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Demonstrating digital health clinical competence in practice: A method for developing entrustable professional activities

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> J Med Internet Res. 2018 May 15;20(5):e10229. doi: 10.2196/10229.

An eHealth Capabilities Framework for Graduates and Health Professionals: Mixed-Methods Study

Melissa Brunner [1 2], Deborah McGregor [1], Melanie Keep [3], Anna Janssen [1], Heiko Spallek [4], Deleana Quinn [1], Aaron Jones [5], Emma Tseris [6], Wilson Yeung [7], Leanne Togher [3], Annette Solman [8], Tim Shaw [1]

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PMID: 29764794 PMCID: PMC

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Review > J Med Internet Res. 2020 Nov 5;22(11):e22706. doi: 10.2196/22706.

A Digitally Competent Health Workforce: Scoping Review of Educational Frameworks

Nuraini Nazeha [1], Deepali Pavagadhi [1], Bhone Myint Kyaw [1], Josip Car [1 2], Geronimo Jimenez [1 3], Lorainne Tudor Car [2 4]

7019 DOI: 10.2196/22706

> Int J Med Inform. 2023 Feb;170:104908. doi: 10.1016/j.ijmedinf.2022.104908. Epub 2022 Oct 29.

Recommendations of the International Medical Informatics Association (IMIA) on Education in Biomedical and Health Informatics: Second Revision

Jen Bichel-Findlay [1], Sabine Koch [2], John Mantas [3], Shabbir S Abdul [4], Najeeb Al-Shorbaji [5], Elske Ammenwerth [6], Analia Baum [7], Elizabeth M Borycki [8], George Demiris [9], Arie Hasman [10], William Hersh [11], Evelyn Hovenga [12], Ursula H Huebner [13], Elaine S Huesing [14], Andre Kushniruk [8], Kye Hwa Lee [15], Christoph U Lehmann [16], Svein-Ivar Lillehaug [17], Heimar F Marin [18], Michael Marschollek [19], Fernando Martin-Sanchez [20], Mark Merolli [21], Aurore Nishimwe [22], Kaija Saranto [23], Danielle Sent [10], Aviv Shachak [24], Jai Ganesh Udayasankaran [25], Martin C Were [26], Graham Wright [27]

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Digital health capability framework for allied health professionals

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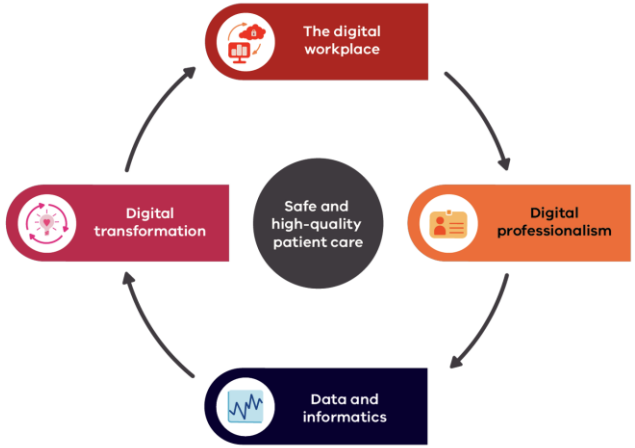
Figure 1: Digital health domains



VICTORIA State Government | Department of Health

National Digital Health Workforce and Education Roadmap

September 2020

Australian Government
Australian Digital Health Agency

Source: National Digital Health Education & Workforce Roadmap 2020 (draft)

