Australia's digital health journey

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New digital health services and technologies are transforming how health care is provided and experienced in Australia

The health care industry is one of the last industries to be disrupted by digital technologies. It arguably has the most to gain, particularly from timely, accurate communication and clinical improvements, especially medication safety. In 2013, a literature review on medication safety in Australia[1] suggested that the potential cost of medication-related hospital admissions in 2011–12 was about $1.2 billion.

The landscape is changing. Over the past two decades, Australia has witnessed digital health services and technologies transform the way in which health care is provided and experienced (Box). These changes have been prefaced with a focus on clinical safety, quality improvement, privacy and confidentiality, and are delivering significant health system efficiencies and clinical benefits. This article reflects on that journey.

In the early 1990s, each state and territory in Australia progressively updated its poisons regulations to allow for computer-generated prescription writing. In this environment, innovation from the private sector saw MedicalDirector and Genie Solutions software deliver computer prescribing to the general practice community. There were immediate quality improvement and safety benefits, with improved completeness and legibility of medical records leading to fewer prescribing, dispensing and administration errors.[2]

Later in the 1990s, the General Practice Strategy Review Group[3] further promoted the computerisation of general practice, leading to Australian government funding of the General Practice Computing Group. Computerisation was incorporated into the Practice Incentive Program[4] with gradually increasing prerequisites over time. Strong leadership from the medical profession and government financial incentives drove high levels of computerisation in Australian general practice and supported progressive digital uptake.[5]

General practitioner clinical information systems began to include allergies and adverse drug reactions and medical history. This allowed GPs to compose more comprehensive referral letters, which substantially improved the safe transition of care to other parts of the health system for the majority of patients. When the ability to receive diagnostic results and reports was added, additional cost savings from administrative efficiencies were realised, adding momentum to the movement away from information silos.

The stark reality of the cost of siloed health information was signalled by Burgess and colleagues,[6] who detailed an alarming rise in hospitalisations for adverse drug reactions between 1991 and 2002. In light of these findings, governments supported the MediConnect (2000) and HealthConnect (2004) programs to enable and encourage the use of electronic communication to improve information transfer and safety and quality in health care.[7]

In 2003, the Australian Health Ministers' Advisory Council was established to deliver a national action plan. They proposed a joint federal, state and territory funded body to develop common building blocks for a national e-health system.[8]

The National E-Health Transition Authority (NEHTA) was established in July 2005 to accelerate the adoption of an electronic health information system across Australia. To achieve an

Digital health milestones

Year	Milestone
1993	MedicalDirector and Genie Solution prescribing software developed
1998	General Practice Strategy Review Group recommends computerisation for general practitioners
2000	MediConnect initiative launched, aiming to provide a national electronic medication record
2003	National Action Plan for Health Information proposed a jointly funded body to develop the building blocks for a national e-health system
2004	MediConnect incorporated into HealthConnect program — focus changed to supporting existing state-based projects to achieve national interoperability
2005	National E-Health Transition Authority (NEHTA) established to develop the specifications, standards and infrastructure for an interconnected health sector, and create unique health care identifiers for all individuals, providers and organisations (still in use)
2008	National E-Health Strategy endorsed, leveraging learnings from HealthConnect and building on the NEHTA specifications
2012	Personally Controlled Electronic Health Record (PCEHR) launched
2014	Review of PCEHR identifies obstacles to its uptake and recommends a new governance structure, a name change to My Health Record, richer clinical content and a move to an opt-out model of uptake
2015	My eHealth Record in the Northern Territory — evaluation report showed exponential increase in usage and benefits, once critical mass was reached
2016	Australian Digital Health Agency established; PCEHR renamed My Health Record
2017	Evaluation of My Health Record opt-out trials in North Queensland and the Nepean Blue Mountains of New South Wales supported recommendation to move to an opt-out model
2017	Australian Digital Health Agency delivers National Digital Health Strategy aimed at laying a common digital health foundation, in which patients, carers and health care providers are engaged, and on which government industry and researchers can innovate
2019	All Australians have a My Health Record, unless they choose not to

interconnected health sector, NEHTA developed specifications, standards and infrastructure; selected a common language for health communications; and created unique health care identification numbers for all individuals, providers and organisations.[9]

In 2008, the Australian Health Ministers' Advisory Council endorsed the National E-Health Strategy[10] to increase national momentum and build on the NEHTA foundations.

In July 2012, NEHTA launched the Personally Controlled Electronic Health Record (PCEHR) after extensive consultation on its concept of operations, to more fully engage patients and their carers in the digital health journey. The PCEHR could contain clinical documents, test results, information added by the individual, and Medicare, Pharmaceutical Benefits Scheme and immunisation data.[11]

PCEHR uptake and utilisation by the medical profession was hampered by several challenges, including a distrust of computer systems in general, lack of complete integration into clinical information systems, a lack of useful clinical content, concerns about privacy and security, the impact of patient controls, and poor uptake in the population.[9,12]

In 2014, the then federal Health Minister Peter Dutton commissioned a review into the PCEHR to identify and mitigate these issues. The review recommended a move to an opt-out system rather than opt-in; renaming the PCEHR as My Health Record; a significant governance change leading to the establishment of the Australian Digital Health Agency in July 2016; a renewed focus on inclusion of meaningful clinical content; and a much more transparent approach to safety and security.[12]

In 2017, the Agency consulted on and then delivered the National Digital Health Strategy,[13] which was subsequently approved by the Australian Health Ministers' Advisory Council. Federal, state and territory governments now are united in unambiguous support for digital health, improvements in the ease of use, the Practice Incentive Program eHealth Incentive, and progressive increases in the connection of public and private hospitals.

Over 6 million Australians have now registered for a My Health Record and these records contain growing volumes of clinically relevant information.[14] Variable levels of engagement with My Health Record continue, reflected by low levels of specialist computerisation, inconsistent levels of readiness in public and private hospitals, and variable user experience and engagement in general practice. GPs often use superseded versions of clinical software, which potentially degrade user experience and security, compounding their concern about lack of immediate benefit.

In 2019, the Australian Government is expanding My Health Record to all Australians (unless they choose not to have one). There will be significant increases in the volume of useful clinical information content with the opt-out expansion and, as a result, My Health Record is expected to reach critical mass and become progressively embedded in normal clinical workflow. This is exactly what happened with a My Health Record precursor — My eHealth Record in the Northern Territory (2015) — which showed that after critical mass was reached, there was an exponential increase in both its usage and its benefit to clinicians and patients.[14,15]

The goals of the National Digital Health Strategy include better care coordination and fewer preventable hospitalisations; improved self-care; reduced duplication and operating costs; and improved patient and provider experiences.[13] With relevant up-to-date information visible to all registered health professionals and the patient, it is likely that the goals of the national strategy will be realised much more quickly under the My Health Record system.

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