

Title What can good leadership do to support the digital revolution in health?

Authors Navinee Kruahong
Jamie M. Lachman

Corresponding author's name Navinee Kruahong

Corresponding author's address Department of Mental Health, Ministry of Public Health, Tiwanond Road, Amphur Muang, Nonthaburi 11000, Thailand.
Tel: +66 8 6966 2566

Corresponding author's email navinee.kruahong@gmail.com

Author's affiliation and qualifications

Navinee Kruahong MSc in Global Mental Health, London School of Hygiene & Tropical Medicine, UK.
Department of Mental Health, Ministry of Public Health, Thailand.

Dr Jamie M. Lachman DPhil, University of Oxford, UK.
Department of Social Policy and Intervention, University of Oxford, Oxford, UK.

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What can good leadership do to support the digital revolution in health?

Effective management and coordination are important for the digital revolution in health to increase the effectiveness, equity, accessibility, availability, safety, timeliness, and cost-effectiveness of healthcare delivery. Good governance in supporting the digital revolution is needed at the national level to address significant challenges impeding technology adoption in health, research capacity, and practical approaches to improving healthcare services. The evidence-based framework for managing and coordinating digital innovation in health is inadequate in light of the fast pace of technological improvement and adoption. It is crucial to understand the potential challenges facing leadership in digital revolution, and also the range of stakeholders involved in the national digital health improvement process. This paper will discuss the areas of leadership and management in supporting the digital revolution in health regarding the adaptation of key operational components of health research systems.

Digital revolution in health and its challenges

In this changing landscape, all health system has been seeking for solutions to support equitable and universal access to quality health services; enhances efficiency and sustainability of health systems to deliver quality, affordable and equitable care; and strengthens and scales up health promotion, disease prevention, diagnosis, management, rehabilitation and palliative care including before, during and after an epidemic or pandemic [1]. Digital innovation has begun to meet these challenges head-on to re-engineer healthcare and started the age of digital revolution. Health systems around the world have been, for instance, using electronic medical records, using algorithms derived through mining clinical datasets to support the healthcare delivery and to support research and real-time decision making; implementing mobile health technologies such as m-health apps and interventions; delivering remote monitoring and self-management; and consulting via video link (telemedicine) [2]. The trend of digital revolution in health not reverse or stop, but on contrary accelerate. In twenty-first century, there are trends of the use of information and communication technology in health services delivery and personal health and wellbeing: Artificial intelligence (AI) and big data; Telemedicine; Mobility and cloud access; Wearables and IoT; and Patient empowerment [2]. However, the number of real and perceived barriers for digital innovation adoption has become virtually insurmountable. The most significant challenges include policy and regulation processes, cultural, financial, workforce, strategic [3], structural, technical, privacy and security issues [4]. Regarding to these challenges, it seems to be impossible to evolve traditional health to be digital health, without action of the leader in health system. In terms of policymaking, the critical question is how can leadership regulate the emergence of digital technologies, while creating an environment that promotes digital health innovation?

Articulate strategic vision and national priorities

Policymakers engaged in setting national digital health priorities and stakeholders (e.g., researchers, practitioners, engineers, technology developers, and patients) should establish a strategic vision, specific goals, key tasks, and an organizational framework to ensure cohesion and shared objectives to support digital revolution in health. The key action which leaders should be concerned is collaborating with the private sector and civil society to design a shared vision of the digital health in the future. Due to being a director and facilitator of health system, government should put people at the center of the digital future. The vision should be developed with key principles of improving health for everyone, everywhere by accelerating the development and adoption of appropriate, affordable, privacy, security, scalable and sustainable digital health solutions. Creating a clear vision is enable to create the digital health road map of the nation, specific goals, key tasks, and an organizational framework. Moreover, mechanisms for coordinating and implementing national priorities for digital health are needed, especially in low-and middle-income countries where there are limited human and financial resources, and research capacity [1].

