be included in grant proposals as direct research costs, and should work towards including consumer and community involvement as an essential element of relevant research projects, ultimately making it a criterion for success of those applications.

11. Those measuring research impact and researcher track records should incorporate measurements that place greater value on work to develop community and consumer involvement, including with priority populations such as Aboriginal and Torres Strait Islander communities – as an acknowledgment of not only the importance of these endeavours, but also the time commitment required to do them meaningfully. Examples of where this is needed include:

- criteria that research institutions use for staff promotions
- prioritising advice from NHMRC Consumer and Community Advisory Group (CCAG) in relation to NHMRC funding mechanisms
- criteria applied to MRFF funding mechanisms
- Australian Research Council (ARC) Engagement and Impact Assessment.

Pillar four: Integrated teams and cross-sector collaboration

12. PRIORITY: **The NHMRC-accredited Research Translation Centres should receive meaningful, continuing funding to stimulate the formation of integrated research teams at their local health–academia–industry interface.**

13. The health and medical sciences sector should establish targeted programs to build a generation of cross-sector knowledge brokers who can collaborate and mobilise across health, academia and industry to drive Australian research and innovation in health and medicine.

14. Healthcare providers and academic institutions should collect and publish data on the clinician researcher workforce.

Working group and review group membership

Working group

The Academy is most grateful to the working group members who gave their time, energy and expertise to this project between March 2021 and September 2022.

Note: Working group members participated in a personal capacity and not on behalf of their affiliated organisations or other roles. Job titles and affiliations were correct at the time of publication.

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Review group

This report was reviewed by an independent group of experts appointed by the Academy's Executive and Council, and chaired by a member of the Academy's Executive. Reviewers were asked to assess whether the report delivered on the project terms of reference, and to consider whether the evidence and arguments presented in the report were robust and supported the conclusions. Reviewers were not asked to approve or endorse the final report or its findings and recommendations.

The Academy is most grateful to the members of the review group for their thorough analysis of the report's contents.

Note: Reviewers participated in a personal capacity and not on behalf of their affiliated organisations or other roles. Job titles and affiliations were correct at the time of publication.

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