Improving the Digital Capabilities of Australia's Health Workforce: The National Digital Health Workforce and Education Roadmap

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Abstract. There is a need to improve the digital capabilities of the health workforce through training and education. Until now there has not been a national strategy that addresses the digital capability gaps in the existing and emerging health workforce. This paper describes the development of a national strategy to improve the digital capabilities of Australia's health workforce. A mixed-method approach was used to incorporate the findings of a literature review, stakeholder interviews, online and offline workshops, consumer interviews, and surveys to develop the national strategy. Various stakeholder groups across all Australian jurisdictions were engaged in its development. The final strategy consists of key principles, a three-horizon framework reflecting the maturity levels, and a digital profile framework articulating the expectations of the many stakeholders in health.

Keywords. digital health, strategy, workforce development, education

1. Introduction

The benefits of digital health technologies are significant and compelling. Used effectively, digital health technologies can save lives, as well as improve the health and wellbeing of all Australians [1]. Further, these technologies can support a sustainable health system that delivers safe, high quality, and effective health services [2].

Health leaders of today are faced with opportunities and challenges from an array of emerging technologies. These technologies are already profoundly changing the way healthcare is delivered, impacting traditional approaches to health occupations, tasks and functions. A confident and capable health workforce is required to realise the benefits of digital health technologies [1]. Significant investments to modernise health service delivery are being made. All Australian states and territories, and many healthcare providers, have prioritised digital health to improve service delivery and health outcomes.

This paper describes Australia's National Digital Health Workforce and Education Roadmap (the roadmap), which provides a framework for understanding the digital

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capability requirements for the health workforce. The roadmap anticipates how the application of digital technologies in health is likely to impact the workforce and education requirements in the short to medium term. It sets out a vision for how the workforce can be transformed over the next decade and beyond to realise the benefits promised by digital health technologies.

2. Background

Globally, much of the focus on digital health remains on the role of existing and emerging technologies, rather than the capabilities required for the workforce to use them effectively. This is despite the significant health workforce impacts that are already being experienced, and those that are being anticipated.

The United Kingdom has released the greatest number of health workforce publications in this area, most notably the Topol Report in 2019 [3]. Many countries are facing common challenges in the implementation of digital health services. In recent years, collaborations such as the Global Digital Health Partnership [4] have emerged in an effort to support governments and health system reformers to improve the health and wellbeing of their citizens through the best use of evidence-based digital technologies. Despite leadership and collaboration in digital health, very few health-specific digital capability and digital literacy frameworks have been developed internationally.

In Australia, while there are some innovative examples [5, 6], the digital health capability of the workforce is still emerging as an area of focus in the health, education and training sectors. The pressing need for recognised digital health training and education is supported by Australia's National Digital Health Strategy [1]. The Australian Digital Health Agency is tasked with implementing the strategy, in collaboration with the broader health sector, including the 'Workforce and Education' priority to support a 'workforce confidently using digital health technologies to deliver health and care' [1].

3. Methods

The roadmap was developed with wide stakeholder engagement and collaboration across the health and education sector in Australia, including a governance group to ensure appropriate oversight. Key activities included the following:

- Literature review
- Stakeholder interviews
- Consumer interviews
- Workshops
- Surveys

Public consultation culminated in the National Workforce and Education Summit, which was hosted by the Australian Digital Health Agency and the Digital Health Cooperative Research Centre in November 2019. Summit participants included representatives from federal, state and territory governments, consumer and clinical peaks, university and vocational education providers, researchers, primary health networks, clinicians, consumers and industry. Many summit participants were directly

engaged in the consultation process. Feedback obtained at the summit was incorporated into the final draft of the roadmap. The final roadmap was endorsed by all Australian states and territories in May 2020.

