

The role of technology in active ageing

Australia needs to embrace digital health technologies and focus on data integration and standardisation

The vision

A combination of good healthcare practice and affordability of new technologies will achieve a more equitable and sustainable healthcare system. The Academy envisages a future in which health data is integrated and standardised across the sector, which will generate efficiency gains and significantly reduce costs.

The ability to collect robust longitudinal population and individual data will enable healthcare providers to implement targeted and effective approaches to healthcare that have proven outcomes. This will also drive consumer-directed care, to ensure that patients are making informed choices and are at the centre of their healthcare. As consumers become more empowered through greater access to their health data, the Academy envisages patients taking more responsibility for their healthcare. This will result in decreased prevalence of lifestyle-related diseases leading to lower hospital admissions.

The health challenges of Australia's ageing population

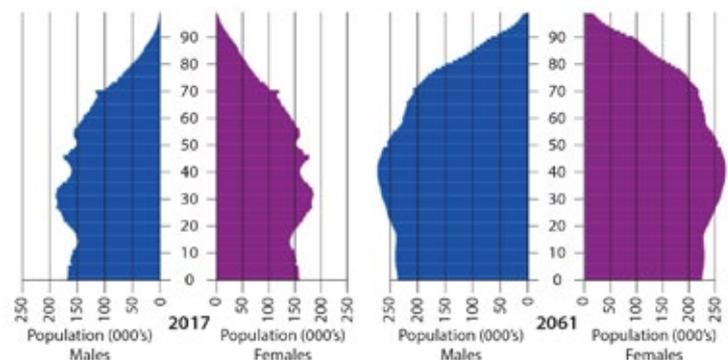
The Academy explored the challenges that underpin an ageing population at the 2017 the Academy National Technology Challenges Dialogue: *The Crisis in Ageing - Technology to manage the challenges in healthcare*¹. Dialogue discussions identified that new technologies are being developed to address emerging and existing healthcare issues, but unlike in other sectors, these technologies often do not necessarily lead to cost savings.

Figure 1 illustrates Australia's increasingly ageing population, which is resulting in escalating costs for the healthcare system. According to the Australian Institute of Health and Welfare (AIHW), healthcare accounted for 9.7 per cent of Australia's GDP in 2014-2015, and total expenditure is expected to almost double from \$166 billion in 2015 to \$320 billion by 2035.

With the rise of new expensive technologies, the accessibility of these technologies to the entire population becomes problematic. Unless these technologies are subsidised by the government, only a small proportion of the population will be able to afford these treatments, creating equity issues in the healthcare system.

Although the issue of age-related morbidity is not new, the period of morbidity has shifted because life expectancy has increased. Healthcare in the last four to five years of life accounts for the dominant costs of ageing-associated healthcare, particularly with increased uptake of costly new technologies. The period of end-of-life morbidity will become an increasing issue in the coming decades as the 'Baby Boomer' generation age.

Figure 1: Age structure of Australia in 2017 and projected structure in 2061.



Source: Australian Bureau of Statistics.

Technology is widely used in hospitals to prolong life, but few technologies address quality of life. This is partly due to limited measurement of technologies' return on investment in terms of quality of life, rather than delayed mortality. A large proportion of hospital intensive care unit beds are taken up by elderly patients. Over 70 percent of Australians die in acute care; however, surveys show that approximately 70 per cent of people want to die at home. There are currently significant barriers to achieving in-home end-of-life healthcare, and there are minimal incentives for health professionals to enable in-home care.

The challenge

Australia's healthcare system includes both real and perceived barriers to embracing digital health technologies. This often results from misunderstanding or ineffective use of health data by both practitioners and consumers. The Academy has identified four major challenges that Australia must tackle in order to achieve a more efficient, reliable and equitable healthcare system.

1. The 2017 Dialogue was held on 14-15 June in Brisbane. It consisted of one day of presentations and discussion from healthcare experts, followed by a half-day workshop that examined how health technology can aid adaptation to an ageing population, in order to mitigate the issues of rising and changing healthcare costs and needs.

Community lack of trust in the system

AIHW estimates that only 41 per cent of Australians aged 15–74 have a health literacy that is considered adequate. This lack of understanding, especially in the elderly community, significantly impacts the ability for patients and carers to make informed decisions. Owing to a lack of trust, many patients and clinicians have substantial privacy concerns for personal medical data, which limits the uptake of digitised health record systems. Furthermore, patients often have very limited choice of care and treatment once they have been hospitalised, and there are issues with communication to patients on all their viable options.

Lack of data integration

The sector has three health systems: federal, state and private, all of which utilise different methods for data collection and collation. Diagnostics, interventions, GPs, specialists, pharmacists and hospitals mostly work in silos and these various systems do not communicate effectively with one another. This often results in substantial duplication of procedures and tests, which adds to healthcare costs and patient burden. While attempts have been made with My Health Record to link data systems, this has so far had very limited adoption and led to very limited benefits compared to the large costs (over \$1 billion) involved in setting up the system to date. Those consumers who have joined have often found that there is no data uploaded to their accounts.

Regulation

Australia needs innovation-ready health regulators to stay up-to-date with emerging health technologies. Often Australia relies on other first-in-world regulators to approve technologies. We need to be a respected first-in-world regulatory system if we are to grow innovation into competitive Australian businesses. For example, software cannot be tested for efficacy using the same traditional methods as for other medicine. Artificial intelligence (AI) works in a non-linear fashion, which means that the decision process from input to output is not trackable. A key challenge for the sector is developing regulation around AI-based technologies. This also leads to the issue of liability: who is responsible when something goes wrong?

Development and uptake of technologies by the sector

Most hospitals across Australia still predominantly use hand-written notes and fax machines to collect patient information (often for regulatory reasons), along with other outdated systems. Furthermore, while Australia has a strong track-record of conducting high-quality research in the health sector, it is well behind in the final implementation stage in terms of translation and commercialisation. Widespread upgrading to new health technologies will require significantly greater investment from both the public and private sectors.

The way forward

The Academy will engage with the Australian Digital Health Agency, Standards Australia, the other Learned Academies and relevant medical and allied health professional bodies to advocate for the following recommendations:

1. Standardisation and integration of data collection and sharing

- » Collect longitudinal data on healthcare procedure outcomes to ensure procedures and interventions are effective and evidence-based.
- » Share electronic health records between healthcare facilities. Detailed data from all healthcare providers should be integrated in an improved version of My Health Record that encompasses all facets of the patient's health care.
- » Enable the integration of data from sources outside the health system (e.g. fitness and wellness data) into My Health Record.

2. Consumer empowerment

- » Support efforts to move the My Health Record system to opt-out participation while allowing consumers full control over their records, controlling what data goes in and who has access to it.
- » Provide evidence-based information on costs and benefits of procedures to consumers, so they can make informed choices to maximise their quality of life.
- » Immediately implement software for consumers and their carers to develop an electronic end-of-life plan in advance. This process should involve honest discussions with healthcare professionals about consumer choices, be flexible and be incorporated into My Health Record once it is updated.
- » Conduct ongoing public engagement regarding digital health, to ensure the public is educated in their healthcare options.

3. Greater investment in preventative technologies, to improve quality of life and reduce healthcare costs

- » Incentivise extensive uptake of in-home technology, in order to reduce hospital costs and encourage people to receive healthcare at home.
- » Encourage the maintenance of health and wellbeing through community-based and home-based provision of wellness services for the aged.