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Where to for digital health? The Australian Council of Senior Academic Leaders in Digital Health action plan

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ABSTRACT

Australia's healthcare system faces major challenges related to sustainability, access and equity. Safe, effective care and growing demands require evidence-based innovation and a future-ready health workforce. Digital health – the use of data and digital technology in health and health care – is yet to fully realise its promise. The Australian Council of Senior Academic Leaders in Digital Health (the 'Council') has been established to promote, foster and support academic collaboration that helps address Australia's key challenges and contribute to national and global health. This perspective provides an action plan in a crowded digital health landscape to improve the highlighted issues of effective innovation and a capable workforce. The Council has two key actions: (1) support research and innovation that advances digital health principles and practices by advocating for digital health research and development funding, strategic partnerships, communication, standard setting and adoption of research-informed digital health; and (2) enable system transformation through evidence-based education and training to produce future-fit healthcare workers by advancing health workforce education that embeds digital health capability standards and ongoing learning. True and transformative progress and continuous improvement in digital health require peer-reviewed evidence, as does any other area of health care. We need to acknowledge that our current workforce capabilities are no longer fit for purpose. Our workforce needs to be progressively 'retooled' to face the future of health care in a technological and data science revolution and in a sector that is slow to adapt to change. Implementing these actions will advance digital health research and education to positively impact Australia's healthcare system.

Keywords: academia, digital health, education, health informatics, health personnel, health workforce, innovation, research, training programs.

Background

Australia's healthcare system faces many challenges, including increasing consumer demands, an ageing population and declining workforce participation rates.[1] Significant disparities exist in disease severity, access to care and health outcomes. Aboriginal and Torres Strait Islander peoples, rural and remote communities, and people of lower socio-economic status, currently experience shorter life expectancies, higher disease burden and more preventable hospitalisations.[1]

Despite the promise of digital technologies to improve health care, the patient experience remains fragmented,[1] and these advancements have, in some cases, exacerbated existing

Table 1. Differentiating training and education approaches in digital health, adapted from.[13]

Domain	Training	Education
Purpose	To teach specific vocational skills or behaviours	To create new intellectual frameworks to enable comprehensive knowledge generation, critical thinking and translation
Provider	Health sector	Academic sector
Example skill	How to enter a note into an electronic medical record	How to implement precision medicine from connected clinical datasets
Positive impacts	Allows tasks to be completed	Allows new knowledge creation and critical thinking
Negative impacts	Is task focused so does not facilitate innovation or enable the creation of new knowledge	Is expensive and time consuming

inequalities.[2] As 9.4% of Australians remain highly digitally excluded, the need to effectively apply data science and digital technology to strengthen healthcare delivery and health outcomes has never been greater.[3]

While digital health is an evolving field of knowledge and practice, its transformative potential has yet to be fully realised. Australia's National Digital Health Strategy,[4] roadmaps,[5,6] action plans[7,8] and blueprints[9] define how this will happen through cross-sector partnerships. A national academic collaborative provides a new point of access to the expertise of Australia's academic sector.

This paper reports the action plan for the Australian Council of Senior Academic Leaders in Digital Health (the 'Council') across two priority healthcare challenges that require urgent attention in Australia:

1. Supporting digital health research and innovation to contribute to and accelerate the adoption of known and emerging benefits and evidence aligned with health system priorities.
2. Train and educate a future-fit health workforce that can confidently adapt to evolving demands, technologies and opportunities.

Challenge 1: digital health research and innovation

Improving Australia's health system requires research and effective translation. Despite over A$950 million in federal investment for digital health innovation in the 2023–24 budget,[9,10] there are critical limitations in storing and sharing health information for research;[5,10] embracing emerging technologies, such as artificial intelligence;[5] and monitoring outcomes at scale.[5] Dedicated funding for multidisciplinary digital health research and academic–industry collaboration is limited.

Challenge 2: digital health education and workforce

Australia's health workers are not prepared for digital health care. By 2050, health workers will need to provide four times the current level of service to meet anticipated demands.[1]

Fig. 1. Quintuple aims of health care, adapted from.[14]

Digital transformation has highlighted the significant impact on provider well-being,[11] a lack of interdisciplinary leadership in digital health care and an inability to harness digital capabilities for better patient care.[10] In total, 40% of healthcare providers identified inadequate training and education as a barrier to adopting digital technologies.[12] Successful digital transformation of the health system requires investment in people, not just technology.[10] There is often confusion between training and education when upskilling a healthcare workforce[13] (Table 1).

The opportunity

Digital health is a powerful, transdisciplinary tool that can revolutionise health care and deliver the quintuple aim: improving population health, improving care team wellbeing, advancing health equity, improving the patient experience and reducing costs (Fig. 1).[14] The quintuple aim of health care is now recognised as a comprehensive framework for evaluating the diverse outcomes of digital health initiatives.[15] This framework carefully considers various stakeholders, maximises value and minimises potential drawbacks in the pursuit of digital health transformation.[16,17] As digital health evolves, peer-reviewed evidence is increasingly needed to support

healthcare workforce capabilities, roles and ways of working. The need for interdisciplinary collaboration in the systematic design, development and introduction of digital health curricula in health workforce education is recognised on a global scale.[18,19] Peer-reviewed academic evidence is vital to successfully deliver the vision of Australia's digital health future,[4–9] contributing to the health and economic prosperity of all Australians.

