

ENGAGING NURSING AND MIDWIFERY POLICYMAKERS AND PRACTITIONERS IN DIGITAL TRANSFORMATION; AN INTERNATIONAL NURSING AND MIDWIFERY PERSPECTIVE

DOI: <http://dx.doi.org/10.1136/leader-2024-000990>

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Keywords: Digital, Nursing, Midwifery, Inclusion, Leadership, Education

Contribution of the Paper

What is already known

- There has been a substantial growth in the use of digital technology in all areas of the healthcare system
- However often technology used to support nursing and midwifery is poorly configured, and under resourced leading to frustration and poor care delivery
- There is a need to ensure that the nursing and midwifery workforce is appropriately trained and educated to use digital technology safely and effectively.

What this paper adds

- Taking a pan European approach and using the WHO Global Strategic Directives for Nursing and Midwifery this paper critically examines the degree to which nurses and midwives can lead, influence and drive the digital agenda
- Nurses and Midwives have unique skills which must be effectively used to ensure that any digital intervention enables high quality patient centred care
- Nurses and midwives must take an active role in leading the development, implementation, evaluation, and refinement of the digital health and social care systems to ensure that digital technologies have a positive impact on patient centred care.

ABSTRACT

There has been an expansion in the use of digital technology to support health and well-being globally, supported by a variety of international and national policies. Whilst digital technology has the potential to improve health outcomes for all, there is growing evidence that the digital technology used in healthcare practice is often poorly configured, lacks basic usability, has poor interoperability and optimization. We argue that as the largest healthcare group, nurses and midwives have huge potential to influence the development, delivery and evaluation of digital health technology, yet the degree to which this is maximised varies internationally. This paper uses the WHO Global Strategic Directions for Nursing and Midwifery (leadership, service delivery, jobs, and education) to explore how digital transformations in healthcare systems require nursing and midwifery leadership in order to support achieving universal health coverage for all.

INTRODUCTION

Digital health and eHealth are terms often used interchangeably and are generally defined as the use of information and communications technology in support of health and health-related fields¹. Digital technology can include direct approaches such as digital applications (apps), wearable devices, telehealth and indirect approaches such as the collection and use of data to inform service

development. Recently, interest has increased in the use of digital health to enhance the quality, efficiency, and safety of healthcare². Digital health technologies have the potential to improve health outcomes, provided the technology is safe, fit for purpose, and universally accessible, and that the professionals using it, including nurses and midwives, are capable and confident. The World Health Assembly adoption of resolution WHA71.7 on digital health in 2018 mandated the development of a global strategy on digital health, which led to the publication of the Global Strategy on Digital Health 2020–2025 by the World Health Organization in 2020³ along with the subsequent development and approval of the Regional Digital Health Action Plan for the WHO European Region 2023–2030⁴ at the Seventy-second Session of the WHO Regional Committee for Europe in September 2022. This action plan underscores digital health literacy as a key strategic priority for the European Region and highlights the need to identify core competencies of digital health literacy in the health workforce.

Nurses and midwives are fundamental to the digital agenda. They are the largest healthcare professional group, responsible for 90% of care delivered⁵, as such efforts have been made to identify digital competencies for nurses and midwives in Europe⁶⁻⁸. This is particularly pertinent as countries re-examine the burden on nurses and midwives due the increased service pressures following the COVID-19 pandemic and recognize opportunities for digital applications to reduce the burden on health professionals⁹. Multiple reviews have explored how digital technologies are used to support or enhance the nursing and midwifery professions, including professional practice (hospital information systems, electronic health and social care records, monitoring systems, decision support, telehealth and care at home), education (e-Learning, virtual reality, serious games), and rehabilitative and personalized healthcare approaches (assistive devices sensors, ambient assisted living)^{10,11}.

To move towards the global aspiration of ‘leaving no one behind,’ and the ambitions of the United Nations Sustainable Development Goals¹², nurses and midwives must be able to practice to their full scope of practice. To achieve this, they must not only clearly benefit from but also contribute to digital technologies and data science in ways that support and facilitate their practice. For this to occur, it requires nurse and midwifery leadership in the development, implementation, evaluation, and refinement of the digital health and social care systems, something we argue does not currently happen sufficiently. To address this gap, this paper applies the WHO Global Strategic Directions for Nursing and Midwifery 2021-2025¹³ (leadership, service delivery, jobs, and education) to explore how nurses and midwives can be effectively and safely engaged in the digital transformation of healthcare systems to support a path towards achieving universal health coverage and other population health goals (Figure 1). We examine the challenges and opportunities of engagement for the nursing and

midwifery professions within a digital environment. Digital technology influences healthcare at numerous levels. At an individual level, it affects access and response to care, potentially empowering people to manage their own health and well-being more effectively across the lifespan. At national levels it affects how nurses and midwives plan and deliver care, which influences and is influenced, by national and international healthcare policies.

