OPTIMIZATION STRATEGIES FOR SUCCESSFUL ELECTRONIC HEALTH RECORD SOLUTION ADOPTION

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ABSTRACT

The healthcare industry is experiencing a shift in care delivery and documentation as the nation moves toward electronic health record adoption (EHR). This project examines the benefits and hurdles to adoption faced within the industry and provides a detailed curriculum guide of strategies, approaches and materials for consultants assisting healthcare organizations in EHR implementation. The recommendations provided by this project are grounded in the theories of organizational culture as presented by Clifford Geertz (1977) and Michael Packanowsky (Griffin 2009, p. 252), as well as insights on the impacts of computer-mediated communication, as discussed by Joseph Walthers (Barrow, 2010). Materials presented approach individual learning through the philosophical insights of John Dewey (Neill, 2005, para. 1) and social learning theories of Albert Bandura (“Learning Theories Knowledgebase”, 2011). The presented curriculum guide provides a handbook for consultants, trainers, implementations specialists or other healthcare leaders to positively impact and support an organization during the transition to EHR technology. Further research and investigation may apply the strategies and materials offered in this project to the development of in-depth materials or studies appropriate for specific EHR vendor technologies or healthcare organizations.
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Chapter 1. INTRODUCTION

IMPORTANCE OF THE PROJECT

The healthcare industry in the United States has experienced an exponential increase in electronic health records (EHR) adoption within hospital settings as well as physician private practices in recent years (KLAS, 2011). Governmental incentives for EHR implementation as well as planned financial penalties for not switching to electronic documentation have added to the motivation for transition within the medical industry (Centers for Medicare & Medicaid Services, 2011). Many benefits for computerizing the healthcare field have been cited by legislators including increases in patient care quality, decreases in healthcare costs and added efficiencies within the clinical setting (HIMSS, 2007). However, numerous potential drawbacks are consistently addressed within the industry as well, including cumbersome training and implementation processes, steep financial costs for adoption and negative effects on the precious physician-doctor relationship with the introduction of a computer into the exam room (HIMSS, 2007).

Additional regulations and more specific legislation are being put into action based on assumptions that the benefits of EHR adoption outweigh the drawbacks (Centers for Medicare & Medicaid Services, 2011). For instance, government insurance coverage payment rates for physician services, such as the Medicare program, are being tied to expectations of electronic charting and computerized transmission of patient health information (Centers for Medicare & Medicaid Services 2011). Private practice physicians are being offered incentives through the Medicare program to utilize electronic prescribing capabilities in 2011. In addition, these same physicians will face penalties in the form of decreased payments for services under the same Medicare coverage.
program if they fail to utilize electronic prescribing (Centers for Medicare & Medicaid Services 2011). On a larger scale, physicians are being offered large incentives for implementing complete EHR solutions, including electronic charting functionalities, clinical reporting capabilities and medical decision support tools. Eventual penalties will be enacted for hospitals, healthcare organizations and physicians who fail to adopt and utilize an approved EHR solution (Centers for Medicare & Medicaid Services 2011).

As a result, physicians and hospitals are voicing concern over the pressure to meet the required measures (Muthiyan, 2010). As milestones are overcome by some organizations and steep hurdles experienced by others, continued research is being conducted regarding the true value and drawbacks of utilizing these technologies, as well as the best practices for implementation and encouraging use by providers. While many EHR vendors and legislators in support of such technology suggest that EHR adoption provides valuable tools allowing physicians and clinical staff to improve communications between clinician and patient, many doctors are skeptical that the benefits are worth the hassle of cumbersome adoption processes experienced by most in the industry (Muthiyan, 2010).

Additionally, concerns are held by some healthcare leaders that switching to an EHR will negatively impact the patient experience, this fear is adding to the reluctance many organizations have to making the transition (Gadd & Penrod, 2000).

GOAL OF THE PROJECT

To fully understand the significance of the changing healthcare climate, available research relating to EHR adoption, patient satisfaction and communication within the clinical setting was examined.
Furthermore, an in-depth literature review was conducted which examines perceived benefits and drawbacks of electronic health records (EHR) adoption within the healthcare industry, specifically focusing on the impacts on physician-patient communication and patient satisfaction with the quality of care. Common hurdles to adoption experienced within the industry as well as the best practices for overcoming obstacles and ensuring a smooth transition to an EHR for providers and their staff are addressed. The concept of communication within a clinical setting is also examined, including specific research available addressing changes in communication with the introduction of EHR software during the patient visit.

Included in this discussion of the impacts of EHR adoption, Joseph Walther’s social information processing theory is explored (Griffin, 2009, p. 138). Impacts that increases in computer mediated communication, and thus less face-to-face nonverbal exchanges, may have on the physician-patient relationship, and approaches for implementing new healthcare technologies, are discussed in depth as a part of this research.

