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Demonstrating Digital Health Clinical Competence in Practice: A Method for Developing Entrustable Professional Activities

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Abstract. There is broad agreement regarding fundamental digital health competencies that clinical health professionals should possess. However, there is still no clear way to observe and assess their application, during the actual work practices undertaken in clinical settings. The present paper tackles this competency-practice gap. It describes a novel health workforce research process to evolve competency statements into entrustable professional activities (EPAs) for using digital health and informatics in a clinical profession. It illustrates the use of the EPA-DH-CP framework in the context of physiotherapy. This framework offers a systematic approach for any clinical profession to develop EPAs that set out their expectation of how practitioners will demonstrate relevant digital health competencies. It can inform pre-clinical education and continuing professional development in digital health, and implementation of changes in scopes and standards of digital health clinical practice. It can support interprofessional evaluation of digital health EPAs and other EPAs.

Keywords. Clinical competence, digital health, entrustable professional activity, work performance

1. Introduction

Clinical work practices are being transformed by factors such as; the need to embrace virtual models of care in the face of the COVID-19 pandemic, skilled health workforce shortages, increasing demands posed by chronic disease and aged care, as well as growing patient expectations of participatory, connected care. Digital health and informatics competencies required by the clinical healthcare workforce are recognised broadly, and are defined specifically for some clinical disciplines and role types [1,2].

Publications continue to emerge to describe and emphasise the idea of digital health and informatics competence relevant to clinicians (synonyms may include competency, capability, capacity) [1]; For example, since 2019 the UK NHS has been visible and active in defining digital health competencies through release of several digital health literacy frameworks for clinicians [2]. In 2021 a multi-author book documented diverse clinical digital health careers around the world [3]. In 2022, the Australian Digital Health

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Agency released a capability action plan [4] for digital health and informatics workforce advancement, after its 2020 workforce and education roadmap [5]. In 2022, the International Medical Informatics Association (IMIA) updated its recommendations for competency-based education and certification [6].

However, there is still a competency-practice gap. Despite agreement regarding the need for digital health clinical competence, there is still no clear view of the ways that a clinical health professional must be able to demonstrate digital health competence in practice, to assure a health system where there is a high level of trust that digital health equates to safe and effective clinical practice [7,8]. Competencies inherently describe characteristics of the clinician. They do little to visualize the work to be done [9]. So, despite understanding what digital health clinical competencies 'are', the concerned parties; clinicians, those who receive care from them, those who train, regulate and employ them, are still unable to be sure that the application of digital health clinical competencies in work situations meets good practice standards. A competency-based approach to digital health has a very important role in underpinning the way to undertake digital health practice, but it does not go far enough.

The concept of entrustable professional activities (EPAs) offers a way forward. EPAs are defined as a "..unit of professional practice that can be fully entrusted to a trainee, once he or she has demonstrated the necessary competence" [9]. In various areas of clinical practice, EPAs have helped to operationalize competencies through description of tangible, observable work activities. They can be defined to be clinical context specific, and they are seen as legitimate contributions to healthcare practice [9]. EPAs make it possible to translate digital health competencies into good clinical practice. The objective of this paper is to describe a generalisable method to develop EPAs that demonstrate competent digital health clinical practice in a specific profession.

2. Methods

Evidence-based methods to develop EPAs of various types have been established across a range of clinical disciplines, including: medicine, nursing, pharmacy, dietetics, and more. Characteristically, a working group of clinical experts reviews and synthesizes existing competency statements; translates them into statements of observable, measurable clinical activities, and validates them using consensus building processes within their professional community [10,11]. This paper is situated within the context of physiotherapy to illustrate elements of a framework for establishing EPAs for Digital Health in a Clinical Profession (EPA-DH-CP). This grounds the work in the first author's clinical background and distils transferable learnings from international work in progress in this area [7]. The staged approach over approximately twelve to eighteen months in this case, used mixed methods and brought together a team of eight, consisting of physiotherapy academics, clinicians, and digital health and informatics academics and researchers.

Stage 1 entailed sourcing all readily available international professional competency and practice accreditation standards for physiotherapists, and meta-synthesis of any digital health and informatics competencies and capabilities within these documents. This work followed a novel systematic peer-reviewed meta-synthesis of digital health and informatics competencies and capabilities in registered allied health disciplines (involving the first author) [7]. *Stage 2* entailed a scoping review of explicit digital health capability frameworks relevant to physiotherapy (for example: [12,13]), and thematic

content analysis of digital health competency statements. This stage also involved broader rapid review of additional digital health competency and capability research reports or other documents that could be relevant for physiotherapy, for example, a digital health capability framework for graduate health professionals [1]. *Stage 3* was the drafting of EPAs that enact and demonstrate the digital health competencies, following specifications set out by [9] by two team members and iteratively reviewed by all others [9]. Finally, in *Stage 4*, a three-round eDelphi study ran involving N=67 physiotherapists from 20 countries, recruited for their advanced knowledge of digital health (clinicians, academics, and those working in digital health industry), to achieve consensus on these EPAs and their component specifications.