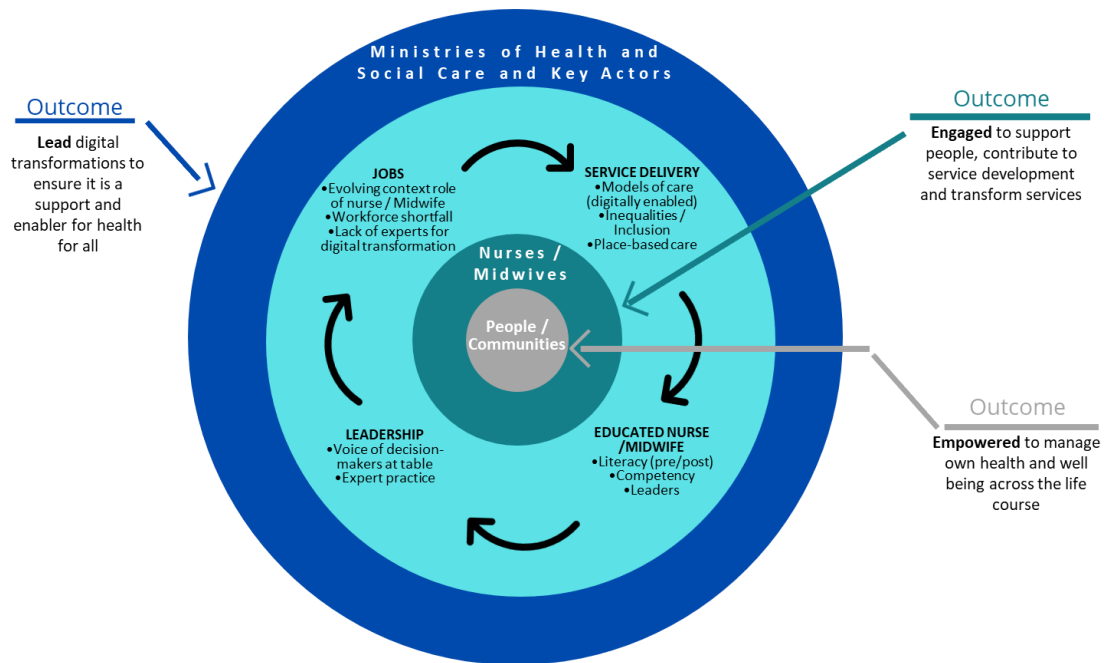


Figure 1

STRATEGIC DIRECTION: LEADERSHIP

Leaders in nursing and midwifery can potentially champion, advocate for, and invest in the integration of digital technology into daily practice. Digital reform requires both people and processes along with technology; focussing on technology alone is insufficient. Despite the increasing use of automation and digitisation, healthcare remains a predominantly human-centric endeavour, often involving highly complex work processes¹⁴. This necessitates promoting clinical leadership among frontline nurses and midwives, given their ability to impact on patient outcomes and team performance outcomes¹⁵, job satisfaction¹⁶, and quality, safety and effectiveness of care¹⁷.

The literature provides little clarity about what good leadership is in a digital health context¹⁸. However, compassionate, inclusive and collective leadership is known to be central to high quality care and enabling the supportive culture required for innovation¹⁹. The leadership skills employed during development and implementation in practice is often what makes the difference between success and failure¹⁴ in what is a non-linear process requiring the integrated application of a range of

theories and practical tools alongside transferable knowledge and skills²⁰. For example, to successfully implement digital technologies, resources must be secured, clear oversight must be defined, and specific opportunities should be sought to maximize the technology across the system, a role that can lie with the Governmental Chief Nursing and Midwifery Officers (GCNMO) or nominated deputy and nursing and midwifery governmental units. This system-wide oversight can ensure that professions evolve beyond simply using digital technologies to transform and optimize the associated processes²¹, as the presence of a GCNMO is associated with stronger regulation of the workplace and education WHO 2020²². However, 29% of countries in the WHO European region do not have such a role²³, and as such, the opportunity to drive leadership of nursing and midwifery within the digital sphere is relatively weak. In addition to national leadership, nurses and midwives can lead nursing science relating to the digitalisation of healthcare at whatever level they practice, including co-designing digital solutions with people and communities, generating new scientific knowledge on data analytics, and creating virtual models of care²⁴.