Government agencies, private consulting/training firms and leaders within the healthcare system have directed extensive resources toward communicating the benefits of EHR adoption to physicians and patients; however a large number of failed implementations are still experienced nationwide. With this in mind, a curriculum of training and consulting materials is presented focused on engaging physicians and their staff, addressing the benefits and fears of adopting EHR technology, and encouraging a positive transition to EHR utilization that will allow participants to fully reap the benefits of leading edge EHR technologies to improve the quality of patient care.
This curriculum includes details of specific training and consulting approaches intended to encourage change, analyze the specific needs of each provider being trained, and solidify the best practices and appropriate clinical workflows for each office environment. Insights from Clifford Geertz’s and Michael Pacanowsky’s theory of organizational culture are explored (Griffin, 2009, p. 252). This view of each organization as an individual culture with specific norms and understandings was taken into account when determining the best approach for each healthcare setting, as well as for mapping the most appropriate training plan within an organization. Detailed outlines for a training/consulting program for assisting in the successful adoption of new electronic healthcare solutions directed toward trainers and consultants working directly with physicians and clinical staff is included as well.

In the development of this curriculum, research on related topics such as computer anxiety and facilitating and managing change within an organization is examined. Techniques and strategies for ensuring engaging and memorable training programs through active learning as suggested by Mel Silberman (2004) and other education and communication scholars is reviewed as well. Additionally, the strategies and best practices used by healthcare organizations, consulting firms and technology vendors for ensuring positive impacts on physician-patient communication with the adoption of EHR technologies is examined.

**DEFINITION OF TERMS USED**

Computer-mediated communication: “any communicative transaction that occurs through the use of two or more networked computers” (CMC, 2011).
Culture: “a set of techniques for adjusting both to the external environment and to other men” (Geertz, 1977, p. 5).

Electronic health record: “a longitudinal electronic record of patient health information generated by one or more encounters in any care delivery setting” (HIMSS, 2011).

Meaningful Use: a set of specific objectives that healthcare providers and organizations must achieve to qualify for governmental incentives (HealthIT, 2011).

Provider: healthcare worker or other professional trained in and knowledgeable of medicine, nursing, or other health professions including public or community health (Healthcare provider, 2011).

Implementation: the adoption of an application, or “execution of a plan”, “post-sales process of guiding a client from purchase to use of the software or hardware that was purchased” (Implementation, 2011).

ORGANIZATION OF REMAINING CHAPTERS

This thesis project is presented in five chapters. The initial chapter, concluded here introduced and addressed the importance of the discussion and goals of the project. Chapter 1 also provided a list of terms used with appropriate definitions for an understanding of the discussions presented.

Chapter 2 includes an outline of the theoretical approach of the project and a review of the available literature, knowledge which is applied in the development of curriculum guide or project product. Chapter 3 expands on the rationale and design questions also presented in Chapter 2 to formulate a project scope and outline the methodology used in the development of the project product.
Chapter 4 presents details of the curriculum guide and directs the reader to the project product presented in the appendix. Finally, Chapter 5 discusses the implications of the project, limitations of the curriculum guide, recommendations for further investigation and final conclusions. References and the aforementioned appendix follow the conclusion.
Chapter 2. REVIEW OF THE LITERATURE

Several theories will be examined to provide a framework and basis to the approach used in the completion of this thesis project. First, the concept of organizational culture as theorized by Clifford Geretz (1977) and Michael Pacanowsky (1983) will be examined as a tool for analyzing the environment, dynamics and challenges within organizations. Next, Joseph Walther’s insights into the impacts of computer mediated technology will be explored in the context of transitioning to a more computerized healthcare system (Barrow, 2010). Finally, the pragmatic philosophy of education as proposed by John Dewey will be addressed with regards to philosophical assumptions for this project (Neill, 2005).

PHILOSOPHICAL ASSUMPTIONS AND THEORETICAL BASIS

Clifford Geertz (1977) approached the concept of culture in an in-depth manner, applying the idea of culture to a variety of human interactions and communication instances outside of previous applications including religion, ideology and organizations. Among his many interpretations of the concept, Geertz (1977) described culture as “a set of techniques for adjusting both to the external environment and to other men” (p. 5).

Applying the views of organizational life as a cultural system to the healthcare organizations and medical practices to be addressed in this research, allows for a framework with which to determine the most appropriate and effective approach for ensuring positive change within each organization.

Individuals play unique roles within each healthcare organization, and contribute to the organization’s cultural system adding specific behaviors, approaches and communication styles to the daily interactions of the group. Michael Pacanowsky’s
theory of organizational culture (Griffin 2009, p. 252) sheds light on how an ethnographic approach to each organization can assist in ensuring the best approach is taken for training and implementation. These theories assess that “culture is not something an organization has; culture is something an organization is” (Griffin 2009, p. 253). Therefore, each organization within this research will be treated as an individual culture with specific norms, understandings and folklore. It is vital for an outside consultant to understand the important aspects that make up each individual organizational culture in order to gain a holistic perspective on the challenges faced by members, especially during a large transition such as an electronic health records (EHR) adoption.

