

Chapter 7.7

Data Security in Electronic Health Records

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ABSTRACT

Traditionally, patient information has been recorded on paper and stored in file folders at healthcare facilities and within physicians' offices. The implementation of electronic health records (EHRs), the lifetime record of an individual's health and health services delivered, allows for information to be stored on computers and offers the opportunity to store considerably more data, in much less space, with new efficiencies and value added as information is easier to access, legible, timely, non-redundant and readily available. However, there are many issues to consider with the implementation of a fully shared EHR. The protection of the information contained in the record is of the utmost importance as individuals stand to become quite vulnerable if that

personal health information is compromised or accessed by unauthorized users. Therefore, one of the goals of this chapter is to uncover ways in which personal health information is being protected in EHR systems. The second objective, a broader one, examines what regulations, legislation and policies are in place that remove some of the uncertainty and risk and make the use of shared information safe and secure. Many of the techniques and technologies used so far are adopted from the corporate world, where data security has been an issue for some time. Current legislation in the United States and Canada at both the federal and state/provincial levels has addressed the general principles of data security and privacy but are still lacking in specifics with regard to cross-jurisdictional sharing of health information and the implementation and use of EHRs. Many of the researchers and studies on the

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subject find this to be one of the most important areas of concern moving forward. The opportunities for EHR implementation and use are exciting as they have the strong potential to improve both individual health care and population health, but without proper regulation and policies in place it is possible that the risks may outweigh the benefits.

INTRODUCTION

It is undeniable that the rapid pace of technological advancement has had an impact on every facet of modern society. Old ways of doing things are often transformed overnight and society is left to catch up. It is also our responsibility to take a step back occasionally and analyze the direction our new technology is taking us, and decide if it is leading us down the path initially intended. One of the most important areas where technology is being applied is in the healthcare industry where advancement and new developments alter people's lives on a daily basis and can quite literally mean the difference between life and death. Yet as the medical field races ahead with nanotechnology, genome mapping, telerobotic surgery and countless other projects (Anvari, 2007; Godman, 2008), it is imperative that we take a closer look as to where we might end up, and more importantly, what we must be wary of not leaving behind. The subject of this paper is electronic health records (EHRs) that allow patient health information from multiple sources to be stored electronically as opposed to the traditional pencil and paper method. More specifically, we will examine the issue of privacy rights and take a closer look at what technology is being employed to ensure the security of health data.

The objective of this paper is to look at ways in which EHRs are currently being used in the healthcare industry. It will focus on the key issues involved in discussions of privacy rights, what different methods are currently employed to ensure data security, and what needs to be

fixed, or kept in mind, with regard to its future potential. EHRs provide an interesting facet of modern health care as the potential benefits are significant (reduction of medical errors, reduction of test duplication and cost savings, accessibility of the record anywhere, anytime, disease surveillance, resource planning and management), but in many ways the technology is proceeding faster than the policies and regulations required to ensure its safe and secure use.

CONCEPTUAL FRAMEWORK

With the ability to store large amounts of data from multiple sources in a small space and relatively inexpensively, EHRs are becoming a desired goal in the healthcare industry. The electronic health record, the longitudinal record of an individual's encounters with the health system and various health providers, is the goal of the ultimate multi-user, multi-facility, multi-purpose record. The EHR is envisioned as connecting institutional or facility-based electronic paper records (EPR) and the physician-provider electronic medical record (EMR) to provide a comprehensive lifetime record of care. The EHR will include information from different healthcare providers and in different formats, for example, text, voice, and digital images. This information, including demographic and clinical data, diagnostic results, alerts, reminders, and evidence-based decision-making support, should be accessible only to authorized users. A truly integrated electronic health record facilitates data linkage and data sharing among a number of different users in geographically different locations. The EHR supports care by multiple providers, and the use of health data for secondary purposes such as research, planning, management and administrative decision making. It provides value well beyond the capabilities of the current paper record. It also presents challenges in sharing information across jurisdictional boundaries and the maintenance of privacy and

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