Chapter VII

Bringing Secure Wireless Technology to the Bedside:
A Case Study of Two Canadian Healthcare Organizations

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Abstract

Wireless technology has broad implications for the healthcare environment. Despite its promise, this new technology has raised questions about security and privacy of sensitive data that is prevalent in healthcare organizations. All healthcare organizations are governed by legislation and regulations, and the implementation of enterprise applications using new technology is comparatively more difficult than in other industries. Using a configuration-idiographic case-study approach, this study investigated challenges faced by two Canadian healthcare organizations. In addition to interviews with management and staff of the organizations, a walk-through was

also conducted to observe and collect first-hand data of the implementation of wireless technology in the clinical environment. In the organizations under examination, it was found that wireless technology is being implemented gradually to augment the wired network. Problems associated with implementing wireless technology in these Canadian organizations are also discussed. Because of different standards in this technology, the two organizations are following different upgrade paths. Based on the data collected, best practices for secure wireless access in these organizations are proposed.

Introduction

Technology, the Internet, and healthcare reform are converging to change the healthcare environment and create a seamless integrated healthcare network. This seamless network will facilitate the flow of information from multiple sources to multiple healthcare providers, administrators, patients, and other support services 24 hours a day, seven days a week, among multiple sites (Masys & Baker, 1997). Implementing and managing such a network within the healthcare environment poses unique challenges. First, medical and health information is highly sensitive; therefore security and privacy of the information must be a top priority. Security and privacy in healthcare is governed by legislation and regulation. In Manitoba, this means the Personal Health Information Act (PHIA). PHIA specifies how medical information can be accessed, by whom, and for what purposes. It also states the security and privacy regulations for all health information systems used within the province. Second, unlike other industries, medical care is not delivered in the same place even by the same healthcare professional, necessitating the need for multiple access points (APs) for the same information. For example, a physician on rounds moves from one patient to another, each of whom may reside in a different room, necessitating the need for network access in each room to record and receive data and communicate with other needed services such as pharmacy or nursing.

The challenge in creating a seamless network in healthcare is how to provide information to multiple users at the point in which they will require the information to deliver effective patient care. A wireless network may offer the opportunity to meet this challenge and provide significant benefits to the healthcare system. A wireless local area network (WLAN) offers improved accuracy and efficiency for documenting nursing care, decreased preventable medication error through better point-of-care medication-administration systems, an increase in patient satisfaction, and efficiency in admission and discharge and other health administration processes (Sims, 2004). Additional technical benefits include lower costs, less cabling, availability of the network in locations not accessible with a wired connection, and the ability to adapt to growth easier.

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