Health Information Technology and Business Process Reengineering

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INTRODUCTION

One of the most vital business and formal documents of a health care organization is the medical record (Doughtery, 2008). Multiple chronic conditions require that clinicians be able to access computerized medical records of other physicians about their patients. Many departments within a hospital setting typically employ and use computerized systems according to their own established data conventions (Certification Commission for Healthcare Information Technology, 2013b). These systems do not interact, leaving many clinicians unable to communicate easily and efficiently with their colleagues. Health Information Technology (HIT) is designed for all levels of computer literacy with a replication function. If a network connection is lost, physicians can continue to work in real time (Doughtery, 2008).

The benefits of adopting Information Technology (IT) to improve patient care have been well researched. Studies have shown underinvestment of HIT as a leading contributor to operational inefficiencies (Kennedy, Kiken, & Jean, 2008). The usage and support of HIT's are dependent upon Business Process Reengineering (BPR). This integrates a complete range of business processes and automated essential functions in order to present a holistic view of the business (Mohapatra, 2012). However, numerous health care professionals remain astonishingly defiant. Despite growing interests to adopt HIT to improve safety and quality, adoption remains limited. This is especially seen in the areas of ambulatory electronic health records and physician-patient communication (Poon et al., 2006). Why do health care providers remain defiant, what contributes to ambulatory's exceptional defiance?

Previous research suggests that technology adoption models work well in business environments. This does not explain the technology adoption process. There is a conflict to technology adoption in the health care industry. The adoption process would facilitate the implementation of a full range of the HIT's in health organizations. The objective of this article is to investigate the use of BPR to implement HIT. The article will consist of the following sections: background; issues controversies, and problems; solutions and recommendation; future research directions; and finally the conclusion. This will enhance the field of Medical Technologies and its influences on all aspects of modern organizations and society in general.

BACKGROUND

Health organizations have often been treated like manufacturers who are advised to use cheaper materials. The result is the manufacturer may save money. However, simultaneous defects may accumulate. The same thing is true when health organizations cut cost. Although the negative effects are not externally evident, they are felt. When health organizations provide poor services, make errors, or otherwise fail, it could be an indication of systems being poorly sustained (National Research Council, 2012).

When health organizations operate inefficiently without proper funding, the odds become stacked against them. Operational inefficiencies exist in the utilization of HIT and documentation of individual health care information throughout health organizations. Operational inefficiency is void the right people, processes, and technology impacting the ability to enhance productivity and worth of business operations. This can result in routine operations cost rising for businesses (Operations Research, 2007). An estimated 1.5 billion Americans are harmed each year by medication errors, presuming there are 400,000 medical errors each

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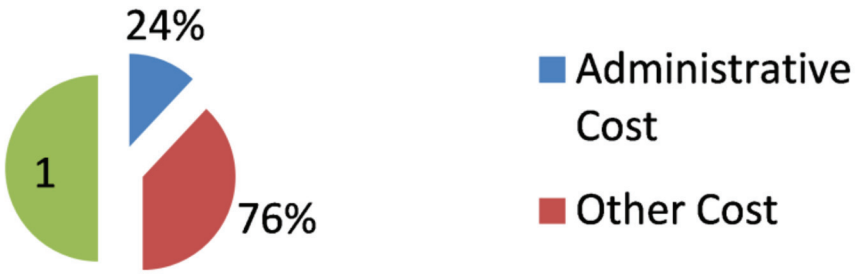
Figure 1. Cost per dollar estimates



year, with an estimated cost of 3.5 billion (Arsenault, Cudney, & Luchsinger, 2008).

Biotechnology Council estimated administrative costs take 19 to 24 cents out of every dollar the United States spends on health care. Consequently, they recommended HIT as a solution to reducing this cost (Doyle, 2006). This is illustrated in Figure 1.

In calculating the cost of medical records, Family and Social Services Administration (2005) used an example of Richmond State Hospital's cost allocation for administratively processing medical records, costing $293,861.19, with an overall cost of $2,259,408.58. This is illustrated in the allocation example in Figure 2.

One third of an average hospital's budget consists of supplies and improving data and processes that frame supply chains. HIT has the possibility to eliminate massive amounts of paper shuffling, effectively savings hundreds of billions of dollars (National Research Council, 2013a). The Human Health Services (HHS) quantified this with savings estimates of $162 billion a year if health organizations would implement a HIT function that has Electronic Health Record (EHR) incorporated. (HRSA Care Action, 2008). These systems are so fine-tuned and correlated for a specific function that integration with other systems such as Computerized Physician Order Entry (CPOE) becomes painstakingly difficult to accomplish (Venkatraman, Bala, Venkatesh, & Bates 2008).

The average annual national health care spending may be reduced by as much as $813 billion a year, which has the potential to lower health care costs for consumers (Venkatraman, Bala, Venkatesh, & Bates, 2008). For example, an EHR-based prevention and management program for chronic diseases alone could produce $80 to $160 billion savings a year. The current design of EHR systems does not come vaguely close to the capability considered most advantageous. There are approximately been 242 EHR products from 146 certified vendors. These EHR products have limited data standardization across these systems. Over 6,000

Figure 2. Allocation example