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Strategies for Developing and Implementing Information Technology Systems for EHRs

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Abstract

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MS, Walden University, 2012

BS, Johnson C. Smith University, 1985

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Some hospital leaders lack the technical expertise to implement electronic health records (EHRs) even though the healthcare industry has a government mandate. The purpose of this single case study was to explore strategies healthcare executives use to develop and implement information technology systems for processing EHRs. The target population consisted of healthcare leaders and managers successful in implementing EHR systems in a healthcare organization. Lewin's 3-step change theory was used as the conceptual framework for this study with data collected from observations (5), semistructured interviews (5), and organizational documents. Descriptive coding was used to identify 3 themes that emerged from observations, document analysis, recording and analyzing the interview transcripts of research participants. The themes included communication and management plan for EHR implementation, information technology EHR vendor selection, and EHR implementation technical support strategy. The findings benefit both the patients and clinicians with the potential to improve healthcare service delivery utilizing electronic technology for documenting physician visits. Study results may assist healthcare providers with identifying implementation strategies successful for EHR adoption and assisting with speeding the process. The research findings may contribute to social change through increasing patient access to treatment along with community engagement in using EHRs by information sharing to reduce healthcare cost.

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Dedication

First, I give praises to my Lord and Savior for empowering me to complete my doctoral degree. For I can do everything through Christ, who gives me strength. Philippians 4:13 NLT. I dedicate this research study to my parents (Walter & Priscilla), my husband (Corey), and my sons (Austin & Kyle). Thank you for all your support and encouragement during this enormous task.

Acknowledgments

First and foremost, I would like to thank my doctoral committee for their support, encouragement, and guidance during this DBA journey. To my outstanding chairperson Dr. Cheryl McMahan, who provided scholarly academic excellence during this process along with Dr. Dorothy Hanson. Also, thank you to my second committee member Dr. Karin Mae for the positive contributions and input for this study. To my URR, Dr. Neil Mathur, thank you for your scholarly reviews of my study. Finally, to my family and friends thank you for allowing me to lean on you when I became tired and overwhelmed. Lastly, thank you to the research participants that made this research study possible and successful. This doctoral accomplishment was a great milestone in my life with the wonderful assistance of Australia Walker and Kevin Hooks.

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Section 1: Foundation of the Study

The purpose of this qualitative single case study was to determine strategies healthcare executives used to develop and implement information technology systems for processing electronic health records. This section begins with a background of the problem followed by the problem statement. The purpose statement includes the intent for the research. This section also includes nature of the study and the research method and design that I used to support the research question. I present the interview questions that I used to address the research question. The section also includes a list of operational definitions and assumptions, limitations, and delimitations. I conclude the section with a statement of the significance of this study and a review of the professional and academic literature.

Background of the Problem

Healthcare professionals continue to create innovative ways to complete clinical documentation to transfer to an electronic system using information technology systems. Being in the healthcare industry, I have challenges in sharing data electronically for care coordination. Birken et al. (2015) suggested "implementing even seemingly simple healthcare innovations has proven to be challenging" (p. 159). When any interdisciplinary team (multiple medical specialties including the doctor, nurse, clinician, therapist, and counselor) meet to collaborate or discuss an individual's healthcare, it requires documentation from each disciple to analyze and determine the steps for the general treatment process. Some healthcare executives continued to struggle with processing electronic health records, due to the lack of strategies to develop and implement an

information technology system. By implementing an information technology system, the struggle of sharing information with other providers would provide quicker, more efficient processing of coding, billing, and diagnosis.

Where treatment practices are elaborated on for interdisciplinary collaborations by clinicians, and involving the active contribution of multiple medical specialties, handling distribution of large amounts of data is important, but challenging (Kessel et al., 2014). Change is a part of the development and implementation process required by healthcare management to create strategies for being successful. The physician's treatment of the patient and for research itself ensures appropriate strategies with access to the information needed. The clinical environment requires documentation and data management systems that integrate while enhancing the electronic data capture for all disciplines (Birken et al., 2015). Combining patient data by healthcare professionals from all involved information technology systems is certain to happen for analysis purposes (Kessel et al., 2014).

Problem Statement

The inability to implement health information technology tools in North Carolina has resulted in delayed clinical documentation and workflow (Sequist, 2015). In 2012, coding 656 medical records took 219 hours (20 minutes per file) and inputting the same records into the system added an additional 219 processing hours (DeAlmeida et al., 2014). The general business problem was that some healthcare organizations' documentation delayed negatively affect service delivery productivity. The specific

business problem was that some healthcare executives lacked strategies to develop information technology systems for processing electronic health records.

