

Chapter 9

The Impact of Digital Health on Traditional Healthcare Systems and Doctor–Patient Relationships: The Case Study of Singapore

Ching Yuen Luk

Nanyang Technological University, Singapore

ABSTRACT

This chapter uses a historical perspective to examine the development trajectory of digital health in Singapore since 1980 and the impact of digital health on the current health care system and doctor–patient relationship. It shows that digital health is able to transform a fragmented and provider-centric health care system into a more integrated and patient-centric health care system. Besides, it improves the operational efficiency of health care providers, reduces administrative costs and turnaround time, and empowers patients to contribute in treatment decisions. It shows that the development of digital health requires the government to have strong political will and long-term commitment to support and promote the use of digital health to its full potential and engage stakeholders in the policy making process so that such policy can suit the special needs of stakeholders.

BACKGROUND

Health and ICTs are closely linked (World Health Organization, 2005a, p.2). Health is increasingly seen as both a driver for and beneficiary of ICT development (World Health Organization, 2005a, p.2). Health care providers' heightened interest in enhancing the patient experience while facing a shortage of trained health personnel and patients' heightened expectation of high quality of medical care are two key factors that drive the adoption and innovation of ICT in health care. Meanwhile, advances in ICT over the past few decades have brought lots of benefits to patients and health care providers, including

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patients' improved access to medical care, better quality of care, increased productivity in health care delivery systems, and economy and efficiency of care (Dzenowagis, 2009, p.14). With the emergence of the Internet and web-based technologies, the health care sector is further revolutionised that there are faster and more efficient ways to disseminate health-related information, diagnose, treat and prevent diseases and perform physical exams and surgeries. It is undeniable that ICTs have played an important role in modernizing and reforming health care systems.

Digital health, in the broadest sense, refers to the use of information and communication technologies (ICTs), such as computers, the Internet, multimedia, and mobile phones, to provide four key functions in a timely manner: (1) collect, process, analyse, store, retrieve, share, exchange and manage clinical information and data; (2) provide patients with consultation, prescription, rehabilitation, booking and managing medical appointment or referral services; (3) make health-related information and resources more accessible to patients and the general public; and (4) provide non-clinical services such as medical education, clinical research, provider training and administrative meetings. E-health encompasses a wide range of systems or services, including e-health portals, electronic health records (EHRs), telehealth, robotics and mobile health (m-health). E-health is believed to bring lots of benefits to different types of stakeholders. For health care providers and health care professionals, e-health can enhance operational efficiency, facilitate exchange of clinical information, data and knowledge, facilitate better and more effective communications, enable more evidence-based decision making, improve diagnostic accuracy and safety, service delivery and productivity in health care, and strengthen coordination and collaboration among hospitals and health care professionals. For patients, e-health can increase their engagement and empowerment, reduce waiting and travel time, and receive more personalized medical care. Specifically, elderly patients, patients with physical disabilities and those who live in remote areas can benefit from e-health (World Health Organization, 2004, p.2) because they can have real-time communication and interaction with medical professionals. For the general public, e-health can improve health literacy and health outcomes at both an individual and a societal level, increase their awareness of disease outbreaks and emergencies (Wilson & Brownstein, 2009, p.829), and help them make better decisions about their health and that of family members. Different types of stakeholders hold similar thoughts that e-health plays a promising role in improving the quality of health care.

Since the early 2000s, e-health has attracted considerable international attention. In December 2003, the topic of e-health was discussed at First Phase of the World Summit on the Information Society (WSIS) (World Summit on the Information Society, 2003, p.8). The Geneva Plan of Action, which was agreed at the 2003 WSIS, identified e-health as one of the important areas of activity that required collaborative efforts of health professionals, governments, other agencies and international organizations to promote knowledge building and deployment in medicine and public health, facilitate access to local and international health-related information, extend the reach of medical care and medical assistance to vulnerable populations and those who lived in remote and underserved areas through the use of ICTs (World Summit on the Information Society, 2003, p.8). Recognizing the potential impacts of ICTs on health care, the Fifty-eighth World Health Assembly in May 2005 adopted a resolution establishing an E-Health Strategy for World Health Organization (WHO) (World Health Organization, 2017) while at the same time calling upon Member States to draw up "a long-term strategic plan for developing and implementing eHealth services in the various areas of the health sector" (World Health Organization, 2005b, p.121) and "endeavour to reach communities, including vulnerable groups, with eHealth services appropriate to their needs" (World Health Organization, 2005b, p.121). The WHO believed that "[t]he strengthening of health systems through eHealth reinforces fundamental human rights by improving equity,

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