Understanding the key players within an organization and analyzing the roles and needs of individuals affected by the change within the group will allow for the most effective plan of action. “The external consultant can identify much of the cultural symbols most of the organization members take for granted, using native members of the culture as a source of information” (Pacanowsky, 1983, p. 255). For example, some organizations may include technically savvy and motivated individuals in whom advancements and changes are embraced, while others may view transitions and new processes in a negative light and express great resistance.

As EHR technologies become a primary mode of communication used within the healthcare field, the interactions between physicians and providers are drastically changing. EHR solutions are increasing the amount of computer mediated communication used within the healthcare setting and thus patients are getting to know providers through less face-to-face interaction. In order to appropriately evaluate the
needs of individuals within the organizational culture during EHR adoption, it is important to address the possible impacts of this change from mainly face-to-face communication to increased computer mediated communication (CMC).

Joseph Walther’s social information processing theory addresses concerns that CMC disrupts communication, mainly that a lack of face-to-face interaction, and thus a lack in the contextual cues provided by body language, tone, gestures, etc. during in-person communication, can limit the relationships formed by those conversing via such technology (Barrow, 2010; Griffin, 2009, p 138). Walther argues that while CMC may affect the manner in which messages are conveyed and the time necessary to build relational understanding, the impacts of CMC still allow for strong relationships via such technology channels (Barrow, 2010). This theory sheds light on potential concerns and fears a consultant may need to address when assisting resistant individuals to transition from a face-to-face communication centered environment to one driven by computer interaction.

Individual learning occurs through observation and participation within a group. “It is not so much that learners acquire structures or models to understand the world, but they participate in frameworks that have structure” (Smith, 1999, para. 1). Philosopher John Dewey approached education with a philosophy that effective learning can only take place when the student is actively involved in the lesson and the learning process (Neill, 2005, para. 1). Dewey’s “idea was that children came to school to do things and live in a community which gave them real, guided experiences which fostered their capacity to contribute to society” (Neill, 2005, para. 1). As a pragmatist, Dewey encouraged approaching all learning with an emphasis on linking theory and practice, thus all
learning should be meaningful and not just a means to an end (“Pragmatism”, 2011, para. 1). In summary, Dewey believed “education is life itself” (Neill, 2005, para. 1).

In addition, psychologist Albert Bandura proposed the theory of social learning and theorized about the importance of social interaction and communication. Bandura proposed that, in order for individuals to learn, attention, retention, reproduction, and motivation to learn the new behavior must occur (“Learning Theories Knowledgebase”, 2011). Therefore, humans learn through observation and social interaction, at the center of which is communication. Therefore, communication styles, dynamics and environmental factors within a community can impact this learning process.

This project assumes that effective communication within a group is central to positive change management, learning, and on-going success of the group as framed by John Dewey’s philosophy of education and Bandura’s theory of social learning. Therefore, this project assumes that a mixture of assessing the current communication channels, modeling new skills and behaviors, and creating a framework for learning new actions and behaviors facilitates positive change within a community. With these assumptions, this project aims to provide detailed recommendations and strategies for improving how consultants and trainers approach EHR adoption within healthcare organizations.

THE LITERATURE

This literature review addresses perceived benefits and drawbacks of electronic health records (EHR) adoption within the healthcare industry, as well as research which sheds light on the validity of common perceptions. Then, the concept of communication within a clinical setting is examined, including specific research available addressing
changes in communication with the introduction of EHR software during the patient visit. In addition, the concept of patient satisfaction is addressed, both in how it is measured and what available literature suggests regarding best practices for optimization patient satisfaction following EHR adoption. Finally, strategies for effective and positive training and implementation are addressed, taking into consideration the perceived and experienced benefits and drawbacks as well as industry best practices.

**Perceived Benefits and Drawbacks of EHR Adoption**

Neil Postman discusses physician concerns in *Technopoly*, a book that focuses on the effects of advancing technologies. “A serious objection raised by physicians… is that interposing an instrument between patient and doctor would transform the practice of medicine” (Postman, 1993, p.99). This discussion was not addressing concerns regarding EHR adoption, but rather the type of fears expressed by physicians when the stethoscope was first introduced as a tool for use in physicians’ general examinations. At the time, doctors were worried that stethoscope technology would negatively impact their ability to provide quality patient care, sentiments also heard widely regarding the push for EHR adoption. “Doctors would lose their ability to conduct skillful examinations”, Postman (1993) continues in his mention of the adoption of the stethoscope, “and rely more on machinery than their own experience and insight” (p. 99).