Purpose Statement

The purpose of this qualitative single case study in Charlotte, North Carolina was to determine strategies healthcare executives used to develop and implement information technology systems for processing electronic health records in the Fall of 2017. Five participants for the single case study included clinicians, managers, and executives who supported the use of computerized provider order entry and clinical decision-making support. I selected The Charlotte, North Carolina human services healthcare organization due to the organization's successful strategies to develop and implement electronic health records (EHR) at the participant work site increasing service delivery. Findings from the study may result in the positive social change of improving healthcare service delivery using electronic technology for documenting physician visits. While making office visits more efficient for each clinical discipline accessing and using health care records. The clinical data would be readily available for assessing and avoiding delays in coordination of care. Patients and their families could benefit by spending less time in the doctor's office for community healthcare.

Nature of the Study

Qualitative research was the best method for exploring strategies from the healthcare executive's perspective using multiple data resources. Researchers who used a quantitative approach use numerical data to measure results and test hypotheses, and researchers who use a qualitative approach to interpret the findings during the review

process caused a change (Plotnikov & Vertakova, 2014). I selected the qualitative research method for the in-depth collection of data and analysis which was best for this study. The quantitative method entails digital data collection along with exhibiting a deductive view of the relationship between research and theory (McCusker & Gunaydin, 2015). The depth of data sought from this study is through a qualitative method using open-ended questions to collect data. Mixed method researchers focus on using multilevel perspectives which included using both the qualitative and quantitative methods for the real-life contextual understanding of a phenomenon (Hughes, 2016). A mixed method approach was not considered appropriate for this research study due to intense data collection process and time constraints. I chose a qualitative research method, using open-ended interview questions, documents, and observation notes.

I used a single case study design to explore strategies to develop and implement information technology systems for processing electronic health records. Multiple employees contributed to exploring a real-life event using a single case study design with one organization providing in-depth data collection (Yin, 2014). Employing a case study is useful to analyze a complex real business situation (Hyett, Kenny, & Dickson-Swift, 2014). Participant interview responses to my study from the open-ended questions of *why* and *how* about strategies used to develop and implement information technology systems for processing EHR ensured data collection relating to the phenomenon (Hyett et al., 2014). More extensive amounts of evidence are provided through the case study design than other qualitative designs (Yin, 2014). I used a qualitative case study research design to explore my study topic providing a complex, in-depth, and detailed perspective.

Qualitative designs possible to use for research include ethnographic, phenomenological, and case study. I did not use an ethnographic design because my topic does not address a culture's characteristics or relations among groups through interactions with participants and direct observations (Hyland, 2016). The phenomenological design is not appropriate for my study due to not focusing on human experiences from the view of living the phenomenon (Yin, 2014). I selected the case study design to gather data for exploring strategies for developing information technology systems for processing electronic health records. A single case study design was most appropriate for this research due to in-depth data collection from multiple data sources and experiences of participants in one organization's facility.

Research Question

The research question for the study was: What strategies did healthcare executives use to develop information technology systems for processing EHRs?

Interview Questions

1. What strategies did you use to develop the information technology systems for processing electronic health records?
2. What did you do to contribute to the implementation or designing the system for processing electronic health records?
3. How did you ensure appropriate actions are selected for developing and integrating information technology systems to process your organization's EHRs?
4. What challenges did you experience when developing and implementing the strategies for designing information technology systems for processing EHRs?

5. How did you address the barriers to implementing the strategies to develop information technology systems for processing EHRs?
6. What additional information would you like to add to strategies for developing and implementing information technology systems for processing EHRs?

Conceptual Framework

I used Lewin's (1951) change theory of nursing as the conceptual framework for this study. This theory includes a model defining the phases in explaining the incremental change process in an organization (Pettigrew, 2013). I used conceptual framework theories to make comparisons between scholarly literature, making connections with methodology, and finding outcomes with results of the study (Borrego, Foster, & Froyd, 2014).

Determining the nature of change management strategies involves stakeholders with change agents playing an important role (Hossan, 2015). Lewin's change theory of nursing concepts consists of addressing implementation, motivation, and adherence to organizational change (Lewin, 1951). Implementing change could have be an ongoing process or a one-time occurrence for the organization, and with the continuous change, the process omits the refreezing phase. In the case of one-time change, the process begins with unfreezing, then moves to a new state and refreezes or consolidates the new state (Lewin, 1951). Creating the content of strategic change includes managing its context and process (Pettigrew, 2013). Describing the process of change is vital when documenting the steps of events or actions which lead an organization to adopt the content of a new

initiative and the initiative's implementation (Pettigrew, 2013). I created a visual aid of Lewin's change theory showing the three-step process (see Figure 1.).

Generally, successful change improved organizational effectiveness during the change management process approach, when one section implemented change other sections changed (Robbins & Barnwell, 1998). Lewin's change theory of nursing treated an otherwise peaceful world as an occasional disturbance when referencing change (Cummings, Bridgman, & Brown, 2015). My case study participants described the strategies their organization used to develop information technology systems for processing electronic health records; using Lewin's three-step change theory of nursing provided a means for interpreting the key themes that evolved from the study and identified appropriate actions.

