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An Overview of Barriers to the Adoption of Electronic Medical Records

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ABSTRACT

This paper explores the many hurdles to the adoption of Electronic Medical Records by healthcare providers. In order to extend EMR into the majority of healthcare facilities, these barriers to adoption must be identified and mitigated. Some of these hurdles to adoption are already known, what are less discussed are the causes of failed attempts to adopt EMR. Relevant literature was reviewed in the attempt to identify reservations as well as the causes of failed implementations. These perceptions and experiences can provide insight into ways in which to expedite the comprehensive adoption of EMR in the healthcare arena. This paper lays the groundwork for further statistical meta-analysis of facility adoption data.

Keywords

Electronic medical records, adoption, EMR, EHR, standardization, hurdles, barriers, privacy.

INTRODUCTION

Many of the benefits of adopting Electronic Medical Records by healthcare providers are known and well documented. However in order to realize these benefits, wide scale adoption of this technology by physicians, hospitals and healthcare facilities is required. According to *Modern Healthcare*, currently only one-third of physicians recently surveyed are using some form of electronic healthcare record system. Even more troubling is that one-fourth of those responding indicate that they have no plans to adopt any form of the technology ("I.T. subsidies embraced," 2008). In order to lay the ground work to extend EMR into the majority of healthcare facilities, the barriers to adoption must be identified and mitigated. While several studies have been conducted that the adoption of EMR systems provides significant benefits, current literature is lacking in a comprehensive overview of the barriers to EMR adoption. In this paper, I present a high-level overview of the various barriers to EMR adoption and propose to further extend this study to develop a comprehensive listing of barriers to EMR adoption through integration of various studies on EMR adoption. The proposed study will investigate the relative importance of each barrier and the differences in adoption issues with regard to different facility attributes including type of care, geographic location, size etc. Such a comprehensive study can provide insight into ways in which to expedite the comprehensive adoption of EMR in the healthcare arena.

LITERATURE REVIEW

Software Costs

When implementing electronic medical records systems, there are tangible as well as intangible costs. The tangible costs involve the financial outlay in order to install the electronic medical record system and the supporting infrastructure. This often involves purchasing computers for each of the exam rooms as well as laptops for each physician in the practice. Depending on the solution chosen practices can expend a few thousand dollars to well over $100,000. Frequently these expenses can be cost prohibitive to the average practice (AAO, 2008; EMR, 2007; FitzHenry, 2007).

To add to the financial burden of an EMR implementation, many practices encounter initial difficulty getting Medicare to coordinate and synchronize the electronic transfer of information. This can cause a delay in Medicare payments which can last for several months. While these issues are eventually resolved, they can place pressure on the operation's cash flow during this period (Fairbrook, 2007). This unforeseen crimping of the organization's receivables has caused a number of EMR adopters to rethink their implementation and return to their previous processes.

The Intangible costs involve the affect on morale, and the push-back from employees as well as physicians. Practices that implement EMR solutions experience higher attrition rates during the implementation. The learning curve confronted during system rollout can be significant. It is not uncommon for productivity to initially decrease during the early stages of system

[1] Surendra Sarnikar contributed to this paper as well. He is not listed as an author because he served on the conference committee for the MWAIS 2009 conference.

training. Some facilities are already working at full capacity and this additional burden contributes to the loss of key personnel.

Privacy and Security

Patients also have concerns about electronic medical records. Patient advocates contend that privacy is sacrificed for the sake of convenience. These advocates are concerned that patients will lose control of the information provided to physicians. Furthermore they are concerned with the risk inherent with digitizing information and its electronic transfer - that is weaknesses in security which might expose their information to the public through accidental release or breaches in security. Physicians are concerned that as a consequence of patient apprehension to the increased exchange of data, patients may not provide comprehensive information which in turn may diminish treatment efficacy (Twight, 2002).

Patient Education

The first hurdle that must be cleared by the industry is the one dealing with public relations. The misperception that EMR solutions are a cash-sapping cost center rather than a resource to boost revenue must be corrected. Opportunities do exist for the realization of cost reductions and improved cash flows. However, due to missteps early implementations, the medical community equates EMR systems with complex and expensive behemoths that require large outlays of cash with little benefit (Brown, 2005).

Standardization Issues

Possibly the largest hurdle to overcome is the seemingly randomness of solutions available. Since the industry has not standardized on one format in which to record, transmit and store records, each vendor has created their own proprietary solution. These solutions do not do a good job to communicating with each other thereby minimizing the benefits and increasing the time and cost to facilitate intersystem communication (Brown, 2005).

Further to this point, there is not yet a single vendor solution which serves all aspects of the medical community. Some solutions are targeted to a single specialty such as pediatrics, geriatrics, acute care, ambulatory care etc. However, most healthcare facilities are multi-specialty which causes them to either implement and then coordinate multiple systems, or to choose a solution and then adapt it to their needs at great cost and with marginal success (Kirn, 2007).

Training

A recent study of 358 physicians indicated that that they viewed EMR technology as highly important. Therefore the lack of adoption could not be contributed to the differences in perceived importance. Rather, this study determined that the predominant factor determining adoption of an EMR system was computer proficiency. Thus, training in computer proficiency among physicians may be the key to increasing the acceptance of EMR technology. This opinion was supported by Dr. David Fairbrook, a physician with more than 30 years experience running his own practice who adopted EMR technology in 2006, “Certainly, some physicians of my generation are simply playing out their time with their paper charts and sticky notes, and letting the next generation deal with computers” (Fairbrook, 2007). If these physicians cannot be convinced to invest the resources necessary to embrace computer technology, the adoption of EMR technology may be left to the next more technology-savvy generation of healthcare providers (Meinert and Peterson, 2009; Samoutis, Soteriades, Kounalakis, Zachariadou, Philalithis and Lionis, 2007).

Productivity and Workflow Issues

Even among technology-savvy providers, practices must also face the reluctance of physicians to use the systems. This is a result of EMRs that have been over-engineered and are not intuitive, forcing physicians to spend significant time searching through screens and menus to find the necessary information. Among practices that have implemented EMRs, the expected time before the staff becomes comfortable with the new processes is six to twelve months (Brown, 2005).

This extended ramp-up period is concerning to most physicians and office managers. Staff is already inclined to be distrustful of change to the status-quo, and push back against changes to current processes. This leads prospective EMR adopters to search for solutions which allow them to make as few changes as possible to current processes. However, in order to fully realize the benefits from EMR technology significant changes must be made. Typically, EMR systems require the collection of additional data from what was required previously, and involve increased computer interaction. While EMR adoption will require significant restructuring of the office processes, there should be a net reduction of work as the automation functions come online (Jerome, 2008; Randeree, 2008).

Furthermore, perceived difficulty in changing hospital affiliations when the practice has become fully dependent on an EMR system, and tax implications stemming from the uncertainty with the Internal Revenue Service’s intentions regarding treatment of hospital subsidies for EMR systems being treated as taxable income have caused practices to take a wait-and-see attitude (EMR, 2008).

CONCLUSIONS AND FUTURE RESEARCH

In this paper, we have presented a preliminary review of EMR adoption research. In future research, I plan to further expand our review of literature to develop a comprehensive list of hurdles most often cited by facilities when choosing to forego EMR adoption. A meta-analysis will be preformed and resulting statistical data will be presented categorized by size and type of facility (hospital, clinic, doctor's office, public, private, urban, rural, etc.) and geographical region. Finally, conclusions will be presented including possible future areas of focus to facilitate further adoption of EMR.

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