While it is generally accepted that the stethoscope is a valuable diagnostic tool, if not also an icon of patient care in modern times, it is insightful to note that objections and skepticism for technological advances within the medical field have been present for a long time. Susan Wieczorek (2010) highlights similar concerns within the healthcare industry when detailing the history of and negative perceptions held by many clinicians
with regard to electronic mail (e-mail) usage between physicians and patients. Wieczorek (2010) discusses that perhaps deeper concerns are held by clinicians, which imply that technologies will not only hinder the provider’s ability to appropriately diagnose their patients, but may also diminish the patient’s belief in the necessity of physician involvement in their care, which could be costly, if not dangerous, for many patients (p. 324).

However, in addressing concerns physicians may have regarding a computer taking their place in caring for patients, a study conducted by the Mayo clinic in 2006 found that patients prefer doctors with characteristics only a human can provide (Bendapudi, Berry, Frey, Parish, & Rayburn, 2006). Researchers in the study concluded that a good doctor is “confident, empathetic, humane, personal, forthright, respectful and thorough” (Bendapudi et al., 2006, p.3).

Additionally, studies examining the effects of EHR use on quality of patient care have found valuable improvements. One study, conducted by Robert Miller and Ida Simms (2004) found that EHR technology contributed to the ability of physician practices to execute more quality improvement programs than possible with paper charting. Others have found that EHR use can improve patient care through the drastic reduction of medication errors with the utilization of electronic prescribing functionalities (Hale, 2011).

Also, increases in efficiency and the ability to share pertinent medical information between care providers made possible with EHR use has been shown to improve patient outcomes (Rourke, 2011). EHR’s can also enhance patient care through more practical measures, such as the ability to back up patient health information easily,
where paper charting leaves room for accidental misplacing or destruction of medical data (Rourke, 2011).

Financial burdens have been noted as potential drawbacks to EHR adoption, including the purchase of the software and user licenses, hardware upgrades, training costs, decreases in the number of patients seen during implementation, and software and IT support costs (Lawrence, 2005). However, costs for implementation vary greatly, from Kaiser Permanente’s $4 billion transition (the largest private sector EHR adoption) (Versel, 2010), to minimal subscription fees for functional software within private physician practices.

Ideally, healthcare organizations experience profit increases with the implementation of an EHR. A Fitch ratings report found that total revenue was generally significantly higher for hospitals with advanced EHR usage versus those that had not adopted or were early in the implementation process (Simmons, 2011).

It is unclear if increased usage of EHR software will follow the path of the stethoscope with regards to physician willingness to incorporate such a tool into their practice. However, financial incentives and assistance from the government as well as research and compelling data which highlight the benefits of EHR use and address concerns of interference with the physician-patient encounter may increase the likelihood of willing adoption by clinicians. To examine the impacts that EHR use can have on the physician-patient encounter specifically, research and literature which address communication within the clinical setting is addressed next.

*Communication in the Clinical Setting*
According to Burl Stamp (2006), author of *The Healing Art of Communication*, “in the hospital environment, better communication not only improves relationships with patients, families and colleagues, but can improve the quality and safety of the clinical care” (p.11). Stamp (2006) continues to address this complex concept by outlining a definition of ‘communication’ with regards to clinician and patient interactions. Communication is identified as requiring the delivery and receipt of messages by and from two or more parties (Stamp, 2006, p.18). Additionally, many factors must be taken into account in order for communication to be considered a successful exchange, according to Stamp (2006, p.18), including that the intended message of the sender is appropriately received by the recipient. Finally, “nonverbal signs, gestures, body language and voice inflection all contribute to how messages are received” (Stamp, 2006, p. 19), and therefore are considered forms of communication.

Many studies address the importance of communication within the healthcare field as well as how an EHR adoption may alter communication methods and impact patient care. The increases in sharing capabilities of patient medical information among clinicians are commonly noted as a benefit to adoption. However, in a study conducted in 2009, researchers found that providers perceived that the implementation of an EHR negatively affected the quality of communication between providers and providers, and providers and patients (Pagano, 2009). Thus, while providers may be able to access patient health information from another clinician more readily with EHR technology, they may not necessarily perceive an improvement in the quality of communication with the physician providing the information. Additionally, while Pagano’s (2009) study does provide insight from the clinic side, it does not examine the impacts on patient perception.
of communication following an EHR adoption. An area to be considered when addressing concerns providers may have with EHR implementation.

Alternately, McGrath, Arar and Pugh (2005) concluded that improvements in the quality of non-verbal physician-patient communication may be experienced with the use of an EHR during the patient visit. In the study, researchers examined the interaction between patient and physician during fifty visits at a Veterans Administration Hospital and rated them based on quality of interaction and inclusiveness of the activity. For example, some non-verbal communication gestures were deemed ‘opened’ and others ‘closed’ with the assumption that more ‘open’ interactions resulted in increased quality of communication.

The results of this study also suggest possible EHR use styles which may allow for improved communication between physician and patient. Thus, altering the manner in which physicians incorporate the EHR into their patient visit may impact the quality of communication perceived by the patient, versus an all or nothing assumption of the impacts of EHR use on the quality of communication.