Figure 8: Key Elements of Digital Profiles

PATIENT, CONSUMER AND CARER	FRONTLINE CLINICAL	DIGITAL CHAMPION	CLINICAL AND TECHNOLOGY BRIDGING	TECHNOLOGIST	LEADERSHIP AND EXECUTIVE	BUSINESS, ADMINISTRATIVE AND CLINICAL SUPPORT	EDUCATION AND RESEARCH
The Patient, Consumer and Carer profile identifies expectations including maintaining health information, protecting the security and privacy of information, and in adopting and advocating for new technologies that help manage their health.	The Frontline Clinical profile identifies expectations including lifelong learning, adoption of digital technologies, understanding security and privacy, reliable and accurate recordkeeping, ensuring clinical safety with digital technologies, and advocating for consumer use of technology to empower them.	The Digital Champion profile identifies expectations including being a digital teacher and champion locally for a particular technology or system. The Digital Champion role may change depending on the digital technology and setting. Key to this role is the early digital adoption and change champion functions they play in the workplace.	The Clinical and Technology Bridging profile identifies expectations including providing advice during the design and development of new digital technologies and systems, and leverage clinical networks for user testing and adoption. This includes roles that bridge clinical and information technology areas.	The Technologist profile identifies expectations including those performing health information technology functions, including cybersecurity, programming, systems maintenance, digital design, interoperability, IT procurement, resilience and continuity planning, health information management and system testing.	The Leadership and Executive profile identifies expectations including leadership of digital transformation and deployment, risk and quality assurance, and in understanding sophisticated data analytics to drive better business decisions.	The Business, Administration and Clinical Support profile identifies expectations including lifelong learning, adoption of digital technologies, understanding security and privacy, reliable and accurate recordkeeping required of all business, administrative and clinical support activities.	The Education and Research profile identifies expectations including lifelong learning, translational research, evidence based review, and health reform and innovation. It also addresses expectations relating to education.
• Digital Partner in My Health • The Digital Adopter and Lifelong Leaner • The Quality Record Verifier • The Security and Privacy Enforcer • The Health Reformer	• The Digital Adopter and Lifelong Learner • The Information Analyser • The Quality Record Keeper • The Security and Privacy Protector • The Consumer Advocate • The Clinical Specialist	• The Technical Teacher • The Digital Change Champion • The Early Adopter and Lifelong Learner • The Troubleshooter • The Health Reformer • The Quality Gatekeeper • The Ethics, security and Privacy Champion	• The Clinical Designer/ Specification Advisor • The Clinical Information Analyser • The Risk and Governance Enforcer • The Digital Change Champion • The User Tester • The Problem Solver • The Health Reformer and Innovator • The Quality Controller	• Information Integrity Enforcer • Digital Technology Designer/ Programmer • Complex Troubleshooter/ Problem Solver • Interoperability Integrator • Digital Innovation Tester • Digital Security/ Cyber Security Expert • Digital Program and Project Manager • Digital Technology Procurer	• Digital Transformation Sponsor • Digital Deployment Navigator • Risk and Mitigation Custodian • Information and Data Synthesiser and Decision Maker	• The Digital Adopter and Lifelong Leaner • The Information Analyser • The Quality Record Keeper • The Security and Privacy Protector • The Health Reformer • The Digital Change Champion • Information & Data Synthesiser & Decision Maker	• The Digital Adopter and Lifelong Leaner • The Ethics and Privacy Advocate • The Digital Teacher • The Information Analyser • The Digital Change Champion • The Health Reformer

The Problem

There is a 'Competency-Action Gap' in Digital Practice

...What ACTIONS must be demonstrated?

Meet Sarah..

CC attribution: depositphotos.com

Sarah is now a graduate ..

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Entrustable Professional Activities

(Ten Cate & Taylor, 2021)

- Legitimate **contributions** to healthcare practice; **clinically aligned**
- They operationalise competencies **(into tangible/observable activities)**

The Individual

Image: pxfuel

The Work

Image: flickr

Method for actioning competency in digital health

- Framework for establishing **EPAs for Digital Health in any Clinical Profession**
  - **EPA-DH-CP**
- Work grounded in a Physiotherapy case-study (Author's clinical background)

4 stage process

1. **Meta-synthesise** international professional competency and practice accreditation standards
2. **Review** digital health competency frameworks
3. **Draft EPAs**
4. **Delphi study** to ratify EPAs and component specifications

Result
EPA-DH-CP

Clinical Discipline
e.g. Physiotherapy case-study

Concepts

Clinical discipline

Digital health

Competency/capability

EPAs

Methods

Sourcing international professional competency and practice accreditation standards for the discipline in question

↓

Meta-synthesis

↓

Rapid scoping review

↓

eDelphi

Outcomes

EPAs for digital health practice (demonstrable competency)

Support for future updates to professional competency and practice accreditation standards (discipline-specific)

Roadmap for designing university curricula and professional development in digital health and informatics

Implications

Outcomes

EPAs for digital health practice (demonstrable competency)

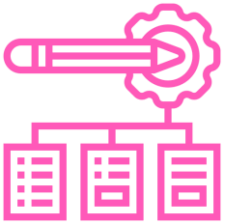
Support for future updates to professional competency and practice accreditation standards (discipline-specific)

Roadmap for designing university curricula and professional development in digital health and informatics

- EPA **validation and assessment** studies
- EPAs in **multiple health disciplines**
- **Ongoing development and refinement** of EPAs in each clinical discipline
- **Buy-in from employers and regulators** to implement digital health EPAs

Final word

1. Importance of validated and reproducible frameworks



2. The EPA-DH-CP framework can bridge a gap between being ‘competent’ and practicing ‘competently’

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