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# How can Health Technology Project Communications be improved in a Hospital

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## ABSTRACT

Healthcare professionals have had many challenges related to communication. Some of these challenges are related to health information technology, project management, and change management. This research addresses facilitators and barriers that healthcare providers have encountered in projects completed at the survey site. The integration of technology to support interdisciplinary teams transitioning to patient centered care requires enhanced focus on Project Communication as a key component of successful Health Information Technology (HIT) projects. Professional and organizational cultures in health care must transform to promote improved patient care.

## Keywords

Health Information Technology, Project Management Communication, Electronic Health Record, Communication, Information and Communication Technology, Information Technology, Risk Management, Change Management

## INTRODUCTION

Communication in highly specialized and collaborative healthcare work is both essential and critical (Pirnejad, 2008). Healthcare departments must communicate across specialty areas to provide effective and efficient care for patients. The integration and support of HIT projects requires successful communication across disciplines. For example, Information and Communication Technologies allow radiology technologists to develop plans with physicians and care providers to deliver excellent patient care across time and distance (Ohmacht, 2018). As a healthcare team, everyone is working towards that same shared goal to improve care for patients (Johnson, 2018). Accomplishing any goal is more realistic when it is being accomplished by a team rather than a single person (Vilhauer, 2018).

The science of safety has matured to describe how communication breakdowns, diagnostic errors, poor judgement, and inadequate skill can directly result in patient harm and death (Makary, 2016). Mounting evidence indicates that errors in healthcare intra-organizational communication are accompanied by a rise in medical errors that result in morbidity and mortality (Pirnejad, 2008). Communication failures, particularly those due to an inadequate exchange of information between healthcare providers, remain among the most common factors that contribute to the occurrence of adverse drug events (Pirnejad, 2008).

Information and Communication Technology (ICT) can also increase medical errors due to problems caused by ICT in intra-organizational communication (Pirnejad, 2008). Although technical flaws often cause problems, many harmful or otherwise undesirable outcomes of HIT implementation flow from sociotechnical interactions—the interplay between new HIT and the provider organization's existing social and technical systems—including their workflows, culture, social interactions, and technologies (Harrison, 2007). Representing communication tasks in information systems is not feasible because the interactive dialogue associated with communication tasks plays an important role in communication and developing a shared understanding of the problem (Dykes, 2007). There is an opportunity to investigate factors to improve communications in healthcare information technology projects.

This project will contribute to the improvement of HIT project communications, the integration of healthcare systems relying on HIT systems by providing perceptions of HIT Project communications and suggesting best practices to improve HIT communications by answering the primary research question, which is “How can Health Information Technology project communications be improved in a hospital?”

## RESEARCH METHODOLOGY

### Stage 1: Literature Review

A barrier is defined as “any condition that makes it difficult to make progress or achieve an objective (WordNet, 1997). Widespread implementation of HIT has been limited by a lack of generalizable knowledge about what types of HIT and implementation methods will improve care and manage costs for specific health organizations (Shekelle, 2006). Underlying barriers included difficulties with technology, complementary changes and support, electronic data exchange, financial incentives, and physicians’ attitudes (Miller, 2004). These barriers were most acute for physicians in solo/small-group practice, a mode in which a significant majority of U.S. physicians’ practice (Miller, 2004).

Health Information Technology in general and Electronic Health Records (EHRs) specifically are increasingly viewed as tools for improving the quality, safety and efficiency of health systems (Jha, 2008). Their benefits include providing real-time decision support to clinicians, making critically important clinical information available, and reducing unnecessary testing (Jha, 2008). Factors related to ICT Perception of the benefits of the innovation (or system usefulness) was the most frequent adoption factor encountered in the studies. Successful cases of ICT adoption were usually characterized by a clear understanding of the benefits of the innovation by its users (Gagnon, 2010). Ease of use was the second most cited facilitator in this category (Gagnon, 2010). Design and technical concerns the most cited barriers among all categories of factors (Gagnon, 2010).

Communication can be defined as the process of transmitting information and the understanding between both people. Two common elements in every communication exchange are the sender and the receiver (Lunenborg, 2010). Interprofessional team communication is defined by skills learned and later modified and reinforced when healthcare workers work collaboratively to provide competent care (Brock et al., 2013). Both physicians and nurses commented extensively on the difficulty in identifying and contacting other health care providers (McKnight, 2001). Both physicians and nurses suggested information technology-based solutions for the rapid identification of people and common access to frequently referenced, but changing information (McKnight, 2001). Approximately 13-17% of nurses reported encounters that were characterized by rudeness and disrespect from the physician (Tija, 2009). There is increasing recognition that this kind of adverse staff interaction leads to worse patient outcomes and can represent a patient safety threat (Dixon-Woods, Baker, & Charles, et al. 2014; Joint Commission, 2008; West, Dawson, Admasachew, Topakas, 2011). Failures in healthcare communication have been reported as a large contributor to adverse events and outcomes (Taylor, 2004). Communication error was determined to be the leading cause of death in a retrospective review of 14,000 in-hospital deaths in Australia, twice as frequent as errors caused by inadequate clinical skill (Taylor, 2004).