Along the same lines, Vishwanath (2008) explored the effects of ‘framing’ or “subtle nuances in the content of communication” (p.2) on consumers’ willingness to adopt a patient health record (PHR) technology (a feature that generally works in conjunction with an EHR but is accessed by the patient). Within this study, the researchers found that highlighting various benefits of PHR use affected the consumer’s willingness to adopt, or pay for, the technology. Specifically, framing a PHR with respect to individual benefits resulted in more early-adopter’s being willing to pay for the PHR technology (Vishwanath, 2008). PHR technology is intended to improve communication
between physician and patient, and the results of this study suggest that patients’ views on technology may be influenced by the manner in which it is presented to them.

Furthermore, while this study focused on patient’s perceptions of the value of technology, other studies discussed describe how technologies impact the perceived quality of communication by physicians. As discussed previously, perceptions of the impacts of EHR adoption on the provider-patient interaction play a significant role in providers’ willingness to adopt. This knowledge then sparks intrigue for further research into whether patient perceptions of the quality of communication provided by clinicians when an EHR is used in a clinical setting may be subject to the influence of ‘framing’ as well. Additionally, consultants must address these concerns during the training and implementation phase of EHR adoption to ensure that the provider is equipped with tools for encouraging on-going positive communication with their patients.

Patient Satisfaction

The concept of patient satisfaction is addressed in many ways within the EHR industry and is regularly noted as an important factor in support of transitioning to an EHR. Generally, it is measured with the use of voluntary surveys and questionnaires that probe individuals on their experience at a healthcare organization during a specific event, such as a patient visit or a hospital stay. Patient satisfaction is not only important from a business standpoint to win customers (patients) and sustain over competition, but it can also have an impact on patient care, and is noted as one of the top priorities for healthcare executives in the nation (HIMSS 2006). Additionally, a survey conducted by the Healthcare Information and Management Systems Society (HIMSS) identified that EHR
adoption is perceived to be a key factor in increasing patient satisfaction and safety (HIMSS 2006).

Furthermore, levels of patient satisfaction are being considered as determining factors for future payment rates provided to healthcare organizations by the government (Gurley 2011). Therefore, many organizations are highly motivated to improve the satisfaction of their patients for several reasons.

The U.S. Department of Health and Human Services (HHS) (2011) has attempted to define patient satisfaction with specific survey questions focused on various aspects of the patient experience. HHS is compiling a large database with patient satisfaction survey results for individual healthcare organizations nationwide based on specific topics. Data is presented by percentage of patients who responded favorably to specific questions (U.S. Department of Health and Human Services, 2011). Included in the list of topics are specific queries focused on communication, namely how the patient viewed the quality of the communication received by clinicians and staff at the facility. Thus, it is clear that communication is believed to play an important role in patient satisfaction.

A study conducted by Steven Feldman (2011) suggests that an important factor in patient satisfaction is the perceived quality of personal attention a patient receives from a caring doctor (para.3). Feldman’s (2011) research also suggests that an EHR may have a negative impact on this perception by causing the provider to pay more attention to typing and computer use than to interacting with the patient (para.5).

Additionally, research conducted at three Kaiser Permanente Medical Centers found improvements in patient satisfaction scores with the introduction of an EHR (White & Slaboch 2004). In this case, prior to the study the researchers provided the
physicians with information on key behaviors they could adopt in an attempt to minimize the disruption the EHR had on the patient-doctor interaction.

However, similar research conducted by Vivian Tong Nagy and Michael Kantor (2007) looked at changes, if any, in patient satisfaction scores with the introduction of an EHR in the exam rooms of a large Kaiser Permanente Medical Center in Southern California. This study also suggested their physicians adopt certain behaviors when using the EHR but did not find significant impacts in patient satisfaction survey scores. The lack of improvements of patient satisfaction was a concern, however, the authors noted that EHR adoption in this healthcare setting did not appear to have negative effects. Thus these results offer support for giving providers recommendations for certain EHR use behaviors prior to adoption as a best practice (Nagy & Kanto, 2007, p.24).

Taking into account the various hurdles to adoption including perceived drawbacks and potential benefits, as well as an overview of best practices for optimizing patient satisfaction following a transition to EHR technology; strategies for assessing organizational needs and determining the most appropriate training and implementation strategy will be addressed next.

Approaches for Managing Organizational Change

Key elements of ensuring an effective implementation include acknowledging that the transition will constitute an organizational change and assisting the group in coping with the related stress. As discussed earlier in this thesis project, the first step to assisting such a group with organizational change is to gain insight into the characteristics of the current organizational culture. Once the various roles and relationships are examined, it is then important to “empower employees to adopt the role
of change agent and encourage them to take action to solve the problems that stress
them” (Callan, 1993, p.63). One strategy for empowering employees is to first motivate
them to make the necessary change. Each “worker should be made aware of the various
benefits attached to the change. This helps to mobilize support and minimize resistance”
(“Organizational Changes”, 2007, para.4).

