Chapter 4.1

# Challenges with Adoption of Electronic Medical Record Systems

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## INTRODUCTION

Among health care information systems, past research has credited Electronic Medical Records (EMR) systems with offering the greatest potential for improving quality within health care environments. Benefits range from reducing errors to cutting overall health care costs. For instance, the utility of an EMR system will allow physicians' enterprise wide access to a patient's entire medical chart, monitor patients' care for possible drug interaction, proactively prompt doctor(s) with recommended treatment, provide clinical decision support, simplify record keeping, e-prescription, documented referrals, and reminders to patients and health care providers.

Despite these benefits and a defined movement to integrate EMR systems in medical outfits, adoption of EMR systems by health care professionals has been very slow (Audet, Doty, Peugh, Shamasdin, Zapert, & Schoenbaum, 2004; Burt, Hing, & Woodwell, 2005; Miller & Sim, 2004; Simon & Simon, 2006). According to the National Ambulatory Medical Care Survey Report (2005) only 25% of office-based physicians are recorded as partial or fully using EMR systems. Nevertheless, interest to adopt EMR systems continues to be significant (Miller & Sim, 2004).

What accounts for the slow adoption of EMR systems? To answer, we must identify and address challenges associated with this process. A review of the recent practitioners, academic health informatics literature, and provisions of HIPPA Act of 1996 (Adler & Edsall, 2005; Audet et al., 2004;

Baharozian, 2005; Edsall & Adler, 2005; Hough, Chen, & Lin, 2005; Lenhart, Loomis, Criswell, & Meggs, 2000; Miller & Sim, 2004; Retchin, Wenzel, &, 1999; Swartz, 2005; Valdes, Kibbe, Tolleson, Kunik, & Petersen, 2004) cite several barriers faced with the adoption process. Further analysis also suggests that the promises of successful EMR deployment will not be fully realized unless concerns linked to the EMR implementation process are alleviated. We investigated EMR adoption by conducting open ended interviews with EMR managers, vendors, and physicians to explore their experiences with their EMR implementation.

In this article, we present the results from our study. The next section highlights challenges associated with EMR adoption and use. We conclude by suggesting solutions geared towards lessening these challenges thereby clearing the path for successful EMR adoption and use.

## CHALLENGES

Our meta-analysis identified several barriers experienced by professionals regarding EMR adoption and use. These challenges include: cost, difficulty in calculating return on investment, lack of education, physicians' and staff concerns, technology related concerns, inadequate complementary changes to organizational processes, lack of IT support, and lack of incentives.

### Costs

EMR systems are costly. Many health care institutions cite cost as a primary prohibitive factor with adoption of EMR. There are high up-front installation costs and recurring expenses for operation and maintenance. During our interviews, the interviewees clarified that up-front costs range from $15,000-$60,000 per physician. Initial set-up costs include purchase cost of hardware, software, network infrastructure, trainin, and

workflow reorganization. Operation and maintenance costs include data conversion, ongoing training, hardware and software, and specialized IT support staff.

With such exorbitant costs and uncertainty regarding return on investments, we can assume that small companies may not find adoption of EMR systems feasible thus prohibiting implementation (Audet et al., 2004; Miller & Sim, 2004; Retchin et al., 1999; Winn, 2002).

Additional expenses are incurred during the EMR transition period due to physicians attending to fewer patients translating to decreased revenue.

### Difficulty in Calculating Return on Investment

One of the major concerns with new projects for upper level management is financial payoff. Is this worth the investment? As mentioned earlier, the level of initial investment is high. There is an uncertainty over the size of financial benefits that may accrue over time (Audet et al., 2004; Miller & Sim, 2004).

Benefits obtained from EMR can be complex to measure with long pay back period. Most health care institutions lack the financial and operational analysis tools for an "uninformed" EMR buyer to make a competent decision on behalf of their organization.

### Lack of Education

Most health care institutions lack knowledgeable personnel capable of evaluating and managing implementation EMR system for their organizations. EMR systems are complex with several modules and requiring special expertise.

During the implementation phase there is a need for a champion. The literature states projects without a champion are most likely to fail. A champion is one that promotes the benefits of EMR within the organization. He or she is a

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