In the evolving landscape of healthcare, an increasing number of nurses find themselves integrating digital tasks into their roles without necessarily holding formal titles that reflect the digital health. These nurses, often at the intersection of traditional nursing care and digital health, are pivotal in bridging the gap between patient care and the digital health that enhance it. We argue that the integration of digital responsibilities highlights the adaptability and versatility of nurses in the modern healthcare ecosystem. They not only administer direct patient care but also play a crucial role in the digital optimisation of healthcare processes, improving patient outcomes through technology. Their work, often performed without formal recognition, underscores the increasingly blurred lines between healthcare and health technology roles. According to Brown et al.,²⁵ it is essential to prioritise the participation of nurses in the advancement of digital systems. It is highly recommended to invest in offering professional development opportunities for nurses to ensure they possess and enhance their digital skills. This trend also points to a growing need for recognition and formalisation of digital competencies within nursing professions, ensuring that nurses are equipped, acknowledged, and rewarded for their critical role in the digital transformation of healthcare.

Passive progress in some areas of nursing and midwifery digitalisation may be due to a lack of policy and clinical leadership but can present opportunities for nurses and midwives to advocate and lead digital health initiatives¹¹. Across Europe, ambiguity remains regarding technology, compounded by diverse scopes of practice, workplace safety, policy and standards, technological infrastructure maturity and expertise²⁶, and transparency of health information processes¹⁰. As the largest group of

health professionals, responsible for the majority of care delivered⁵, it is vital nurses and midwives are involved in decision-making. Nurses and midwives in turn must accept, if not drive, invitations to lead, using their professional knowledge and skills to shape the digital tools and technologies being developed to facilitate care delivery. Nurses and midwives be empowered to take responsibility, to own and lead digital transformation rather than being led by it. They must also embrace and develop digital technology that supports their professional roles as part of professional accountability, to ensure that any digital systems that are developed promote high-quality person-centred care. Central to this is international nursing leadership in digitalisation through Ministries of Health and key actors who shape the professions, such as International Council of Nurses (ICN), nursing regulators, and educational institutions, alongside national nursing leadership through Chief Nursing Officers and national nursing organisations to enable this stewardship. However, alone this is insufficient, as all nurses and midwives must use their clinical leadership skills to ensure that digital transformations in their organisations improve rather than dilute care. Daly et al.²⁷ argues that to overcome the challenges analogous with nursing digital transformation, leaders are required to foster initiatives to change attitudes and deal with complex problems.

STRATEGIC DIRECTION: SERVICE DELIVERY

Across the WHO European Region, significant differences exist between countries in their level and approach to the digital transformation of healthcare systems. Barriers related to policy, public communication, privacy and trust, digital skills of the workforce, legislation, governance, and financing all impact the ability and willingness of countries to adopt digital technologies for health and social care provision. Fundamental to this is a conceptual consideration of what is meant by effective digitalisation and its purpose. For example, digitalisation is not digital solutions to replace care (due to workforce shortages) but rather digital technology that enhances the provision of person-centred care. Provision of high-quality, interoperable digital platforms and records that provide nurses and midwives direct and comprehensive access to up-to-date clinical information can lead to improved care, client empowerment, and decrease the documentation burden²⁸. However, we argue that technology to support nursing and midwifery is poorly configured and largely under resourced. Furthermore, nurses and midwives are still commonly required to use practice systems that lack basic usability, reinforcing disruptive workflow processes or generating added documentation burdens because of poor configuration and lack of interoperability and optimization²⁹. These result in digital technologies being time consuming rather than supporting clinical practice, and this is important as time is often cited as a barrier to implementing digital technologies³⁰. This leads to a culture of

negativity that prevents nurses and midwives from embracing digital transformation, and we argue that involving nurses and midwives at earlier stages would promote a wider culture of positivity towards digital healthcare.

Nurses and midwives best understand the context in which they practice, as such, it is essential they are involved in the development of the digital technology they are expected to use. Paradoxically, digital technology can either hinder or substantially enhance the care provided by nurses and midwives, and as a result, constrain or encourage nurses and midwives in developing digital fluency. If nurses and midwives influence the development and adoption of digitisation in a more uniform manner across the WHO European region, then opportunities to provide holistic person-centred care could be better capitalised upon. Exemplars include improved access to health-related data and better communication regardless of distance and access³¹. Additionally, the use of digital technology could potentially reduce turnaround times, resource use, medication errors and adverse drug events; increase the use of preventive care; enable greater adherence to clinical guidelines³²; and even offset the impact of climate change³³, where, for example, services are provided through digital platforms instead of in-person interactions they can reduce the energy use and carbon footprint associated with travel. For patients, digital healthcare can increase flexibility and better access to services, for example remote monitoring and easier access to management of long-term conditions³⁴ but they need to feel confident using such technology and nurses are key to facilitating this through supporting both digital literacy and capability as well as signposting to credible online applications and sources³⁵.