Findings from a study by Guy Pare, Claude Sicotte and Helen Jaques (2006)
suggest that “in order to foster physicians’ adoption of a clinical information system, it is
important to encourage and cultivate a positive attitude toward using the new system” (p.
197). With an understanding of the fears and challenges many providers may experience
when faced with transitioning to an EHR, as well as the positive benefits of EHR
adoption as discussed previously, a consultant will be better equipped to address
resistance and assist an organization in appropriately navigating this change.

Additionally, it is important to identify motivated and positive leaders within the
group who can act as ‘champions’ for the transition and support the group throughout the
change. “One of the most important factors in the successful implementation of new
computer systems is having a ‘local expert’ in place to support their team at critical
points in the project” (“RiO Champion Users”, 2011, para.1). Therefore, a consultant
should consider identifying such “champion users” an integral aspect of examining the
organizational culture and developing a strategy for assisting in organizational change.

_strategies for effective training_

As discussed, the theory of social learning advises that individuals learn best
through observation within a community (“Learning Theories Knowledgebase”, 2011).
The strategies for developing a training curriculum to meet the needs of learners within a
group include utilizing the techniques of active learning (Mel Silberman, 2004). “Active learning requires students to do meaningful learning activities and think about what they are doing” (Prince, 2004, p.223). A study conducted by Rand Guthrie and Anna Carlin (2004) observed strategies for ensuring effective learning in a group of college students and suggests greater learning occurs when students engage in active learning. To achieve active learning, Silberman (2004) suggests including a variety of activities and approaches to keep individuals engaged, such as assessing the group and involving participants in ice-breakers to demonstrating the skill to be learned and encouraging hands on practice.

Therefore, research supports utilizing techniques and strategies for ensuring engaging and memorable training programs through active learning as key to a successful EHR implementation. The various activities mentioned here, as well as additional techniques as suggested by Silberman (2004) and other scholars in support of active learning, will be used in the development of a training curriculum for EHR adoption within healthcare organizations.

RATIONALE

In summary, the majority of literature currently available related to the EHR industry addresses concerns with the effects, both positive and negative, of EHR adoption on quality of care and the patient experience. Many benefits for computerizing the healthcare field have been cited by legislators, including increases inpatient care quality, decreases in healthcare costs and added efficiencies within the clinical setting (HIMSS, 2007). However, numerous potential drawbacks are consistently addressed within the industry as well, including cumbersome training and implementation processes, steep
financial costs for adoption and negative effects on the precious physician-doctor relationship with the introduction of a computer into the exam room (HIMSS, 2007).

Common hurdles to adoption experienced within the industry as well as the best practices for overcoming obstacles and ensuring a smooth transition to an EHR for providers and their staff were addressed. The concept of communication within a clinical setting was examined, including specific research available addressing changes in communication with the introduction of EHR software during the patient visit. Theories by communication scholars, including Clifford Geertz and Michael Pacanowsky’s approach to organizational culture and Joseph Walther’s views on computer mediated communication, provided a framework for examining the literature. Finally, strategies for navigating organizational change and implementing effective training programs were discussed as a foundation for the product of this report.

While the incentives and pressures for adopting an EHR are increasing for most healthcare organizations, there are a large number of reported failed implementations and or under utilization of EHR solutions, as a result of many hurdles including those discussed in this analysis. The goal of this project is to provide a resource that is currently lacking within the healthcare industry for ensuring that EHR implementation practices address the perceived drawbacks of EHR adoption as well as meet the learning needs of individuals and encouraging positive change within organizations for continue use of the EHR solution.

DESIGN QUESTIONS

The literature supports the intention of the current project and suggests that achieving the desired effective resource for ensuring positive EHR implementation
practices within the healthcare field will require utilizing several approaches. Thus, the following questions have emerged as a result, including: what key player(s) should a consultant initially engage with within any organization to gather insights into the current organizational culture and environment? What key questions should the consultant request from the key player(s)? Once an understanding of the organizational environment is established, how shall this information be used to customize the training curriculum and approach to meet the needs of the individuals at the organization? How best can the consultant highlight the benefits of EHR adoption and address concerns? How best can the strategies of active learning and change management be incorporated into the training and implementation process? What additional resources shall the consultant provide to the organization to ensure ongoing success and EHR usage following the completion of the initial implementation? The development of the current project addresses such design questions.
Chapter 3. SCOPE AND METHODOLOGY

Hewlett-Packard Development Company (2010) released a document which outlines steps for successful EHR adoption, yet the text only addresses best practices for EHR use and suggestions for limiting loss of productivity once technical needs are met. As discussed previously, healthcare professionals with experience in EHR implementation provide similar insights with limited research or resources available which clearly define important challenges faced by healthcare organizations which can derail excellent plans. This project hopes to provide a resource which presents a holistic approach to EHR implementation from a consultant’s introductory meeting with a healthcare organization that has decided to adopt an EHR solution to ensuring the business and individuals involved in the transition experience on-going success.

