

Health Service Managers' Digital Competencies: A Conceptual Framework

Mark BROMMEYER^{a,b,1}, Maxine WHITTAKER^a and Zhanming LIANG^a

^a *College of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville, Queensland, Australia*

^b *College of Business, Government and Law, Flinders University, Adelaide, Australia*

ORCID ID: Mark Brommeyer <https://orcid.org/0000-0001-7380-1085>, Maxine

Whittaker <https://orcid.org/0000-0002-1677-2991>, Zhanming Liang

<https://orcid.org/0000-0002-8022-4017>

Abstract. Health service managers play a crucial role in managing and leading in the digital health environment. Development of the health management workforce that is ready to lead and manage digital health transformation requires partnerships across sectors, in not only developing workforce competence but also in developing supportive mechanisms that can translate competencies into practice. A framework presenting a systematic approach in enabling the development of a competent health management workforce in the digital health era has recently been published. The purpose of this paper is to explore and discuss the application of the framework in the Australian context, informed by the findings of a PhD research project that uses an empirically validated four-step approach to confirm the health service management workforce development needs in the digital health context. The PhD project has already confirmed: 1) the paucity of Australian Health Informatics Competency Framework (AHICF) competencies being included in Australian health service management postgraduate program curricula; 2) five key strategies that contribute to developing health management workforce competency and capacity; and 3) seven key factors that enable health management workforce development in the digital health context. Further understanding of the barriers and enablers for health service managers to develop capability and manage in the digital health environment, and the factors that influence digital health policy and practice will be developed, by critically analysing findings from focus group discussions with health managers and semi-structured interviews with digital health leaders, to be completed by May 2023.

Keywords. Digital health, competency frameworks, health service management, workforce development, sustainable development goals

1. Introduction

Health service managers play a crucial role in managing and leading in the digital health environment. Accordingly, how to equip the health management workforce with digital health competence has become a pressing and nascent developing field of research. Although various health management competency frameworks [1-5] and digital competency frameworks [6,7] are separately and readily available to guide the

¹Mark Brommeyer, College of Business, Government and Law, Flinders University, GPO Box 2100 Adelaide SA 5001, Australia; email: mark.brommeyer@flinders.edu.au.

competency development of health managers and digital health specialists, digital health competency requirements for health service managers have yet to be empirically identified and incorporated into the existing management competency frameworks that guide health management workforce development. Moreover, upskilling is only one of the strategies required for workforce development; a systemic approach is required with collective efforts at institutional, organisational, system and sector-wide levels.

Such a systematic approach and required elements are illustrated in the framework for developing a health management workforce in the digital health era (The Framework) by Brommeyer and Liang (2022) [8]. This was developed by an evidence-informed, three-step triangulated process [8]. Development of the health management workforce that is ready to lead and manage digital health transformation requires partnership across sectors, not only developing workforce competence but also in developing supportive mechanisms that can maximise the capacity of managers in applying the developed competencies in practice. To allow the framework to be operationalised, an understanding of how to translate each of the steps into practice and the specific efforts and investments required that enable translation, needs to be developed.

A PhD research project focused on improving digital health competencies for health service managers is being conducted to collect empirical data to enable the development of such understanding. Further, issues and challenges that need to be addressed in order to develop the overall management capacity of the health system in leading and managing digital health transformation will be articulated and validated, for more effective and efficient health service delivery. This will ensure that the health sector is collectively being built for now and in the future, to be accessible, sustainable and safe, as it uses digital technologies to support achieving the Sustainable Development Goals [9,10]. The purpose of this paper is to explore and discuss the application of the framework in the Australian context, informed by the PhD research project.

2. Methods

Critical analysis will be performed on the data collected from the PhD research study, to enable the application of the framework developed by Brommeyer and Liang [8] (Figure 1) in guiding health management workforce development in the digital health context. The PhD research adopted a four-step approach guided by the empirically validated management competency identification process [5], including: 1) an Australian health service management postgraduate program competency mapping analysis, 2) a scoping review of international literatures, 3) six focus group discussions with mid-level managers who are responsible for the day to day operations of Australian public hospitals recruited from different Australian States, and 4) semi-structured interviews with fifteen Australian digital health leaders, who are from Australian public health departments or national digital health organisations.