STRATEGIC DIRECTION: JOBS

With the growing use of digital technology, the roles and responsibilities of nurses and midwives are transforming in an unparalleled manner, deepening the requirement for workforce capacity building and continuous professional development. The Topol review commissioned by the United Kingdom Secretary of State for Health and Social Care³⁶ reported that within the next two decades, the majority of jobs in the National Health Service (NHS), including nursing and midwifery, would have a digital component. Virtual consultation devices and electronic systems are indispensable tools used to diagnose and treat people³⁷, however, part of workforce planning must include the degree to which the workforce are equipped with the skills and competencies required to work with this technology. Even though the current and next generation of nurse and midwives may be considered “digital natives” due to increased use of simulation within their education programmes³⁸, research shows that they would appreciate more training on digital technology³⁹.

When considering jobs, we must consider the context of global nursing and midwifery. Currently, a global nursing shortage of 5.9 million nurses exists, and 89% of these shortages occur in low- and lower-middle-income countries¹³. In addition, roughly one in eight nurses work in a country other than where they were born or educated¹³. There are similarly distributed shortages in midwifery in low- and lower- middle-income countries, highlighting the impact of global migration in these professions. This can result in a disconnect between the expectations of digital capability expected of the nurses and midwives within in their country of origin and recipient countries and the importance of continual professional development for nurses and midwives in digitalisation. In addition, we must be cautious that enhanced digital capabilities in certain countries do not exacerbate staff preferences for working in highly developed digital progressive countries. It is important that all countries support the Global Code of Practice on Recruitment¹³ to ensure that nurses and midwives are globally distributed.

STRATEGIC DIRECTION: EDUCATION

Educating nurses and midwives to be digitally competent is important for several reasons. Nurses and midwives require both the appropriate skills and knowledge to either use digital health interventions themselves or to recommend their use to the people and other professionals with whom they interact. For nurses and midwives to lead in the digital space, ensuring that digital technologies promote high-quality, person-centred care, nursing and midwifery education programmes must include the use of digital technologies and data science so graduates can meaningfully contribute to the wider agenda. However, educational preparation and permitted scopes of practice vary depending upon the country in which nurses and midwives have been trained and practice, which increases ambiguity regarding digital technology²⁶. Furthermore, Odone and colleagues⁴⁰ outline that education programmes for healthcare professionals (including nurses and midwives) in Europe currently have insufficient digital health in their curricula; this must be urgently addressed as we move into more technologically supported healthcare. Research by Wong et al.,⁴¹ on student nurses' perceptions of digital health technology identified students were fearful of using digital technology due to a lack of preparation as well as the impact it could have on the provision of personalised care. We argue that educational preparation needs to include not only digital literacy but also a re-examination of nursing itself and how to nurse in an increasingly digital field. Gillaspay and Vasilica⁴² argue for a new digital heutagogy to enable graduates to be prepared for the digital world, and this needs to include not only preparatory but continual professional development education to educate the digital leaders (in education, research and clinical practice) of the future. However, key to this success is the valuing of digital within the professional nursing identity.

Embedding digitalisation and increasing its use in nursing and midwifery educational programmes in this way could also support the training of more nurses and midwives in remote or rural areas through distance learning¹³ and help mitigate current clinical placement constraints by positively impacting these restricted numbers by providing simulated, hands-on opportunities. Central to the educational agenda is interprofessional learning to break down professional barriers, yet the WHO identified that whilst 67% of responding countries had some educational standards in interprofessional learning, this was as low as 20% in some regions²².

The international shortage of nurses and midwives means attention must be paid to retaining those currently in the workforce. This requires recognition that many existing nursing and midwifery staff may not have the skills required to work effectively in digitally enhanced environments. Poor digital health literacy was found to be the most common barrier to the digital transformation of healthcare, and consequently, the adoption of health technologies has been gradual in countries across Europe.⁴³ Thus, improving digital literacy capabilities must be prioritized to ensure better adoption and implementation of digital health services and technologies by nurses and midwives as well as to increase their confidence in leading a digital transformation.