3. Results

This method produced a framework for establishing 'EPAs for Digital Health in a Clinical Profession' (EPA-DH-CP), wherein 'Clinical Profession' can be specified. In this case, it produced EPAs for Digital Health in Physiotherapy; these are presently emerging from Stage 4 and will be published in future. Addressing the aim of the present paper, Figure 1 represents a systematic way for any clinical profession to advance from theoretical or aspirational digital health and informatics competency statements to observable and auditable clinical care practices. It frames how to specify essential digital health clinical work practices, using evidence-based research methods to align fundamental concepts. The EPA-DH-CP framework shows how a working group in any clinical profession must undertake and document processes in interconnected components: 1) concepts, 2) methods, and 3) outcomes. The processes flow from 1) because of the scarcity of scopes and standards of practice compared to the multiplicity of competency statements in digital health.

The EPA-DH-CP 'concepts' that a working group must 'come to grips' with are: working knowledge of the clinical discipline, the digital health and informatics body of knowledge, the competency-based approach to education and training, the trust that the health system must have in the work that each clinician performs (EPAs).

The EPA-DH-CP 'methods' that a working group must follow are sequential. Data from each stage inform each subsequent stage. It is important to understand the application of these methods to this competence-practice gap as a contribution to health workforce research. Thus, to factor in sufficient stakeholder time and involvement. The process needs to be transparent and to withstand scrutiny from the perspectives of the healthcare industry, scholarship, and public policy.

The EPA-DH-CP 'outcomes' that a working group must anticipate are far-reaching. The process will produce a set of readily recognisable EPAs describing the digital health practices that a clinician is expected to perform competently. The challenge of implementing these EPAs will trigger further demands: for updates to scopes of practice and practice accreditation standards, and for a roadmap for pre-clinical training and continuing professional development (to grow the profession's capacity and resources to train, supervise, assess and audit clinical performance).

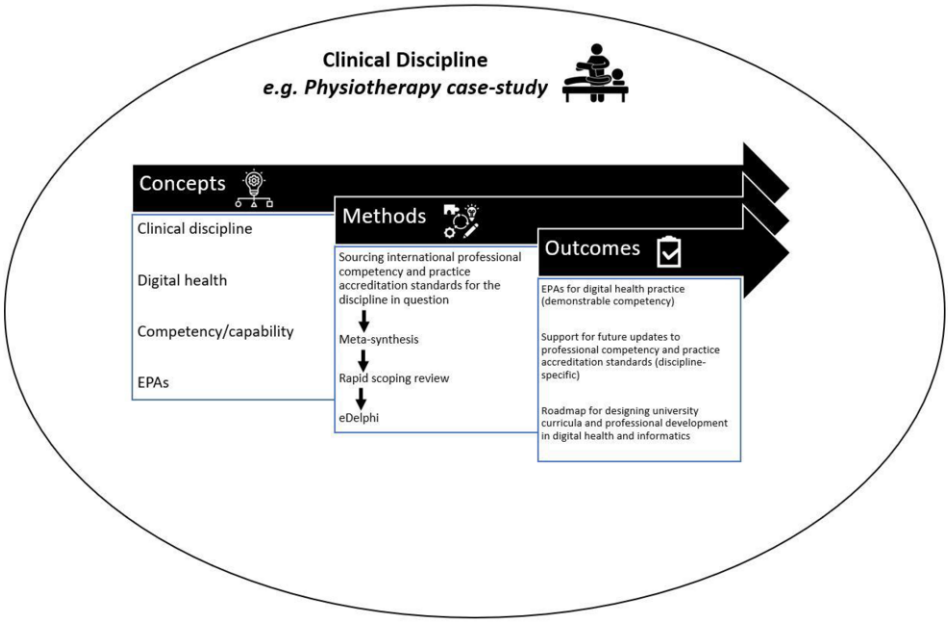

Figure 1. EPAs for digital health in a clinical profession (EPA-DH-CP) framework.

4. Discussion

The present study paves the way for future research endeavours, such as EPA validation and assessment studies. In the present study, whilst EPAs and specifications have been developed using a single discipline case-study (physiotherapy), they require ongoing development and refinement. This involves in depth description according to principles proposed by Ten Cate and Taylor (2021) [9].

There is considerable buy-in needed by employers and regulators to implement direct clinical assessment of digital health EPAs in practice. The concept has important implications for health services, in terms of workplace supervision and workforce maturity [3,4]. The full power of entrustment decisions can only be achieved if these have consequences for the autonomy and responsibility of trainees in healthcare. Taken seriously, EPAs are not merely ways to control progression to a next phase of training or, even worse, 'tick-the-box' exercises without any consequence at all.

The EPA-DH-CP framework is not without limitations. The present study describes work in a single health discipline; the culture of each clinical profession is distinctive, and this will affect more generalized interpretation. For example, the nature of clinician-computer interaction is radically different in medical imaging and in pharmacy, and the differences will shape the understanding of how EPAs are defined and demonstrated in each. On the other hand, as these EPAs evolve, commonalities and shared interprofessional practices may emerge.

Furthermore, clinical educators may argue rightly that not all the objectives of digital health education can be readily captured in EPAs, and that there are clinical and non-clinical competencies to be acquired at novice through expert levels of training. Comparative and long-term evaluation is warranted to study the learning outcomes from using digital health EPAs across a range of clinical professions and scenarios. It will be

interesting to observe whether digital health EPAs can be perceived to be more useful than competencies and how these are integrated with other EPAs in each profession.

5. Conclusions

As digital heath capability matures, health systems will need to rely increasingly on validated and reproducible frameworks for workforce advancement, education, and practice. This paper describes a new framework for instantiating digital health and informatics competencies in the clinical professions. The application of the EPA-DH-CP framework can bridge a gap between being competent and practicing competently, and thus make an important contribution to the trustworthiness of digital healthcare.

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