

# E-Health and Organizational Change in a Hospital Setting: A Case Study on Electronic Health Records

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## INTRODUCTION

Healthcare information systems (HISs) have been conceived as systems, replacing previously paper-based data, directed to facilitate the acquisition, utilization and sharing of information in healthcare settings. Electronic Health Records (EHRs) are healthcare information solutions that allow clinicians and staff of a given healthcare organization to access, gather, organize, store and share clinical information concerning a patient as well as permitting the prescription and scheduling of therapeutic acts. EHRs allow constituting structured clinical repositories accessible to a large amount of professionals without being close to the patient (Feufel et al., 2011) that can be used for quality and research purposes (Yamamoto and Khan, 2006). Moreover, they are means of practice standardization, building on streamlined models of data registration and communication intended to avoid error and foster quality and efficiency (Vishwanath et al., 2010). Finally, they are reliable tools for decision-making, as their system-aware nature, constructed around optimized workflows, is intended for action mapping (Likourezos et al., 2004). The comprehensive support that EHRs are apt to provide is particularly relevant in hospital settings where a wide number of professionals, pertaining to different practice categories and with diverse specializations, are obliged to develop interrelated clinical daily routines who are highly reliant on the possibility to easily access and transmit detailed and complete information, and endure necessary but repetitive tasks that are often exposed to errors, malpractice and inefficiencies. An EHR that is able to communicate with other existing administrative and technical systems allows, within a hospital, for a support of clinical practice transversal to the organization, striving for cohesion of the process of care delivery.

Notwithstanding the benefits that EHRs are believed to add to clinical practice, introducing an EHR within hospital settings is neither an easy nor a painless process to undergo. Hospitals are complex organizations characterized by non-linear workflows, bureaucratic processes, asymmetric hierarchies and inhomogeneous professionals categories (Bossen, 2007), where change constitutes a challenge of whose existence and dimensions involved parties may not be fully aware (Boonstra and Broekhuis, 2010). EHRs, on the other side, are vectors of organizational change not merely affecting single tasks and activities, but apt to give origin to transformative processes that may alter core organizational features, such as organization an distribution of processes, functions and roles, and organizations' overall culture, strategy and goals (Bossen, 2007; McCarthy and Eastman, 2010). The sociotechnical perspective, a consolidated

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approach to analyze the use of technological solutions in healthcare, explores how technical and socio-organizational features interact in the implementation of HISs (Berg, 1999; Ash et al., 2007; Bossen, 2007; Ludwig and Doucette, 2009) concluding that an external agent of technological nature cannot be introduced without organizational adjustments. Further, according to the perspective, the implementation of the EHR agent entails, within an organization, the creation of ex-novo networks of persons, processes and technologies generated by new interaction patterns and consolidated by mutual adjustment (Bossen, 2007). This means that the change process is not a unidirectional one, but that HISs and organizations mold each other in the process of implementation (Berg, 2001), hence, any management strategy should be sufficiently supple as to introduce the change vector and let it develop without land marking its evolution too closely, since the potential of each HISs is only discovered during the implementation process, and guarantee that all involved parties are aware of the different social and operational processes that the organizational change process may generate (Berg 2001; Boonstra and Broekhuis, 2010). Change management literature (Campbell, 2008; McCarthy and Eastman, 2010), which covers technology adoption as one of its areas, frames, broadly, organizational adjustments engaged by the planning and implementing of EHRs, within the following processes and activities: leadership - recognition of the urgency to change, determination to act as to engage transformative processes, election of a guiding team; transition planning - definition of objectives, approaches and timeline for change implementation and stakeholder communication and engagement; and, finally, transition management - furnishing training and resources for change, verifying the compliance with deadlines, setting tools for crisis resolution and reporting of malpractice.

As argued by Bossen (2007), organizational aspects have not been studied as much as other determinants affecting EHRs implementation, a claim that is confirmed by Boonstra and Boekuis' (2010) systematic literature review on the barriers to EHRs acceptance, whose findings highlight that, among a universe of twenty-two reviewed studies, only two contemplated features of organizational nature, being the majority focused on factors of technical, economical or time-related nature. Such gaps in research clarified the need for a study pinpointing core organizational adjustments, strategic choices and relative challenges engaged by the implementation EHRs in hospital settings as perceived and experienced by key professionals. With this objective, and keeping in mind the specificity of each change management process, we considered relevant to present a qualitative case study, provided by the experience of implementation of a hospital-wide EHR solution (Siemens Clinicals, 2014) in one of the major hospital facilities in Portugal. Through the account of eight key representatives pertaining to the main professional categories of the hospital, the researchers reviewed the three phases of the EHR installation:

1. The one preceding the implementation, capturing the managerial, technical and human resource requirements that prepared the introduction of the EHR, and the main challenges associated;
2. The first 6 months of implementation, clarifying which strategic decisions characterized the implementation process and the main obstacles experience by professionals; and
3. The final phase of the implementation (ongoing at the time of redaction) picturing the professionals' perspective concerning main organizational features affected by the implementation and disclosing expectations concerning adjustments yet to realize, uncovering the conditions that the professionals perceive as having insofar inhibited the exploitation of the EHR's full potential.

The study's main contributions are identified in deepening the link between qualitative organizational studies and EHRs, offering an empirical case study portraying a change management experience that could be replicated in similar framesets, and furnishing practical recommendations and insights on what

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