

This is only an Extended Abstracts

The Wheels for Change: Important Lessons on Electronic Health Records (EHRs) Implementation for Hospital Managers in Saudi Public Hospital

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Abstract

Introduction: It has become clear that paper record systems are unable to meet contemporary patient information needs and that well implemented and designed electronic health records (EHRs) can do so. Yet, despite this situation it has been shown internationally that the implementation of EHRs is low and that there are significant barriers to EHR implementation.

Aim: The aim of this paper is to explore the influence of hospital managers on EHRs implementation in their hospitals.

Methods: A comprehensive review of the research literature was undertaken to define the relevant factors that influence EHR implementation in order to produce useful guidelines for hospital managers to implement EHRs system.

Results: The results show that a range of barriers to and facilitators of EHR implementation have been identified. These include issues relating to information technology (IT) technical requirements and infrastructure but also change management, organizational policies, and the motivational and training preparation of the management and workforce, to embrace the changes required by EHR implementation, as well as their involvement in the actual change process in healthcare delivery and healthcare workers expectations and involvement.

Conclusion: This paper, using an evidence-based literature review, identifies the key factors that influence successful EHR implementation should be identified before costly investments are made. The implications of these findings for the implementation of EHR systems into MOH public hospitals in Saudi Arabia are discussed.

Keywords: electronic health records (EHR), factors, implementation, hospital managers, change management.

Introduction:

There is no doubt that electronic health records (EHRs) for patient care plays an important role in health services (Bakker 2004). The EHR has been defined as “a secure, real-time, point-of-care, patient-centric information resource for clinicians which aids in decision-making by providing access to patient health record information where and when it is needed, and by incorporating evidence-based decision support. The EHR automates and streamlines the clinician's workflow, closing loops in communication and response that result in delays or gaps in care. It also supports the collection of data for uses other than direct clinical care, such as billing, quality management, outcomes reporting, resource planning, and public health disease surveillance and reporting” (HIMSS 2003, p.2). The EHR has the potential to transform healthcare by progressing healthcare quality, reducing healthcare costs, avoiding medical errors, improving administrative efficiencies, reducing paper work and increasing access to affordable healthcare (Brennan and Safran 2005).

Although there are a number of benefits recognized in the adoption of EHRs, it has been internationally reported that up to 75 percent of all IT implemented projects in healthcare fail (Littlejohns, Wyatt et al. 2003). The reasons for this failure are varied and it is obvious that adoption of the IT application in the healthcare setting is not only a technical issue (Kucukyazici, Keshavjee et al. 2008). The challenges facing hospital managers' for the introduction of EHRs in the healthcare setting applications are numerous and can be a major problem in the adoption of IT. Hospital managers need to recognize the positive, negative, and ambivalent responses to change so as to limit their negative impact and support resilience in employees (Nancy and Kathleen 1999). While management may think that EHR is the backbone of the hospitals, it is the responsibility of hospital managers to present a clear road map to introduce its application. Gaining a greater understanding of hospital manager's perspective is a vital step in implementation of EHR adoption.

Aim:

The main objective of this paper is to explore the factors influence of hospital managers on EHRs implementation in their hospitals. The focus is on the hospital managers as they are the major players in each hospital.

Method:

A comprehensive review of the research literature was undertaken to identify the relevant factors that influence EHR implementation. Preparing hospital for change, hospital managers' leadership and methodological framework issues are addressed to produce useful guidelines for EHRs implementation.

Critical Factors Influencing EHR Adoption Success:

Healthcare organisations have recognized that slowness to reach the completely integrated system means that they still live with isolated stand-alone systems that do little to advance IT, which is different from other industries (Turner 2002; Ash and Bates 2005). It is often true that introducing healthcare IT innovations are disruptive, because of technology, relationships in the organization and complex changes to process. However, understanding and recognizing the critical factors that influence the hospital manager's success may facilitate the adoption and implementation EHR. Amatayakul (1999) identified the main factors affecting successful implementation of EHR as lack of top management support. Hospital managers need to be able to understand EHRs function and usability before implementation. Understanding, working process, standardization, involving end users and using the new application of IT are major ingredients for the creation of effective virtual team (Gootveld, Swaak et al. 2004). This can significantly affect hospital manager's likelihood of EHRs implementation. For example, researchers in US have identified strong leadership as the main strategy to overcome computerized physician order entry (CPOE) resistance in US hospitals. This strategy was as important as the quality of the technology (Poon, Blumenthal et al. 2004). Unfortunately, most of studies the adoption of EHR has not quantitatively investigated the EHR adoption by the hospitals managers as a key factor in EHRs implementation projects.