THE SCOPE OF THE PROJECT

This project began with an introduction to the on-going shift of the healthcare industry from mostly paper documentation and clinical processes to the wide-spread use of electronic health record (EHR) solutions. Within this discussion, governmental pressures including financial incentives and penalties for healthcare organizations to implement an EHR were reviewed. Additionally, the alarmingly high number of failed implementations nationwide was noted, thus establishing the importance of effective strategies and processes for ensuring successful EHR implementations within healthcare organizations.

In the second chapter of this project the available literature relating to this issue was analyzed, including resources addressing specific benefits and drawbacks of transitioning to EHR technology, as well as the impacts of negative and positive
perceptions held by providers, clinicians and patients throughout EHR adoption. A variety of texts and media were examined, including works by experts in the healthcare, medical informatics and healthcare information technology fields, philosophers in education and learning, theorists in organizational change and many others. The need for specific processes for analyzing the current organizational culture, strategies for providing change management and utilization of experiential learning approaches emerged from this literature review as key elements of a successful implementation.

This chapter addresses the specific scope and methodology for this project. The project includes a curriculum of training and consulting materials focused on engaging physicians and their staff, addressing the benefits and fears of adopting EHR technology, and encouraging a positive transition to EHR utilization that will allow participants to fully reap the benefits of leading edge EHR technologies to improve the quality of patient care.

This curriculum is intended for EHR trainers, implementation specialists, consultants, healthcare leaders, project managers, technology vendors and any individual assisting in the implementation of EHR technology within a healthcare organization. The curriculum guide includes details of specific training and consulting approaches intended to encourage change, analyze the specific needs of each provider being trained and solidify the best practices and appropriate clinical workflows for each office environment.

The fourth chapter presents the curriculum including a detailed description of the identified challenges to adoption for many healthcare organizations and information regarding both the best practices for EHR implementation and theoretical framework for
effective training. A guide is then provided for analyzing each healthcare organization to identify current clinical workflows, cultural dynamics, possible environmental challenges as well as a list of key individuals to identify at each location. Important interview questions to discuss with key players within each organization are also provided to assist in the preparation of customized training plans. Example training plans, tips for scheduling training sessions as well as activities for engaging individuals in the learning process are also included. Model guides and handouts are also provided to illustrate possible tools the implementation consultant could utilize to ensure on-going utilization of the EHR solution.

While the strategies and materials included in the curriculum may be applicable to a variety of transitions faced by healthcare and other organizations, the project is designed specifically for EHR technology adoption with the assistance of a designated implementation consultant. The materials presented in this project are developed with the assumption that the implementation consultant has mastered the intricacies of the specific EHR solution being implemented, and that key players within the organization are motivated to adopt and available to attend the minimum required planning and training sessions outlined in this EHR implementation curriculum guide.

The final chapter of this project reviews the implications of the current thesis project, as well as addresses limitations and recommendations for future investigation.

**METHODOLOGY OF THE PROJECT**

The goal of this project is to not only provide valuable tools for executing the widely understood steps for limiting decreases in productivity during implementation, but
also for ensuring a smooth training process and continued use of the EHR technology. Additionally this project aims to allow consultants to assist healthcare organizations in identifying processes for increasing productivity, and reducing resistance and concerns held by providers, clinicians and staff about EHR adoption. Finally, this project also aims to provide guidance for consultants to empower key players within each client organization to identify and resolve additional challenges related to EHR implementation and on-going use.

This study utilizes a message-oriented research approach including components of archival/documentary research as well as textual analysis (Rubin, Rubin, & Piele, 2005, p.220) to compile the appropriate aspects of the curriculum. As a part of the archival research, a method which “seeks to clarify and to understand how law operates in society” (Rubin et al., 2005, p.220), legal policies related to EHR adoption were examined. Through this approach an understanding was gathered of trends in the healthcare industry, possible motivations for implementation as well as criticisms and debates present in the field.

Additionally, as advised by documentation research (Rubin et al., 2005, p.220) and seen within the literature review presented previously, available texts, articles, and books on the benefits and challenges of EHR adoption, best practices for implementation, change management, and active training guided the development and inclusion of various components of this project. Textual analysis, including approaches for analyzing interpersonal interactions, were utilized in the creation of the curriculum and are encouraged as a part of engaging with key players in consultant’s client organizations.
In addition, the author of the current project also incorporates knowledge gained from professional experience as an EHR implementation and training specialist and consultant who has achieved successful adoptions for over one hundred providers in a variety of ambulatory settings. These tools guide the design and approach of the current project, including the inclusion and occasional exclusion of specific aspects of the EHR implementation curriculum guide.