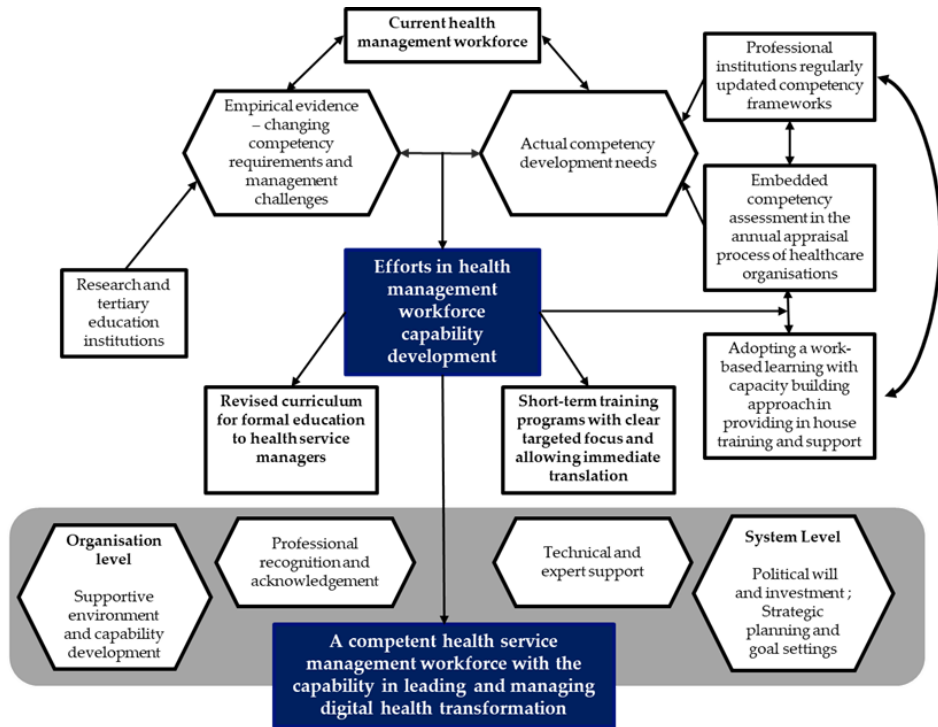


Figure 1. Framework for developing the health service management workforce in the digital health context.

The first two steps have been completed, forming part of the triangulation methods used in developing the Framework. Steps three and four have been scheduled to be completed by May 2023. Table 1 details the target populations, and the proposed number of participants for steps three and four.

Table 1. Details of the PhD study focus group discussions and interviews.

Methods	Focus group discussions via videoconference	Semi-structured interviews via videoconference
Focus	To explore the competencies that health service managers need to acquire to effectively work with and manage in the digital health context, along with factors that enable and inhibit the acquisition of these competencies.	To validate the findings from the focus group discussions in terms of core health service manager competencies, barriers and enablers for health service managers to manage in the digital health environment; and to explore issues that influence digital health policy and practice.
Who are the participants?	Mid-level managers who are responsible for the day-to-day operations of Australian public hospitals. These positions may include Department Directors, Unit Managers and Ward Managers representing level 3 and 4 management* from public hospital settings.	Digital Health Leaders and Chief Digital Health/Clinical Information Officers from national digital health organisations and public health departments who have executive responsibility for digital health.
Number of participants	48 (8 per group x 6 focus groups)	15

*Management levels are defined by the organisational reporting hierarchy, with level 1 being the Chief Executive Officer (CEO), level 2 reporting to the CEO, level 3 reporting to level 2 management, and level 4 reporting to level 3 management.

3. Results

Overall, the mapping of the digital competencies addressed by the 21 Australian health service management (HSM) postgraduate programs, accredited by either the Australasian College of Health Service Management (ASCHM) or the Royal Australasian College of Medical Administrators (RACMA), confirmed that the vast majority of the competencies in the Australian Health Informatics Competency Framework (AHICF) have not been included in the HSM postgraduate program curricula [11].

The scoping review identified five key strategies for developing health management workforce competency and capacity which were: 1) embedding competency assessment into management development processes, 2) creating a competency model to guide developing competent managers, 3) providing formal, digital development opportunities to managers, 4) providing short-term training programs targeting specific competency areas; and 5) adopting a work-based learning and capacity-building approach for training and support across the organisation [8]. The key strategies have been incorporated into the boxes directly linked to the box 'Efforts in health management workforce capability development' at the centre of the Framework (Figure 1). Further, key factors that enable health management workforce development in the digital health context were also confirmed and categorised into system, professional and tertiary institution, and organisation levels; these are included in the bottom grey box of the Framework.

