Issues in Telemedicine Service:
Acceptance and Willingness

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INTRODUCTION

The knowledge-based economy, health quality, rapid technology progress, green innovation and digital society have inspired the Malaysian government and Ministry of Health to acknowledge telemedicine blueprint since 1997 (Ministry of Health, 1997). However, the original push on telemedicine to promote lifelong wellness has not led to a large-scale telemedicine sector in Malaysia due to poor infrastructure (limited availability of broadband Internet), premature funding and low public acceptance (Maarop and Than, 2012). Most healthcare providers have greater interest in using Health Information Technology (IT) to implement electronic health records and reduce administrative costs rather than in using these technologies to make more healthcare-related services extensively available.

The purpose of this chapter is to tackle one of the most important and challenging trends in healthcare and health-related service namely telemedicine. It is currently the most necessary and demanding trend in healthcare industry. It aims for lifelong wellness enrichment where each individual is accountable for the supervision of his/her own health. The investment in innovation of health care and health-related services is aimed at producing a nation with healthy society through telemedicine (health service system) that is efficient, technologically appropriate, and environmentally adaptable and consumer friendly with prominence and eminence on quality, innovation and value of health. Thus, this chapter regards telemedicine as an innovation service offered by innovative healthcare providers which offer service portfolios such as healthcare advice, instruction and monitoring by healthcare service (HCS) for patients. For example, telemedicine facilitates a patient when he/she wishes to consult with the doctor or nurses or vice versa when the doctor or nurses need to supervise the patient at certain times within a given day.

The increasing number of telemedicine services is in response to customer demand and competitive pressure. This chapter discusses a comprehensive practical introduction to the shift towards health service system or telemedicine of healthcare service providers from the users' perspective. The main concept of telemedicine is explained with the intention of establishing a common understanding and usage of the terminology among the wider audience. The chapter focuses primarily on telemedicine implementation that explores users' willingness to accept it. Hence, this chapter will emphasize on individuals' worldviews on telemedicine such as evaluation, perception and decision on accepting and rejecting telemedicine.

BACKGROUND

There is no definite universal definition of telemedicine. Telemedicine is a term used to describe the health service system, often interchangeable with terms such as telecare, tele monitoring, telehealth, e-health or Health Information Technology (HIT) related issues (Lankton, 2007; Liu, 2009; Peeters et al., 2012; Huang, 2013). Hein (2009) states that the American Telemedicine Association (ATA) defines telemedi-

cine as the use of medical information exchange from one site to another via electronic communications to improve patients' health status. Telemedicine is a tool or solution to improve and/or sustain health-care delivery and/or patient health performance by using IT. Dyk (2014) demonstrates the relationship between e-health, telehealth, telemedicine, telecare and m-health. In general e-health covers telehealth that relates to a broader set of activities including patient and provider solution whereby telemedicine is a subset of telehealth that has a narrow focus on curative, preventive and promotive aspects. Telecare refers to continuous, automatic and remote monitoring of real time emergencies or a preventive health application. Further, m-health may be regarded as e-health applications that use mobile technologies.

Telemedicine comprises products and services (Hein, 2009; Peeters et al., 2012) ranging from medical devices to delivery system. Examples of telemedicine products are medical devices which are capable of collecting and electronically transmitting information (either immediately or in the future) which can be digitized to be used in telemedicine applications e.g. blood glucose meters, pulse oximeters, blood pressure cuffs, CT scanners, and MRI machines. They include devices targeted for home healthcare and the needs of patients' interest in monitoring health status closely and devices for facilitating information between hospitals, clinics and physicians. Examples of telemedicine-related services include store-and-forward technology for documents and images, remote monitoring of a patient's vital signs, secure messaging; e-mail exchange of data, alerts and reminders between physicians and patients and having a specialist remotely available by video conference to observe and diagnose a patient's condition and recommend treatment. Other services are electronic exchange of prescription information between physicians, pharmacies and consumers; or transmission of information to alert communities about pandemics and other widespread health threats.

One of the few unearthed research areas in telemedicine sector in Malaysia is the development and competitiveness of HCSs (Maarop et al., 2011; Maarop and Than, 2012). Initially HCSs have invested in IT for processing records, keeping health information and transmitting data rather than use these technologies to create more healthcare-related services. For example, electronic health records can be used by patients, physicians, nurses, hospitals and clinics; these health information can be exchanged or used to detect trends of public health and to determine patients' history (Hashim, 2003; Huang, 2013). There are studies on telemedicine which investigated willingness to use telemedicine or telemedicine acceptance (Werner and Karnieli, 2003; Klein, 2007; Kowitlawakul, 2008; Liu, 2009; Templeton, 2010; Peeter et al., 2012; Huang 2013). However, none of these has tackled the means for HCSs to develop and achieve competitiveness.

ISSUES IN TELEMEDICINE

What Is Telemedicine?

Telemedicine is a form of self-health management via self-service technology. Telemedicine has become an essential necessity in the world of HCSs. It had been seen as a prime prospect for enriching the nation's standard of health quality and advancement of lifelong wellness via internet communications technology or the latest telecommunications technology. Innovations in internet communication such as availability of cheaper bandwidth and higher bandwidth speed have expanded internet communication capabilities and provide more accessible and strong platform for telemedicine implementation (Hein, 2009; Huang, 2013). Consequently, telemedicine can be viewed as an innovation of the provision of healthcare and

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