Harnessing transdisciplinary academia

Advancing digital health transformation in Australia requires effective engagement with the necessary range of academic expertise across and within our universities. The transdisciplinary nature of research, translation, development and implementation of digital health requires expertise from a broad range of academic domains, including data science, engineering, health professions, public health, healthcare management, business and commercial acumen and ethico-legal expertise. Efforts by governments, health providers, industry and other stakeholders often face difficulty in gaining transdisciplinary views or collective perspectives. Globally, the development and uptake of digital health benefits from cross-sectoral efforts from academia and industry[20] where practitioners and researchers have fruitful collaborations in understanding the complexities of digital transformation in health care.[21] Academic alliances with universities are essential to drive collective action and progress in health care.

Establishment of the Australian Council of Senior Academic Leaders in Digital Health

An environmental scan of a range of 'Deans councils' across disciplines revealed valuable lessons for establishing a digital health council in Australia. Integrating cross-disciplinary collaboration, clear leadership structures, strong governance, evidence-based decision-making, inclusivity, transparency and shared strategic oversight for long-term success and sustainability were supported by the Academic Leaders Digital Health Forum and a proposed Terms of Reference agreed and approved by the Digital Health Cooperative Research Centre (DHCRC) Board as the administering auspice.

The DHCRC formed the Council in 2024 to harness combined academic power to advance digital technology, informatics, and data science and its application to health in Australia. The Council has representation across all Australian jurisdictions and 37 member universities (Table 2). Recommendations for prioritised action by the Council and its collaborators were developed by analysis of meeting minutes ($n = 7$) and Terms of Reference documents ($n = 3$). A draft version of the actions was circulated to Executive members and iteratively formulated using a modified Delphi method.

Table 2. Member universities of the Australian Council of Senior Academic Leaders in Digital Health.

	University	State/territory
1	Australian Catholic University	New South Wales
2	Bond University	Queensland
3	Central Queensland University	Queensland
4	Charles Darwin University	Northern Territory
5	Charles Sturt University	New South Wales
6	Curtin University	Western Australia
7	Deakin University	Victoria
8	Edith Cown University	Western Australia
9	Federation University Australia	Victoria
10	Flinders University	South Australia
11	Griffith University	Queensland
12	James Cook University	Queensland
13	La Trobe University	Victoria
14	Macquarie University	New South Wales
15	Monash University	Victoria
16	Murdoch University	Western Australia
17	Queensland University of Technology	Queensland
18	RMIT University	Victoria
19	Southern Cross University	New South Wales
20	Swinburne University of Technology	Victoria
21	The Australian National University	Australian Capital Territory
22	The University of Melbourne	Victoria
23	The University of Newcastle	New South Wales
24	The University of Notre Dame Australia	Western Australia
25	The University of Queensland	Queensland
26	The University of Sydney	New South Wales
27	The University of Western Australia	Western Australia
28	University of Canberra	Australian Capital Territory
29	University of New England	New South Wales
30	University of South Australia	South Australia
31	University of Southern Queensland	Queensland
32	University of Tasmania	Tasmania
33	University of Technology Sydney	New South Wales
34	University of the Sunshine Coast	Queensland
35	University of Wollongong	New South Wales
36	University of New South Wales	New South Wales
37	Western Sydney University	New South Wales

Box 1. **Action plan of the Council**

Action 1. Support research and innovation that advances digital health principles and practices.
Action 1.1. Advocate and influence for digital health research and development funding through strategic partnerships and communications.

- Action 1.1.1. Promote large-scale investment in digital health research in partnership with national digital health groups.
- Action 1.1.2. Ensure digital health research is prioritised in government agendas through appropriate funding allocation for multidisciplinary work, inclusion of digital health experts and best practices in data management.

Action 1.2. Advocate for research-informed digital health through innovation, standard setting and adoption.

- Action 1.2.1. Collaborate with health services and peak bodies to drive evidence-based improvements in digital health to deliver on the quintuple aim outcomes.
- Action 1.2.2. Engage with industry, vendors and government to translate digital health research into evidence-informed practice and products.

Action 2. Enable system transformation through research and education to produce future-fit healthcare workers.
Action 2.1. Advance health workforce education.

- Action 2.1.1. Define a national core curriculum for digital health incorporating contemporary modes of education delivery to make these skills standardised, ubiquitous, and contemporary across roles and geography.
- Action 2.1.2. Curate and disseminate training options to uplift the digital health capabilities of the existing health workforce.
- Action 2.1.3. Define training pathways for the specialist digital health workforce.
- Action 2.1.4. Oversee and provide guidance to the implementation of the national Clinical Informatics Fellowship program.

Action 2.2. Embed digital health capability standards.

- Action 2.2.1. In collaboration with the sector, critique and evaluate standards for core digital health capabilities and skills training for the health workforce with national peak bodies according to an agreed priority framework.
- Action 2.2.2. Advise on the integration of digital health capabilities into health profession training through key initiatives.
- Action 2.2.3. Develop and maintain accreditation standards and evaluate specialist digital health training in line with these standards.

Action plan

The Council action plan outlines the following priority actions to advance digital health research and education in Australia to improve healthcare outcomes (Box 1). Contributing to this agenda is the Council collaborating with the Australian Digital Health Agency to embed digital health education into university degrees. The initiative involves the development of nationally standardised core topics and learning plans through wide engagement with higher education providers, healthcare stakeholders and digital health subject matter experts. These education resources can then be customised locally to be embedded within undergraduate health degree curriculum of individual universities.

Conclusion

The Council is committed to providing strategic leadership and collective action to foster digital health advancements across Australia's health and education sectors. This coordinated effort, in partnership with others, aims to address key challenges for sustainable, equitable, high-quality health care for all Australians.

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