Through this message-oriented research, the following topics have emerged as necessary aspects of EHR adoption that should be addressed during implementation planning and execution:

1) Benefits and Drawbacks of EHR adoption
2) Goals and Concerns for Implementation
3) Organizational Culture
4) Champion User / Leader Identification and Engagement
5) Best Practices for EHR Usage
6) Strategies for Effective Training
7) Change Management

As a result, the project includes sections which address each of these topics to guide the consultant in utilizing the identified strategies appropriately. In addition, the curriculum provides worksheets with various questions intended to assist the consultant in gathering information about the organizational culture, clinical workflows, key players and specific training needs. Within the training section, example program plans including possible schedules, sample activity guides, and quick manuals for training sessions are provided. The strategies discussed when reviewing available literature regarding change
management were also used to provide tools for ensuring a healthcare organization is well equipped to address future hurdles once implementation period has ended.
Chapter 4. THE PROJECT

This guide includes details of specific training and consulting approaches, materials and recommendations intended to encourage change and assist trainers, specialists and anyone acting as a key leader for implementation (the consultant) to address the needs of an organization during EHR adoption. Tools are provided to allow the consultant to help identify and solidify appropriate implementation plans for each office environment.

The sections of this guide are presented in an order in line with the steps for completing a successful EHR implementation. However, the information and guidance provided in the entire guide is necessary for a consultant to grasp before engaging in the EHR adoption process. Therefore, it is recommended that a consultant review this guide in its entirety before embarking on an EHR implementation with an organization, then continue to refer to specific sections throughout the adoption process.

PROJECT DESCRIPTION

The guide, titled Optimization Strategies for Successful EHR Adoption, is included in the appendix and is considered a complete reference, independent of this paper.
Chapter 5. SUMMARIES AND CONCLUSIONS

LIMITATIONS OF THE PROJECT

This study provides tools for consultants to assist a broad range of organizations within the healthcare field to transition from paper to electronic health records. However, as a natural result of the scope of the current project, limitations must also be considered. The guide presented in this project attempts to allow for flexibility in EHR solution selection, but the continued development of electronic healthcare software solutions and varying products currently available may present limitations to applicability of certain aspects of the project. New software tools may require additional or alternative steps for adoption, and therefore, adjustments to the recommended approaches must be taken into account.

Furthermore, the strategies and approaches provided in the project attempt to cover the needs of private physician practices and healthcare organizations. As an intended aspect of the project, specific restrictions for the size of such organizations are not outlined. However, the effectiveness of recommendations provided in the project may be limited by available resources and environmental considerations within specific organizations.

FURTHER RECOMMENDATIONS

As the healthcare industry gains further insights into the challenges and benefits of electronic health record adoption, enhancements should be made to any consultant’s approach. Therefore, updates and additional considerations for future studies and tools for consultants should continue to turn to the lessons learned through on-going implementation and adoption of EHR solutions within the field.
In addition, as previously mentioned, the current project provides guidance applicable across multiple settings and with a variety of EHR solutions. Consultants within specific areas of healthcare or working with certain EHR technologies should investigate possibilities for applying the tools presented in the current guide to develop customized materials appropriate for their work.

Finally, as uncovered within the literature review and development of the current project, additional research is needed which offers further knowledge on the benefits and drawbacks of EHR adoption. As seen in the discussion on perceptions of concerns with adoption, anecdotes and hearsay assumptions fuel growing resistance by many physicians. Further study may provide additional evidence to assist the industry in overcoming these hesitations as the nation is encouraged to shift to EHR solutions within the healthcare field.

DISCUSSION AND CONCLUSIONS

Considering the heightened motivation and need within the healthcare industry for effective and positive approaches to electronic health record implementation, this project sought to investigate the best practices including strategies, approaches and materials for assisting healthcare organizations in successful EHR adoption. Available literature regarding the benefits and drawbacks of electronic health record (EHR) technology adoption, including the legislative and regulatory incentives and penalties motivating organizations to transition from paper to electronic charting, was examined. The knowledge gained from the literature was applied in the development of a curriculum guide for consultants, trainers, and individuals within the healthcare field assisting organizations in adopting EHR technology.
The recommendations provided in this project and the curriculum guide are grounded in the theories of organizational culture as presented by Clifford Geertz (1977) and Michael Packanowsky (Griffin 2009, p. 252), as well as insights on the impacts of computer mediated communication, as discussed by Joseph Walthers (Barrow, 2010). Materials presented approach individual learning through the philosophical insights of John Dewey (Neill, 2005, para. 1) and social learning theories of Albert Bandura (“Learning Theories Knowledgebase”, 2011).

By addressing the concerns faced by many providers and staff, as well as highlighting the benefits of EHR utilization, a consultant can build motivation for organizations to move past resistance. Furthermore, consultants are encouraged to recognize the unique needs of the organizational culture and to arm individuals within the group with tools for change management and self-sufficiency following adoption. The presented curriculum guide provides a solid handbook for consultants, trainers, implementations specialists or other healthcare leaders to positively impact and support an organization during the transition to EHR technology.
REFERENCES