DISCUSSION

Applying the Strategic Directions for Nursing and Midwifery¹³ asks us to consider challenges and opportunities for nurses and midwives in the digital space. However, a cultural shift within healthcare is required to explore how nurses and midwives are equipped to work in more digitally enhanced ways. Thus, involving them in the design of the systems they use is fundamental. Integral to this is a culture of interprofessionalism, that is, ensuring that nurses and midwives are recognized and valued as part of the multidisciplinary team. This requires that their patient records must be interoperable with those of other professions, and the systems must capture data important to enable nursing and midwifery care. This includes both numerical assessments/data such as vital signs and data from holistic assessments that capture not only physical, but also psychological, social, and spiritual well-being. Holistic assessment is the cornerstone of person-centred care, and data capture of these core areas must be possible on digital platforms. The application of holistic models of care underpinned by standardised terminologies that represent nursing and midwifery care must be consistent. Currently, this information is often neglected in healthcare documentation and digital systems, and we argue failure to include this is detrimental to high-quality, person-centred care and population health.

Globally, access to, integration of, and sustainability of digital technology hugely varies⁴⁴, for example, in some countries in the WHO European Region 74% of the population do not have internet access⁴⁵. The fundamental issue of infrastructure must be addressed to ensure global public health in which no one is left behind. Structurally, the focus tends to be on hospital-based care, yet most care is provided as primary care. Thus, most importantly, we need to ensure that any proposed digital transformation appropriately reflects primary care, interoperability across care settings, and that care outside of traditional health settings is supported. Across the WHO European region, nursing and midwifery require a cultural shift to drive the evolution of digital systems, empowering them to meet contemporary and emerging needs of people across primary, secondary, and tertiary care and leadership is central to the successful achievement of this. Tasks undertaken by nurses and midwives that could be automated present opportunities for reappraisal and may be better integrated into novel, technology-enabled processes to support nurses and midwives in delivering effective, safe, quality care. Collaboration and leadership by nurses and midwives with digital developers, providers, and the community is essential to ensure this is achieved.

Lastly, we must consider the users healthcare systems. Not everyone has equal access, literacy skills, or confidence in using digital technologies, and support must be provided to ensure that the digitisation does not widen the health gap for those already marginalised. For example, a European study identified predictors of regular internet use that include education, health status, and experience with computers at work⁴⁶. Furthermore, The Lancet and Financial Times Commission⁴⁷ assert that digital transformation has to be seen as a new social determinate of health due to the influence that social determinates have on access to and utilisation of digital health technology. Equal provision must be available and offered to those without access to technology who experience digital exclusion. Also, the public must have confidence regarding confidentiality of their personal healthcare data in an increasingly digital infrastructure. Widespread public concern is evident regarding data sharing. Reasons for this stem from a lack of trust operating at individual, community, and system (process) levels⁴⁸. We argue that nurses and midwives, as some of the most trusted professions⁴⁹, have a key role in boosting public confidence in digital technology; however, to do this, they need personal confidence in the systems being used.

CONCLUSION

Digital technologies increasingly affect nurses and midwives' roles across the WHO European Region, reflecting expanded, digitally enabled societies. Unquestionably, a capable digital health workforce is key to ensuring safe, quality, person-centred healthcare going forward. Nurses and midwives across

the WHO European Region have critical roles encompassing the domains of person-centred care, leadership, education, and research. As healthcare systems increase the use of digital technologies to optimise care, digital health-related roles and digitally capable nurses and midwives will become customary. A system-wide digital transformation can benefit from the unique contributions nurses and midwives can make to maximise the potential of health digitisation across Europe. This can only be achieved by engaging nursing and midwifery policymakers, leaders and practitioners in the digital space. Moving forwards there needs to be a consistent investment in nursing digital leadership at all levels (local to national) across Europe with opportunities to engage and learn from each other as well as continued investment and research to reduce negative health outcomes due to digital exclusion.

Figure 1 – The WHO Global Strategic Directions for Nursing and Midwifery 2021-2025¹³ and digital transformation of healthcare

Research Ethics Approval: NA as this paper does not involve human participants

Funding Sources: No external Funding

Competing Interests : Two of the authors are staff members of the World Health Organization. The authors alone are responsible for the views expressed in this paper, and they do not necessarily represent the decisions, policies, or views of the World Health Organization.

Contributorship

Conceptualization; Data curation; Formal analysis; Investigation; VH, MS, JR, CH, RAO, GJ, NP, JG, BL, ML

Project administration; VH

Resources; VH

Roles/Writing - original draft; VH, MS, JR,

Writing - review & editing; VH, MS, JR, CH, RAO, GJ, NP, JG, BL, ML

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