Chapter 1
Telemedicine and Electronic Health:
Issues and Implications in Developing Countries

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ABSTRACT

This chapter reveals the overview of telemedicine; telemedicine in developing countries; Electronic Health Record (EHR); and mobile health technologies. Telemedicine and Electronic Health (e-health) are modern technologies toward improving quality of care and increasing patient safety in developing countries. Telemedicine and e-health are the utilization of medical information exchanged from one site to another site via electronic communications. Telemedicine and e-health help health care organizations share data contained in the largely proprietary EHR systems in developing countries. Telemedicine and e-health help reduce the cost of health care and increases the efficiency through better management of chronic diseases, shared health professional staffing, reduced travel times, and shorter hospital stays. The chapter argues that utilizing telemedicine and e-health has the potential to enhance health care performance and reach strategic goals in developing countries.

INTRODUCTION

Patient safety is a major component of quality in health care (Kasemsap, 2017a). Improving the safety of patient care requires system-wide action and modern technology to identify potential risks to patient safety and implement long-term health care solutions. Telemedicine can increase patient safety and improve health care outcomes (Kasemsap, 2017a). Electronic Health (e-health) is an important area where governments and health care organizations continue to spend money with the hope of improved outcomes and reduced costs (Lerouge, Tulu, & Wood, 2016). An example of e-health implementation is users' exchange of health information through Web 2.0-based social networking sites (SNSs) engender-

ing modern social health experience that contrasts with the traditional individual experiences of health care services (Lefebvre & Bornkessel, 2013).

Telemedicine and e-health as the application of information and communication technologies (ICTs) in the health sector can offer opportunities in global health care (Parentela, Mancini, Naccarella, Feng, & Rinaldi, 2013), such as the remote visits with patients, immediate access to health care professionals, real-time access to health data, and health monitoring capabilities (Kasemsap, 2017a). As technological advances make inroads into the developing world, telemedicine and health care related information technology (IT) are expected to significantly grow in many developing countries (Alajmi et al., 2016). In many African countries, telemedicine can provide access to scarce specialist care, improve the quality of health care in rural areas and reduce the need for rural patients to travel to seek medical attention (Mars, 2013). Further, in most developing countries, there is a severe scarcity of medical specialists (Iyer, 2009) and telemedicine can solve this problem by managing the new and affordable technology with the potential to deliver the convenient and effective care to patients (Kasemsap, 2017a).

Other examples include the electronic health record (EHR) and health information exchange (HIE) networks (Ben-Assuli, 2015). For many years, the introduction of EHR in medical practice has been considered as the best way to provide efficient document sharing among different organizational settings (Piras & Zanutto, 2010). EHRs and their ability to electronically exchange health information can help health care providers effectively provide higher quality and safer care for patients while creating tangible enhancements in global health care (Kasemsap, 2017b). Mobile health is an example of HIE network application, utilizing mobile technologies (Karia, 2016). Mobile health platforms offer a promising solution to many important problems facing current health care system (Harvey & Harvey, 2014). The advantages of HIE have driven policymakers and politicians to allocate funds for HIE adoption (Williams, Mostashari, Mertz, Hogin, & Atwal, 2012).

This chapter focuses on the literature review through a thorough literature consolidation of telemedicine and e-health. The extensive literatures of telemedicine and e-health provide a contribution to practitioners and researchers by revealing the issues and implications of telemedicine and e-health in order to maximize the impact of telemedicine and e-health in developing countries.

BACKGROUND

Telemedicine is one of the modern health care technologies that have brought an opportunity for people who are living in rural areas to gain better accessibility and quality of health care services (Alajmi et al., 2016). Telemedicine implies that there is an exchange of information, without personal contact, between two physicians or between a physician and a patient (Crisóstomo-Acevedo & Medina-Garrido, 2010). Physicians are very concerned about achieving improved health of patients and communities, and the implementation of telemedicine is seen as an essential tool (Nakayasu & Sato, 2012). One of the largest constraints in developing countries' public health sector is the acute shortage of financial resources that leads to a shortage of medical expertise (Treurnicht & van Dyk, 2012). In addition, lack of health care facilities and effective health care systems are also important problems faced by these countries (Iyer, 2009).

Over the past decade, the interest in e-health has risen very quickly (Jordanova, 2010). E-health encompasses all applications of ICT in health care (Aas, 2011) and covers telehealth that relates to a broader set of activities including patient and health care provider solutions. Telemedicine and e-health

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