Chapter 3
Electronic Health Record:
Adoption, Considerations
and Future Direction

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ABSTRACT

Over the last two decades there has been considerable deliberation, experience, and research in the arena of Health Information Technology (HIT), Electronic Medical Records (EMR), Electronic Health Records (EHR), and more recently, Electronic Personal Health Records (PHR). Despite the challenges involved in adopting these systems and technologies, there is consensus that they bring significant value to the delivery of trusted and affordable healthcare. The investment involved and the impact on customers, clinical and non-clinical staff, and processes are significant and far reaching. This chapter attempts to synthesize the vast amount of information, experience, and implementation perspectives related to Electronic Health Records with the intent of assisting healthcare institutions and key stakeholders make informed choices as they embark on designing, developing, and implementing an EHR. EHR considerations, challenges, opportunities, and future directions are also addressed. The chapter highlights the power of management engineering to facilitate planning, implementation, and sustainability of the EHR, a critical asset for a healthcare organization and the overall healthcare industry.

INTRODUCTION

Providing high-quality, safe, integrated, affordable, efficient and sustainable care should be the hallmark of healthcare organizations. This is a promise we have to make and keep to our patients,

their families and other key stakeholders in the healthcare delivery process. A critical component in facilitating this kind of care and an overall excellent patient experience is an EHR. An EHR is defined as an electronic record of health-related information on an individual that conforms to nationally recognized interoperability standards and that can be created, managed, and consulted

by authorized clinicians and staff across more than one healthcare organization. An electronic medical record (EMR) is different in that the record is used by authorized clinicians within one healthcare organization. "The principal difference between an EHR and an EMR is the ability to exchange information interoperably," National Alliance for Health Information Technology (NAHIT) says in its April 28, 2008 report, Defining Key Health Information Technology Terms.

The benefits of an EHR have been published and contested (Ludwick et al., 2009). Paperwork has been reported to take up to a third of a physician's workday and a national survey of residents shows that they spend as much as six hours per day documenting (Chen, 2010). The ability to access information, leverage best practice, support individualized medicine, minimize inappropriate variation in health care and enable timely interventions are all perceived advantages of an EHR. The availability of patient data together with the expert knowledge of qualified clinicians helps to assure the best care for every patient, every day. The hope is that the EHR provides an infrastructure to support the best patient care and experience. Like most health care systems though, electronic health records are complex. The ability to collect and store data (e.g. textual, imaging, administrative) has led to a data explosion which if not properly managed can lead to difficulty finding and synthesizing pertinent information. To meet the needs of multispecialty and multidisciplinary healthcare providers, EHRs must balance application data granularity and the interoperability needed to integrate data and communicate across systems. Implementation of an EHR must be carefully planned and executed to leverage the benefits and avoid the risks introduced by immature, misaligned and poorly implemented technology.

In addition to effectively and efficiently supporting the clinical practice, the EHR must also facilitate research, education, and operational aspects of healthcare delivery. The EHR is critical for analyzing large amounts of patient information

more efficiently, and for providing decision support and best practice guidance at the appropriate points in the care process. The EHR supports applying new research findings to continually enhance patient care, wellness and prevention, comply with ever increasing regulations, assist with revenue recognition opportunities and minimize the administrative healthcare overhead.

The EHR is very important in enabling patients and families to actively participate in the healthcare process, access and enter information online (e.g. review lab results and dismissal instructions, monitor vital signs, schedule appointments) in a patient friendly and safe manner and communicate with their care providers. In an increasingly knowledge and information centric service like healthcare, the intellectual assets and expertise embodied in people and contained in the EHR are central to global competitiveness, population health and economic growth.

The objectives of this chapter are to:

1. Discuss the value of an EHR and the role of management engineering.
2. Highlight key enablers and considerations for successful EHR adoption.
3. Recognize the potential of knowledge management and decision support.
4. Share EHR challenges and implications.
5. Suggest future opportunities to leverage management engineering and advances in technology.

BACKGROUND

Despite the significant value of an EHR, over the last decade only about 15-20% of healthcare institutions have implemented one. As mentioned above, the clinical, operational and administrative benefits have been well documented in the literature. However, cost, complexity of the clinical process, clinician buy–in, privacy and confidentiality, and maturity of EHR systems are a few of

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