4. Results

The roadmap is a strategic document [7]. It reflects the reality that the education and training provided to the current and future health workforce must be re-shaped in order to meet the existing and emerging digital requirements, and that a partnership with the education sector is essential. This roadmap is designed to be broad in its application, covering the whole of the health workforce, including all clinical and non-clinical roles. The roadmap consists of:

1. Principles to enable change;
2. A three-horizon framework reflecting the maturity levels; and
3. A digital profile framework articulating the expectations of the many stakeholders in health.

These three main components of the roadmap are explained in the sections below.

4.1. Roadmap Principles for Change

The roadmap starts the process to conceptualise the changes required. Consequently, the key principles of the roadmap are as follows:

- National alignment, collaboration and accountability;
- Flexibility to respond to diverse digital technologies, digital maturity variations and operational environments;
- Leveraging of partnerships to drive innovation;
- Equity of access to healthcare for all Australians, acknowledging the requirement for 'digital inclusion';
- Ethical use of data and information;
- Responsiveness to government and community priorities; and
- Focus on tangible actions and measurable objectives.

4.2. Strategic Horizons Shaping Digital Health

Three horizons explore the workforce and education changes required to support the adoption of digital health technologies.

The horizons will be progressed in parallel, reflecting the different stages of digital health maturity across the health system (see figure 1). There are elements of each of these horizons already visible in the Australian health sector today, and these pockets of innovation need to be shared to provide momentum for positive change, helping Australia harness the digital health opportunities ahead.

Figure 1. Horizons based view.

The Horizon 1 vision is for the health workforce and Australian consumers to safely and ethically use digital health tools and to make decisions based on the health information they can access. The Horizon 2 vision is for health systems and organisations to be better connected through interoperability, thereby enabling the health workforce to analyse information, plan and respond to health demands. Emerging digital technologies will reshape health functions and new roles will emerge. The focus will be on enterprise transformation. Finally, the vision of Horizon 3 is that healthcare delivery is transformed through initiatives such as value-based healthcare, personalised medicine, empowered consumers, and care in the home or community, all underpinned by interoperable digital technologies.

Targeted educational interventions are identified within each horizon as follows:

- Horizon 1: Electronic medical record and electronic medication management
- Horizon 2: Artificial intelligence and advanced robotics
- Horizon 3: Personalised medicine, devices, and the integration of the Internet of Things and big data

4.3. Digital Profiles Framework

The purpose of the digital profiles framework is to articulate the expectations of the health workforce as a result of the adoption of digital health technologies. There are eight digital profiles across the health workforce, which include volunteers and healthcare consumers (see figure 2). The framework is designed to provide clarity for key education and health partners who will develop curricula, training and resources to assist the workforce, and to empower health workers and consumers to recognise and grow their digital capability.

