Chapter 111
Information Systems in Healthcare with a Special Focus on Developing Countries

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ABSTRACT

Information Systems offer tremendous opportunities to improve healthcare services. Thus far, they have a proven track record as a way to improve the quality of services, and work processes effectiveness. However, Health Information Systems can be inappropriately specified, having functional errors, being unreliable, and not user friendly. Such breakdowns may affect working processes and decisions of healthcare providers, resulting in potential harm to patients. This chapter will elaborate a number of important issues/problems related to Information Systems in healthcare with the aim of providing a deeper contextual insight into their application in healthcare and offer advice on the factors that should be considered when designing and evaluating them. The chapter aims at providing a literature review of Information Systems in healthcare and highlight the challenges Information Systems face in this domain by providing a significant review of Information System theory in healthcare.

INTRODUCTION

A host of academic articles and agency reports have argued that information and communication technologies (ICT) can make considerable contributions to improving healthcare in developing countries. However, development practitioners have learned from bitter experience that 'technological fixes' often deliver far less than promised when confronted with the chaotic and sometimes corrupt health systems in many countries. Generally speaking, healthcare systems are at risk due to

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increasing demand, spiralling costs, inconsistent and poor quality of care, and inefficient, poorly coordinated care processes (Llucha, 2011). In response, governments are developing various strategies, one of which consists of heavy investments in information systems in healthcare as the use of information systems in the healthcare domain has been proven as a way to improve the quality of services, and work process and effectiveness (Johnson, Johnson and Zhangal, 2005; Easona and Waterson, 2013; Waterson, 2014). For example, the recent health reform in the USA includes plans to spend $18.9 billion to promote Healthcare Information Systems (HISs) and provide incentives for information systems adoption by healthcare organizations (Llucha, 2011).

The global shift in orientation and health strategy from curative to preventive care and from centralized to decentralized health care, has necessitated the need for comprehensive and efficient health information systems. This led to a communication revolution brewing in the modern healthcare system fuelled by the growth of powerful new health information technologies that hold tremendous promise for enhancing the delivery of healthcare and the promotion of health. As a result, an ongoing research activity has been witnessed recently investigating different aspects of healthcare informatics and making significant progress toward understanding the information Technology (IT) phenomena in healthcare(Lopez and Blobel, 2009; Ludwick and Doucette, 2009; Martikainen et al., 2011). Despite the successes of health informatics research, numerous challenges to developing, implementing, and evaluating HISs still remain (Chiasson et al., 2007, Easona and Waterson, 2013).

While it is evident that information systems offer tremendous opportunities to improve healthcare services by for example reducing clinical medication and diagnostic errors, supporting healthcare professionals in providing timely, up-to-date patient information, increasing the efficiency of care and improving the quality of patient care (Ammenwerth et al., 2004). However, hazards also remain associated with information systems in health care. HISs can be inappropriately specified, having functional errors, be unreliable, user-unfriendly. Such breakdowns may affect working process and decisions of healthcareproviders and results in harm for the patients (Lapointe, Mignerat and Vedel, 2011; Chiasson & Davidson, 2004).

This chapter will elaborate a number of important issues/problems related to information systems in healthcare in developing countries with the aim of providing more insight to better understand information systems in healthcare and provide some recommendations about the factors that should be considered when design and evaluate information systems in healthcare especially in developing countries. The chapter aims at providing a literature review of the Information Systems (IS) in healthcare and highlight the challenges of IS in healthcare, by providing an up to date literature review of the IS theory in health care. A significant part of this chapter will be covering the main challenges of information systems in health care.

Literature Review

This section presents a selective literature review focusing on different aspects of IS in healthcare in general, followed by a discussion to the main lessons learned from the literature and the most important issues related to IS and Healthcare Information Systems (HIS) in different settings in the healthcare domain with a special focus on developing countries. The literature review covered in this section was organized and categorised according to the main factors and issues investigated in the studies to help better understand HIS from different perspectives as explained below:

Historical View

The historical view of HIS started a few decades ago. The actual use of Information technology in