Chapter VII
Best Practices for Implementing Electronic Health Records and Information Systems

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ABSTRACT

This chapter introduces a multi-level, multi-dimensional meta-framework for successful implementations of EHR in healthcare organizations. Existing implementation frameworks do not explain many features experienced and reported by implementers and have not helped to make health information technology implementation any more successful. To close this gap, we have developed an EHR implementation framework that integrates multiple conceptual frameworks in an overarching, yet pragmatic meta-framework to explain factors which lead to successful EHR implementation, in order to provide more quantitative insight into EHR implementations. Our meta-framework captures the dynamic nature of an EHR implementation through their function, interactivity with other factors and phases, and iterative nature.

INTRODUCTION: OVERVIEW OF THE ISSUE AND THE CHALLENGES

Advances in healthcare technology and the explosion of new therapies have outpaced the ability of healthcare systems, organizations, and professionals to cope. Healthcare costs have spiraled. Medical errors cause thousands of deaths each year and under-treatment is rampant (Institute of Medicine, 2001). Innovations take over 17 years to get from bench to bedside. Although information technology, such as electronic medical records (EMR), electronic health records (EHR) and computerized physician order entry (CPOE) systems, continue to evolve as technologies for use in clinical practice and show great promise, they are fraught with high implementation failure rates and sometimes cause even greater harm than previous paper systems (Koppel, Metlay, Cohen et al., 2005).

Typically, most of the investment of system implementation is born up-front both in terms of finances, and in time and energy. With increasing fiscal restraint and a greater demand by all stakeholders for demonstrated value, it is important to ensure that health information technology implementations are successful, yet, in spite of over three decades of experience with EHR implementation, the penetration of the EHR is still less than 20% in the United States and in Canada (Duke Clinical Research Institute, 2005). The failure rates of EHR and CPOE implementations are also consistently high at close to 50% (Centre for Health Policy and Research, 2006). As experience with implementations of technology in medical practice increases, new knowledge is gained on how to make those implementations more successful. The acceleration of EHR adoption and increasing success may depend in part on better understanding of the factors that influence the success and failure of EHR implementations (Studer, 2005). The existing empirical literature is beginning to reflect this knowledge in a series of case studies, limited randomized controlled trials, review articles and numerous qualitative studies exploring various factors and frameworks aimed at explaining how to best implement health record and information systems to achieve a successful outcome (Ash et al., 2003; Berg, 2001; Collins, 1998; Curtis et al., 1995; Golden & Martin, 2004; Rogers, 1995).

Existing implementation frameworks do not explain many features experienced and reported by users and have not helped to make health information technology implementation any more successful. To close this gap, we have developed an EHR implementation meta-framework that integrates the experiences of actual implementations and underpins those experiences using multiple conceptual frameworks from a variety of theoretical perspectives from the information technology (IT), business and EHR implementation literatures. This meta-framework is an overarching, yet pragmatic framework to explain the factors which are important in EHR implementations and how they interact in a dynamic and mutually reshaping manner which leads to successful EHR implementation.

BRIEF LITERATURE REVIEW

As experience with implementations of technology in medical practice increases, a cumulative literature of empirical support, in the form of case studies, limited randomized controlled trials, and numerous qualitative studies, has begun to emerge (Ash, 2003; Berg, 2001; Collins, 1998). The high failure rates seen in information systems implementation calls for a better understanding of the critical success factors necessary for EHR implementation (Somers et al., 2000). Listing 'success factors' has been the most popular approach in the literature for describing implementation approaches (Chiang & Starren, 2002, Chin, 2004; Saleem et al., 2005; Smith, 2003; Tape & Campbell, 2003; Weir et al., 1995), but has not

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