In addition, most of research regarding EHR implementation successes has been isolated to physicians and other healthcare workers. Moreover, the result of those studies focused on the view from hospital staff (physicians, nurses and pharmacists) and not the individual managers who often have the vantage point of experience across multiple hospital settings (Ellis, 2006). Without leadership and managerial skills for hospital managers, healthcare workers will struggle with the implementation of new IT project, and the potential advantages will not be recognized (Marlel, McCreless et al. 2007). The Institute of Medicine IOM (1994p, 66) support the vision that IT assessment conducted from hospital managers' perspective will:

- Be performed earlier in diffusion process,
- Be more responsive to changes in medical knowledge and practice,
- Be more sensitive to local medical conditions,
- Place less emphasis on long-term outcomes and total health care costs,
- Place more emphasis on legal liability, and
- Give less consideration to impacts on other providers.

Therefore, the hospital manager is a significantly important key factor and major player in the success of EHRs implementation. This paper has been developed a new model which called (wheels for change) that hospital

managers need to understand it to successfully drive the journey of EHRs implementation. This model has been developed based on previous studies (See table 1).

Authors	Year	Title
Nagle, L and P. Catford	(2008)	Toward a model of successful electronic health record adoption
Kuzienmsky, C.	(2008)	Enhancing 'fit' of health information systems design through practice support.
Kucukyazici, et.al	(2008)	Best practice for implementing electronic health records and information systems.
Cherry, et al	(2008)	Factors affecting electronic health record adoption in long-term care facilities.
Deutscher, et al	(2008)	Implementing an integrated electronic outcomes and electronic health record process to create a foundation for clinical practice improvement.
El-Kareh, et al	(2008)	Trends in clinician perceptions of a new electronic health record
Houser, S. H. & L. A. Johnson	(2008)	Perceptions regarding electronic health record implementation among health information management professionals in Alabama: a state wide survey and analysis
Simborg, D.	(2008)	Promoting electronic health record adoption. Is it the correct focus?
Al-Shorbaji, N	(2008)	E-health in the Eastern Mediterranean Region: a decade of challenges and achievements
Altuwaijri, M	(2008)	Electronic-health in Saudi Arabia. Just around the corner
Vishwanath, A. and S. Scamurra	(2007)	Barriers to the adoption of electronic health records: using concept mapping to develop a comprehensive empirical model.
Turner, D	(2007)	Clinician Readiness for Transition to a Fully Integrated Electronic Health Care Delivery System.
Sequist, T., et al	(2007)	Implementation and use of an electronic health record within the Indian Health Service
Marlel, L., et al	(2007)	Five Constants of Information Technology Adoption in Healthcare
Clark, T	(2007)	Adopting health care informatics and technologies
Clancy, T. et al.	(2007)	Predicting the impact of an electronic health record on practice patterns using computational modelling and simulation
Heeks, R	(2006)	Health information systems: failure, success and improvisation
Zheng, J, et al.	(2006)	A strategic case for e-adoption in healthcare supply chains
YI, Y. et al.	(2006)	Understanding information technology acceptance by individual professionals: Toward an integrative view
Ash, J. and D. Bates	(2005)	Factors and forces affecting EHR system adoption: report of a 2004 ACMI discussion
Walker, J. et al.	(2005)	Implementing an electronic health record system.
Hartley, C.& Jones	(2005)	EHR implementation: A step-by-step guide for the medical practice.
Ash, J., et al.	(2003)	Principles for a successful computerized physician order entry implementation
DeLone, W. & R. Mclean's	(2003)	The DeLone and Mclean's model of information systems success: A ten year update.
Lorenzi, N. & R. Riley	(2002)	Managing change: An overview
Berg, M	(2001)	Implementing information system ambulatory prescribing safety with a handheld decision support system: A randomized controlled trial
Hu, P., et al.	(2000)	Investigation of factors affecting healthcare organization's adoption of telemedicine technology
Kotter, J	(1999)	Leading change: The eight steps to transformation. The leader's change handbook: an essential guide to setting direction and taking action.
Davis, B. and C. Wilder	(1998)	False starts, strong finishes-companies are saving troubled IT projects by admitting their mistakes, stepping back, scaling back and moving on
Collins, P	(1998)	Risky business. It takes a 'risk-balanced' team to implement a CPR
Rogers, E	(1995)	Diffusion of Innovations