Information Technology (IT) projects are renowned for their high failure rate (Baccarini, 2004). Risk management is an essential process for the successful delivery of IT projects (Baccarini, 2004). Risk management is the process that allows IT managers to balance the operational and economic costs of protective measures and achieve gains in mission capability by protecting the IT systems and data that support their organizations’ missions (Stoneburner, 2002). Two areas need special attention when planning an implementation project: the system architecture, including the use of standards and methods to ensure security and privacy, and infrastructure issues like a stable power supply and network (Tilahun, 2015). Knowledgeable staff and the availability of training are basic requirements for successful health IT projects (Tilahun, 2015).

IT projects can create more successful environments for healthcare providers to perform more effective patient care. Communication involved in those projects are quite possibly the key to achieving successful project success. Having successful project outcomes will help build trust with healthcare professionals and physicians. When that trust is built the buy-in from them becomes easier with technology. After they are bought-in, the professionals may be more apt to take on IT projects as a physician or healthcare professional champion.

### Stage 2: Methodology

A qualitative survey was used to explore the barriers and facilitators of HIT Project Communications. The primary research question is “How can Health Technology project communications be improved in a hospital?” We used a survey tool to collect narrative data and responses from participants and will use Grounded Theory Open Coding techniques to analyze the data. The objectivity comes from comparison of data from multiple interviews and identifying emergent themes. Once the themes are identified they are related to the existing academic literature as another form of validation. This research utilizes theoretical sensitivity and existing literature to develop a lens to view the effort through, to provide context and to strengthen the results. Grounded Theory is well suited for investigating social phenomena (Parry, 1998), indicating that it is a good fit for empirically understanding the interactions between customers and software development teams using ADM. GT is designed to develop substantive theory, which aligns well with our intentions (Glaser & Strauss, 1967). For quantitative data,

descriptive data analysis will be used. This method is well established in the field of Information Systems (Birks, Fernandez, Levina, & Nasirin, 2013; Matavire, & Brown, 2008). Unlike quantitative methods, where a representative random sample of a population is critical, Grounded Theory uses theoretical sampling (Charmaz, 2006; Corbin, & Strauss, 1990; Glaser, & Strauss, (1967).

The participants of this research are care providers and physicians with varying ages and specialties at midwestern hospital and clinic. The care providers have many roles at the hospital and clinic. It ranges from walk-in clinics to emergency department physicians. We surveyed all the physicians, nurse practitioners, and physician assistants at the selected institution. The specialties include but are not limited to, surgeons, midwives, nurse practitioners, physicians, and physician assistants. We used the entire population from this one site. We will conduct analyses on the results in our future work.

The data was collected using quantitative and qualitative questions with a survey tool developed by Noteboom & Behrens and approved by our university's IRB on 2017-18-10.

### **Stage 3: Data Collection**

The study involved sending out a survey via email to 16 physicians and care providers at a rural hospital. We received 11 responses for a response rate of 68.75%. The completion rate was 91%. The questions aim to gather information regarding communication on HIT projects. The communication methods are ranked and then participants are asked if the communication methods are sufficient or if more should be added. After that we seek to find what barriers to communication exist and what the facilitators are. Then we look to see how success of the project was rated, if there was training, why they rated it the way they did, and if there was a defined business objective. Finally, we asked if there are any ways IT could improve communications.

### **Stage 4: Future Direction**

Currently, we have collected the data and are in the analysis phase. This is exciting to us because the results will uncover qualitative information that will expose themes related to IT project communications. Once we discover the themes we will be able to draw conclusions and develop recommendations for improving HIT project communications.

## **CONCLUSION**

We anticipate the research will yield contributions to research and practice. The literature review shows there are project management, communication, EHR, and HIT issues that frequently occur throughout HIT projects. Second, we anticipate that our findings will identify issues to be addressed and opportunities to exploit to improve HIT Project communications. Depending on the results found, suggestions or recommendations may be formed that can help with the implementation of EHR projects, increasing HIT project success, and most importantly, answering the research question of "How can Health Information Technology project communications be improved in a Hospital?"

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