Supporting policies and regulations

Although health technologies need to be regulated in order to assure patient safety, obstructive regulations hinder innovation and should be reformed or modified to remove legal obstacles to technology diffusion [3]. Currently, regulators are trying to minimize the types of technologies requiring premarket review. For example, the 21st Century Cures Act and the Food and Drug Administration in the United States has clarified that low-risk digital health products, such as, mobile applications and self-management programs designed for supporting healthy

behavior fall outside of normal regulation [5]. At the same time, governments have to ensure that the digital technology regulations can cope with new unpredictable ethical and regulatory issues. More agile approaches which require stakeholders to collaborate to design regulatory framework are needed. In addition, governance policies should cover two main issues regarding digital health technologies – data security and management or program standard. Digital health technologies often collect large amounts of highly valuable and personal information. Governance should ensure that organizations which develop and implement these technologies can protect the privacy of data while at the same time allowing for data to be used to improve technologies and health care. Moreover, data collection collecting from various sources requires the data standardization to enable the technical aspects of mapping and combining data [4]. Transparency about data collection, use, and security, as well as strategies to protect patient privacy, are crucial to building the trust that will ensure full participation of stakeholders in the digital revolution in health.

Strengthening the cooperation within the ecosystem of digital revolution in health

In addition to those from the health system, digital health technology involves key stakeholders from other sectors and contributors on individual, community, national, and international levels. The support of related industries includes bio-sensory technology, u-Health, wearable computing, medical imaging, and electronic health records (EHR). These form an ecosystem of digital technology in health as both suppliers and users. Policymakers need to cooperate with the tech industry who has the knowledge and expertise required to support the digital health innovation. Public-private partnerships have often been used in other fields such as the development of drugs and vaccines [6]. Such collaboration will reap mutual benefits by combining resources and technologies in research and development, strengthening the relationship between the private sectors as a technology supplier and the public sector, such as health organizations, hospitals, health research institutions. This partnership may help the public sector increase business credibility, sustain resources, and gain management skills from the private sector. On the other hand, the private sector would gain benefits from the various corporation, brand promotion, tax breaks, and market penetration [7].

Strengthening research systems

Strong research systems focusing on digital health technologies are needed to build evidence of their effectiveness and scale up, as well as to inform the development of digital health tools to support healthcare services. Building local research capacity is the key to strengthening and sustaining digital health research systems. Successful capacity building often depends on political decision-making, sufficient financing, and institutional credibility. It also requires a responsive capacity building plan that applies a situational analysis of the resources needed for health research and the inequities and gaps in health care [8]. Moreover, competent leaders who can energize and mobilize the entire system can also support digital health research. It is essential that leadership and management competencies are developed among the stewards of research system, particularly in countries where these do not currently exist. North-South research partnerships, as well as South-South collaborations where research capacity already exists in digital health technology, should also be actively encouraged through international funding agencies and knowledge sharing activities.

Monitoring and evaluation

As the digital health technologies become more regional and global, monitoring and evaluation becomes more complicated, especially in terms of data security and protection. It is necessary to review and monitor the use of technology, especially the accessibility of health care data that contain personal data. In this role, governance should answer two questions: Does a digital health intervention increase the quality of healthcare delivery, and does it promote better health outcomes? If yes, what are the mechanisms of health care delivery and cost-effectiveness of the intervention? The first question will help governance bodies understand how best to improve health outcomes, whereas the second question is of fundamental interest to policymakers, providers, patients, and payers. The evaluation of digital health interventions should also be rigorously tested in pragmatic experimental trials that examine positive and harmful effects within the complexity of a multicomponent health system [9]. A digital health intervention is more likely to be successful, sustainable, and scalable if developed and tested within a real-world setting.

Conclusion

In summary, digital health technologies will play pivotal roles in transforming healthcare delivery. Leadership is the key success which hold the future of health. The five operational components suggested in this paper would support the digital revolution in health by providing a clear vision, connecting national priorities, creating an environment promoting innovation, cooperating inter-and intra-healthcare organizations, strengthening research systems, and implementing ongoing monitoring and evaluation. The combination of these operational components will ensure that governments can be leaders in the digital health revolution providing tangible benefits at scale while reducing health disparities.

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