The digital profiles identified are applicable in different contexts (including, but not limited to, primary care, aged care, home and community care, and hospitals) and different settings (including in metropolitan, regional, rural and remote locations). While they are designed primarily with a health service delivery focus, health policy and planning roles are also included in the Leadership and Executive, and Business, Administrative and Support Digital Profiles. Given the variety of occupations and qualifications across the health workforce, profiles are not intended to be specific to individual professions. Instead, they are designed to supplement and support the specific knowledge, skills and capabilities of health professions and specialities.
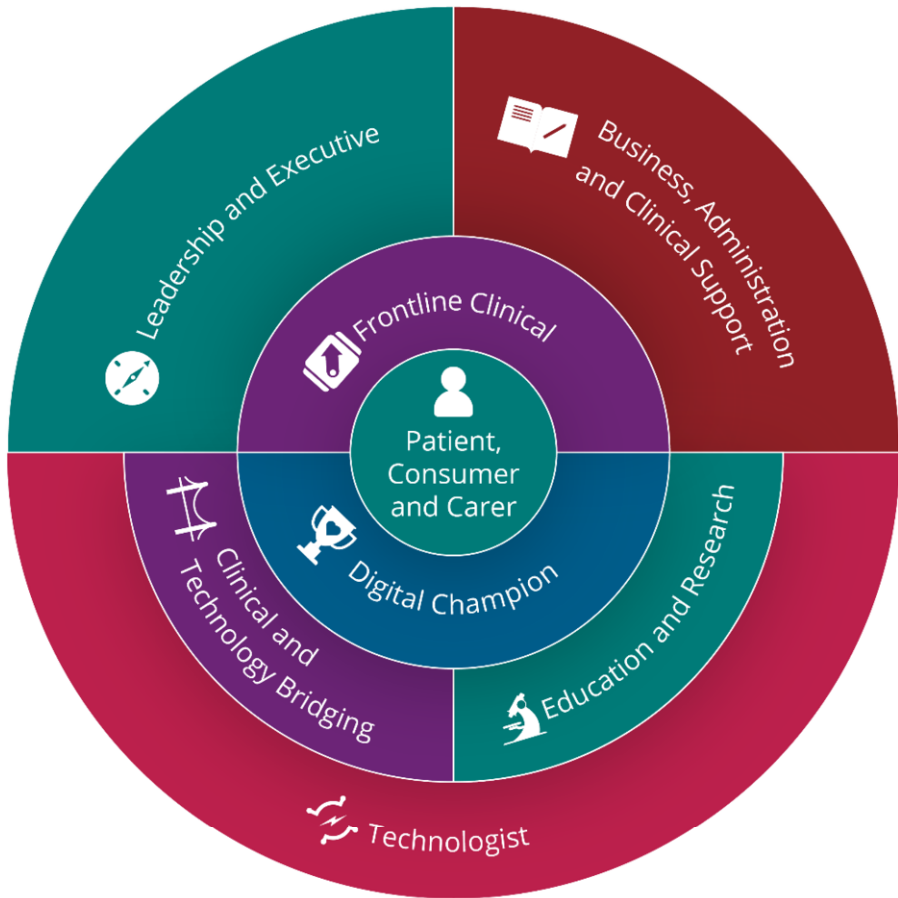
Figure 2. Digital profiles.

The roadmap document [7] articulates in detail the functions of each digital profile and their respective role in contributing to advancing the digital capability of the workforce in health.

5. Next Steps to Implement the Roadmap

In order to support jurisdictions, healthcare organisations, and groups who are identified in the roadmap to implement its recommendations, a Capability Action Plan (CAP) will be developed. The CAP will contemplate, in detail, the roles and responsibilities, timeframes and targets for each stakeholder group across Australia. This will be developed with all partners, including government, universities and education providers, accreditors, and clinical and consumer peaks. This process will ensure the CAP appropriately represents sector priorities, can harmonise the work already occurring both nationally and within jurisdictions, and has funding sources identified. It will also ensure that roles and responsibilities are clear, and organisations support the approach.

It is the critical next step to ensure implementation of the roadmap and realisation of the benefits that will flow to Australia's health workforce.

To complement the mission of the roadmap to support workforce development in digital health, the Australian Digital Health Agency has developed an Emergency Department Clinician's Guide to My Health Record in ED, in collaboration with the Australian Commission on Safety and Quality in Health Care [8]. The agency is also developing the following resources in partnership with clinical peak organisations and technology leaders in these fields:

- National Nursing and Midwifery Digital Health Capability Framework;
- Digital Health Specialist Toolkit;
- Mental Health Resource Compendium; and
- Digital Health Capabilities Framework for the medical profession.

6. Conclusion

The development of the National Digital Health Workforce and Education Roadmap acknowledges that, in Australia, we need to shape how education and training enable our health workforce to realise the benefits of technology, while recognising that people are the health sector's most valuable asset. The roadmap consists of principles, a three-horizon framework reflecting the maturity levels, and a digital profile framework to articulate the expectations of the healthcare stakeholders. A Capability Action Plan is underway to operationalise the key activities proposed in the roadmap.

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