Once the focus group discussions with Australian mid-level health service managers and semi-structured interviews with digital health leaders have been completed (May 2023), core information captured will be critically analysed to understand the barriers and enablers for health service managers to develop capability and manage in the digital health environment, and the factors that influence digital health policy and practice.

4. Discussion

The Framework (Figure 1) not only provides a comprehensive guide in developing the capacity of the current and future health service management workforce in leading and managing in the digital health context, it also maps out the role of different parties ranging from government, professional and tertiary institutions, and healthcare organisations in achieving this agenda. Furthermore, it recognises that upskilling in the digital health environment is only one aspect of capacity building, investment in infrastructure and the development of supportive mechanisms are also critical.

The PhD research findings will operationalise each key component of the framework and allow the formulation of actionable strategies with input from the international audience at *MedInfo2023: the 19th World Congress on Medical and Health Informatics*. This provides further insights into the healthcare system's digital workforce policy implications, as well as the additional competencies that healthcare

organisations, professional institutions and tertiary education providers can incorporate into their continuing professional development and training curricula.

5. Conclusions

The efficient and effective transformation of healthcare services, and their management through the use of digital health requires careful planning and implementation, as well as adaptive learning informed by monitoring and evaluation. To support this process, health service managers need to develop leadership and management competency in managing and leading digital transformation, guided by an evidence-informed framework with supportive working environments and enabling mechanisms in place.

The PhD research project described will contribute relevant empirical data and analysis to inform the health system leadership and management capacity development, necessary to harness the potential of digital health in contributing towards better healthcare service delivery [9,10].

Acknowledgements

With grateful acknowledgment to the Australian Government Research Training Program (RTP) fee offset scholarship program, and the James Cook University College of Public Health, Medical and Veterinary Sciences Higher Degree by Research Enhancement Scheme.

References

- [1] Calhoun JG, Dollett L, Sinioris ME, Wainio JA, Butler PW, Griffith JR, Warden GL. Development of an interprofessional competency model for healthcare leadership. *J Healthc Manag.* 2008 Nov;53(6):375-89, doi: 10.1097/00115514-200811000-00006.
- [2] Stefl ME. Common competencies for all healthcare managers: the healthcare leadership alliance model. *J Healthc Manag.* 2008 Nov;53(6):360-74, doi: 10.1097/00115514-200811000-00004.
- [3] Garman A, Scribner L. Leading for quality in healthcare: Development and validation of a competency model. *J Healthc Manag.* 2011 Nov;56(6):373-84, doi: 10.1097/00115514-201111000-00005.
- [4] Hernandez SR, O'Connor SJ, Meese KA. Global efforts to professionalize the healthcare management workforce: the role of competencies. *J Health Adm Educ.* 2018 Apr;35(2):157-74.
- [5] Liang Z, Howard PF, Leggat S, Bartram T. Development and validation of health service management competencies. *J Health Organ Manag.* 2018 Feb;32(2):157-75, doi: 10.1108/JHOM-06-2017-0120.
- [6] Australian Digital Health Agency. Australia's National Digital Health Strategy. Australian Government, Sydney, Australia, 2018.
- [7] Butler-Henderson K, Gray K, Pearce C, Ritchie A, Brophy J, Schaper LK, Bennett V, Ryan A. Exploring the health informatics occupational group in the 2018 Australian health information workforce census. *Stud Health Technol Inform.* 2019 Aug;266:44-50, doi: 10.3233/SHTI190771.
- [8] Brommeyer M, Liang Z. A Systematic Approach in Developing Management Workforce Readiness for Digital Health Transformation in Healthcare. *Int J Environ Res Public Health.* 2022 Oct;19(21):13843, doi: 10.3390/ijerph192113843.
- [9] World Health Organization. WHO Guideline: Recommendations on Digital Interventions for Health System Strengthening; World Health Organization, Geneva, Switzerland, 2019.
- [10] World Health Organization. Digital Education for Building Health Workforce Capacity; World Health Organization, Geneva, Switzerland, 2020.
- [11] Brommeyer M, Mackay M, Liang Z, Schaper L, Balan P. A proposed approach to investigate whether postgraduate health care management education in Australian universities facilitates the development of informatics competencies. *Stud Health Technol Inform.* 2021 Dec;284:93-7, doi: 10.3233/SHTI210677.