Chapter 10
The Promises and Challenges of Health Information Technology

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ABSTRACT

This chapter explores the application of Information Technology to healthcare in the United States. Recent developments and trends in healthcare information technology (HIT) are presented and discussed. Widespread adoption of HIT promises to save lives, save money, and improve health. Definitions, descriptions, and examples of electronic health records (EHRs) and personal health records (PHRs) are provided. The significant efforts to broadly and meaningfully adopt HIT over the next several years are discussed. The significant challenges in implementing EHRs are discussed, including transformation of clinical processes. Finally, the impact of HIT on the concept of ownership of the healthcare record and how it may change the relationship between the patient and healthcare provider are explored. Implementing effective HIT on a nationwide scale will require considerable effort.

INTRODUCTION

The application of information technology to healthcare offers the promise of the comprehensive management of health information, including the exchange of information between patient and healthcare providers, among providers, and between providers and payers/government agencies. Healthcare information technology (HIT), if implemented extensively, has the potential to improve the quality of healthcare, to increase efficiency of providing care, and to reduce medical errors. This result translates into saving lives and saving money. The systematic application of

HIT through a country can result in the general improvement of the population's health.

Despite the fact that much of HIT was pioneered and developed in the US and this country remains an innovator in HIT, the US lags behind some other countries and regions in the implementation of HIT. Currently, there is a federal initiative in the US to promote adoption of HIT by healthcare providers. It is hoped that HIT will be implemented in the US broadly enough so that—in the words of David Blumenthal, MD, U.S. National Coordinator for Health Information Technology—a "nationwide electronic health information system" will develop (Blumenthal, 2010).

The Alliance for Health Reform (2009) describes HIT as encompassing "a broad array of technologies involved in managing and sharing patient information electronically, rather than through paper records." The central component of this broad array of technology is the electronic health record (EHR). An EHR is a record of an individual's health and healthcare-related information that is created, managed, and consulted by authorized clinicians and staff within one or more healthcare settings. Computer hardware and software technologies and standards underpin the EHR, and networking technologies and standards extend the EHR into the area of health information exchange (HIE). HIE enables the important information contained in the EHR to be shared across healthcare delivery organizations, regions, and nations.

Despite several decades of vigorous efforts to encourage the adoption of EHRs, most physician office practices and many hospitals have not done so in the United States. Even hospitals in the US that have begun to adopt HIT have a long way to go to achieve the desired end points, as will be discussed in detail later in this chapter. In fact, several countries or regions, including the Netherlands, the UK, France, Hong Kong, Singapore, and Australia, are significantly more advanced in the basic penetration and use of the EHR than the US. The US federal government through the Office of the National Coordinator of Health Information Technology and other agencies are trying to change that. The Bush administration set a goal of a fully functional EHR being used by every American by 2014. The Obama administration concurs with that goal and has appropriated tens of billions of dollars to make it a reality. This high-level focus on EHR adoption and the significant money that is available for such adoption over the next five years has generated great interest and activity in the US and beyond. Although the US has far to go in implementing HIT on a national scale, it remains a major innovator of HIT. The fragmented healthcare system with diverse types of providers allows for much innovation and experimentation in HIT.

There is the promise that HIT can decrease costs and improve healthcare quality, the highest levels of government and society support the implementation of HIT, and there is money available for the "meaningful use" of EHRs. Therefore, what, if anything, is holding the US back from quickly achieving the goal of implementing HIT? The answer is severalfold: engrained processes in clinical practice, fear of change, and a history of focusing on the technology rather than on how to make best use of technological innovation. HIT per se is indeed necessary, but it is not sufficient in itself to change healthcare for the better. Clinical processes and business processes need to be designed/redesigned *in conjunction with HIT* to advance toward the goals now set. For decades, too much of the focus has been on the technology and not on how to use the technology in ways that transform work, clinical practice, and outcomes. Already, much progress has been made using HIT to automate processes that easily lend themselves to automation, such as clinical laboratory functions and healthcare organization business processes such as accounting and billing. The challenge now is to use HIT in areas that are more difficult to automate. Using HIT as part of transforming fundamental clinical processes, such as planning and deciding about what patient care

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