Moreover, multi-theoretical, meta-framework for EHR implementation by Kucukyazici, et.al (2008) has been used with some modification. For example, privacy and confidentiality should be established from pre-implementation stage not from implementation stage. There are three reasons for selecting this model. Firstly, it is the first model that has been designed especially for EHR implantation, not in general IT adoption such as TAM and success factor matrix model. Secondly, it provides a comprehensive set of factors for assessing the EHR implementation. Finally, all the models and the literature are written by the implementer, not an academic, which provides real experiences after the successful EHRs implementation, even if there may be some bias. Figure 1 below shows the wheels for change that critically hospital managers should recognize it before the EHRs implementation.

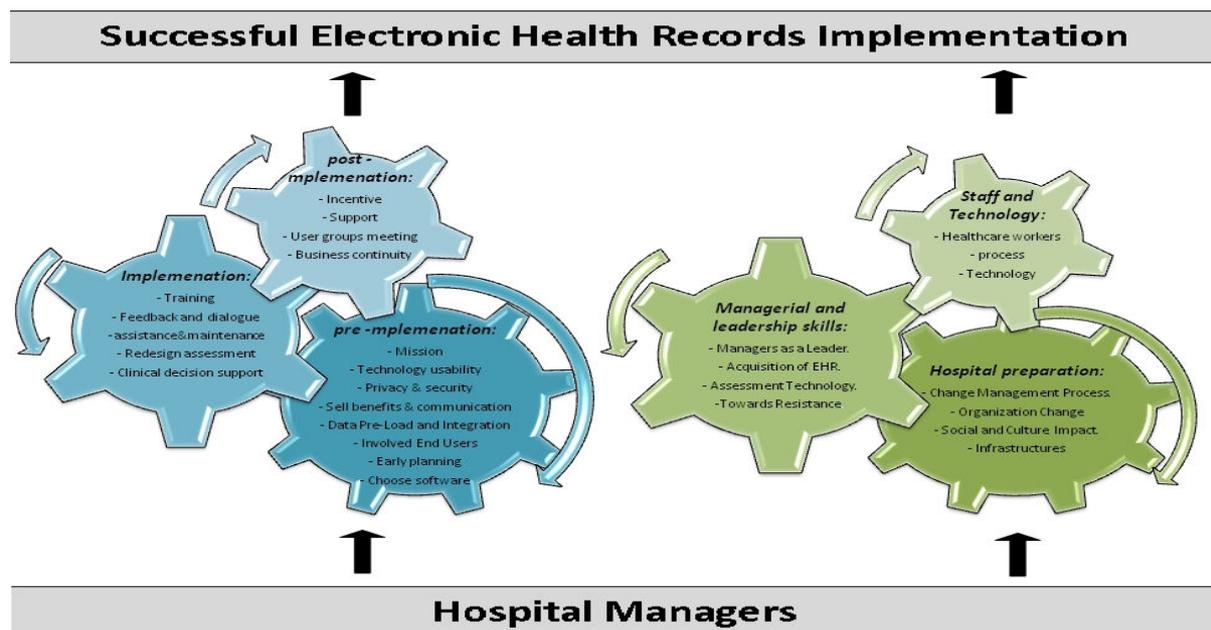


Figure 1. The wheels for change that influence hospital managers' success in the implementation of EHRs

Conclusion:

Understanding and recognizing the critical factors that influence the success may facilitate the adoption and implementation EHRs. By identifying factors and perception affecting EHR adoption from hospital manager's perspective, MOH in Saudi Arabia will get a benefit to overcome implementation failure and resistance. Also, it may facilitate MOH plane to adopt EHR in both rural and urban city. Without addressing the full range of factors in an implementation EHR in Saudi Arabia public hospitals, EHR implementation will fail and ineffective. This model will fill this knowledge gap to give more insight into this area. It will provide more accurate measurement about hospital manager's perspective regarding computer knowledge and perspectives towards EHR adoption in Saudi Arabia hospitals. Also, it will offer information regarding the transition phase of the change process to observe how it could be used for future change management effectiveness.

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