E-health in Australia: time to plunge into the 21st century

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ABSTRACT

- E-health is the health care buzzword of the moment, with a person-controlled electronic health record funded in the 2010 federal Budget and legislation to introduce health identifiers recently passed by Parliament. E-health can ease the patient journey, improve quality of care and reduce costs.
- Australia's health care system lags behind all other sectors of our economy in the use of computerised systems. While general practice and community pharmacy are highly computerised, the hospital sector is not.
- Adopting e-health is likely to result in higher quality practice, but general practice and hospitals need a mechanism for securely sharing patient data. Uncoordinated implementation of differing, incompatible systems within and between hospitals compounds a dire lack of national coordination of effort.
- Multiple funding streams and jurisdictions and the lack of an implementation strategy have slowed e-health development. Government programs underestimate the costs of change management and the need for training and technology. Confusion reigns about responsibilities, but governments must ensure connectivity between health care providers and recognise that the benefits will accrue into the future.
- The National E-Health Transition Authority has developed national open-access standards, and its foundation projects and the National Broadband Network are now coming into place.
- To ensure the clinical relevance, utility, safety and acceptability of e-health systems, health professionals urgently need technical capacity and expert guidance.

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E-health is the health care buzzword of the moment. Modern health care, like modern banking and other elements of society, requires a comprehensive, well structured information system. The final report of the National Health and Hospitals Reform Commission (NHHRC) made several strong recommendations for e-health, including the person-controlled electronic health record (PCEHR),[1] for which the federal government allocated $466.7 million over 2 years in its 2010 Budget. Despite widespread use of modern technology in general practice and community pharmacy, Australia's health care system lags behind all other sectors of our economy in the use of computerised systems. Currently, Australia sits in the middle in rankings of health systems among industrialised nations, and our use of modern electronic technologies for communication and clinical information transfer within health systems is low.[2] The poster child for e-health is Denmark, which has a comprehensive end-to-end system that has reduced some errors to almost zero and improved working conditions and health outcomes.[3,4] Positive information on e-health is also accumulating in Italy, the Czech Republic and Spain.[5]

Australian general practice has computerised rapidly, due to the combination of *need* (increasingly complex prescribing regulations), some financial *incentives* (the federal government's Practice Incentives Program [PIP] for general practitioners), the availability of relatively affordable software packages, reduced hardware costs, and *support* through divisions of general practice.[6] General practice now enjoys an almost complete uptake of computers on the desktop, which has created the largest electronic database of clinical information in the country. We also know that practices adopting e-health are likely to exhibit higher quality practice[7] and streamline their work processes, saving significant amounts of money over time.[8]

However, general practice has no mechanism for securely sharing electronic information, despite the PIP eHealth Initiative encouraging the use of public key infrastructure to encrypt information: a veritable "superhighway to nowhere". Further, although the business case for e-health is clear on efficiency grounds, there is no mechanism to encourage the use of this accessible, accurate and historically rich body of data for quality purposes.

The problems in hospital practice are different, mainly because of scale and the level of disconnection between those who use electronic tools for their work (patient care, research, planning, measuring and evaluating) and those who provide funding (local, regional, state and federal managers and legislators). The uncoordinated implementation of differing, incompatible systems within hospitals, between hospitals in a region and across boundaries compounds a dire lack of national coordination and so loses the benefits of drawing on expertise and knowledge across the nation.[9] The need–incentive–support triangle that was so effective in general practice is unbalanced in the hospital system. Most programs that look for hospital-wide adoption of e-health underestimate the cost of change management. They also suffer from lack of infrastructure and historical underfunding of information technologies. Simple processes, such as using computerised physician order entry, reducing drug usage and improving safety, can often increase efficiency in a single setting.[10] However, applied across the hospital system, these often increase the workload of "point-of-care" staff as they comply with computer-regulated protocols. E-health also reduces the use of resources, such as those required for outpatient visits.[11] The sum of the parts will lead to an overall improved patient care journey, better health outcomes and significant savings from more efficient use of human and other resources. But for any chance of success, these compelling benefits need to be underpinned by access to and training in the technology used, as in the Northern Territory (http://www.ehealth nt.nt.gov.au) and Victoria (http://www.barwonhealth.org.au).

The issues for governments are different again, because they need to balance the funding expense against the requirements of an electorate or stakeholder groups. Unlike general practices and hospitals, governments need to account for the interactions between health care providers. Given that modern health care is all about team-based care, this connectivity is an important feature, and a benefit that is often not realised within a single sector. The

potential benefits from connectivity are large, coming from fewer tests and reduced adverse outcomes.[12] The use of electronic health records (EHRs) may also bring significant cost benefits from improved efficiency and increased quality, which will accrue as the EHRs become more comprehensive.[13] The conundrum for governments is that they must outlay significant funding initially, in order to reap benefits that accrue into the future.[14] Funding more beds or more "machines that go ping" has more immediate and readily apparent beneficial consequences. However, longer-term thinking suggests that using modern electronic technologies in health care would allow more effective and efficient care and would reduce the trajectory of demand for new beds and overall expenditure. This would provide an avenue to maintain the sustainability of the system of the future.

The creation of the National E-Health Transition Authority (NEHTA) and its development of national open-access sets of standards has been a benefit. However, the multiplicity of funding streams and jurisdictions and the lack of an implementation strategy have combined to slow development, as any individual area can hide behind the "it's not my problem" defence. Confusion also reigns with regard to responsibilities. For instance, PCEHR funding resides with the federal government and not NEHTA, as has recently been stated.[15] What role the states will play and how to integrate the exchange of health information are unclear. Health reform and sustainability of our health system are about maintaining good health care and making improvements into the future. Good health care is quality health care, and e-health certainly has the potential to ease the patient journey, improve quality and reduce costs. However, governments need to acknowledge the initial investment required to purchase, implement, train for and maintain the technology.

Working from the top down is difficult, inflexible and prone to poor uptake. Building from the bottom up is haphazard and, without a national standard to unify effort, wasteful and ineffective. What seems to work best is a "middle out" approach,[16] in which governments build on and encourage existing functional (but outdated) legacy systems, and adopt a national standard with the intrinsic building blocks for the future (individual EHRs, e-health services, e-health solutions and national infrastructure components). The difficulty is that benefits will only accrue when a critical mass of the system is computerised and connected — in the future.

The first of many ambitious milestones set out in the NHHRC final report[1] was the introduction of health identifiers. This has now been legislated federally, and encompasses stringent privacy principles, with significant repercussions for breaches. The 2010–11 federal Budget signalled the availability of PCEHRs for all Australians by 2012. If government seeks to gain cost benefits for itself or health benefits for the community, a more integrated approach is needed. The difficulties of introducing a comprehensive e-health system are an example of how our fragmented health system cannot work across silos. To reap the benefits of e-health, the national role of NEHTA must be matched with a national implementation arm, with the ability to coordinate across the states and territories, and across the myriad private providers that administer the bulk of health care to Australians.

With the introduction of key infrastructure, including NEHTA's foundation projects and the National Broadband Network, the rubber is now set to hit the health superhighway. To ensure the clinical relevance, utility, safety and acceptability of e-health systems, health professionals urgently need technical capacity and expert guidance.

Competing interests

Christopher Pearce is Clinical Lead at NEHTA. Mukesh Haikerwal is Head of Clinical Unit and National Clinical Lead at NEHTA.

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