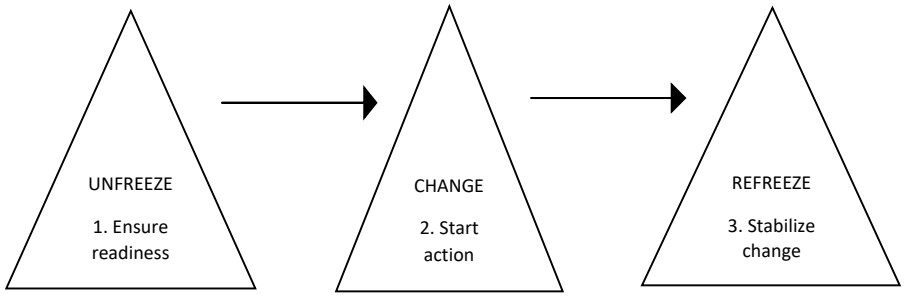

Figure 1. The three steps of Lewin's change theory of nursing.

Lewin's change theory of nursing was relevant to this study because the implementation is complex for EHR. Changes in government regulations focused on

healthcare organizations to implement EHR to create a platform to share decision making between the healthcare provider and consumer (NCDHHS, 2016). In general, the development and quick response to change regarding internal and external environments will keep the healthcare organization in a competitive marketplace with structure and delivery of services.

Operational Definitions

Electronic health record (EHR): An EHR is a repository of patient health data in an electronic form, stored and transmitted securely, and can be accessed by multiple authorized users to support integrated healthcare (Goveia et al., 2013).

Health information technology (HIT): Health information technology is a useful method for information processing for data entry, storage, sharing, and retrieval which uses both computer software and hardware for the utilization of health care information (Wears, 2015).

Information Technology Systems (ITS): Computerized techniques with a wide range for processing large amounts of information rapidly which enables communication with several related applications in software (Lee et al., 2015).

Leadership: Leadership references an individual who uses interpersonal skills to influence, inspire and motivate team members to follow goal visions by encouraging and developing new problem-solving methods for reaching objectives (Kaiser, McGinnis, & Overfield, 2012).

Provider: Health care providers are practitioners trained and educated to deliver services using administrative and clinical support to beneficiaries, which includes all healthcare disciplines (Smith, Saunders, Stuckhardt, & McGinnis, 2013).

Strategy: The definition of strategy is a long-term plan and approach towards achieving the optimum goal for the success of the organization specific visions and objectives to meet end results (Mahdi, Abbas, Mazar, & George, 2015).

Assumptions, Limitations, and Delimitations

Assumptions

Dusick (2014) defined assumptions as statements of realistic expectations researchers accept these as true or possible without proof. One of my assumptions was that regarding the perceptions and meaning the questions present concerning the participants' experiences were relatable. My central assumption was that participants are prepared to provide sufficient insightful information for the essence of the lived experience real world meaning. I assumed the participants gave open responses during the confidential interviews. I assumed participants had the necessary experience to explore strategy effectiveness for implementing information technology.

Limitations

Silverman (2016) defined limitations as uncontrollable contexts, stimuli, and insufficiencies that confine research studies. Researcher bias is another limitation in the process of qualitative data collection. Limitations included a small sample size within one organization. This specific organization management developed and implemented EHRs successfully which is the reason for the selection of this organization for my study. The

interviews sessions, due to the healthcare clinicians work schedules and timeframes had restriction limits.

Delimitations

Delimitations are defined by the researcher's boundaries of the study or selection of the scope (Dusick, 2014). The study's sample size and participant population along with the location setting narrowed the scope of the study. Time was a delimitation dependent on conditions over a particular period intentionally imposed and introduced by me. The scope of this study was limited to North Carolina, with healthcare executives participating at their organization worksite.

Significance of the Study

Contribution to Business Practice

Findings from the study provide healthcare leaders with strategies to develop and implement information technology systems to process electronic health records. The prospect of change is challenging for small and big organizations. Health care business leaders might use results of my study to improve the practice of processing electronic health records. The results and findings of this qualitative single case study may advance understanding and minimize clinical disruption in overcoming barriers during the process of developing and implementing information technology systems for electronic health records. Additionally, my findings could support identifying and adopting models for creating a successful transition for processing electronic health records.

Implications for Social Change

Exploring the strategies healthcare provider organizations use to develop information technology systems for processing EHRs may create change for providing better healthcare. Business practitioners and researchers can use study results to understand how management may align business strategies with information technology developments for processes and techniques. Healthcare organizational performance can be enhanced by implementing and using EHRs. Reducing operational and implementation cost may be identified by management using the strategies from this study. The implications create a positive social change in the community by an increase of patients being seen at office visits with documentation readily available to the healthcare professional. The findings from this study may be of significance providing a smoother transition for implementing technology systems to enhance data collection for EHR improving organization morale during the process. All communities need successful healthcare organizations to provide a broad range of services to meet their requirements to document for treatment, code and bill correctly, along with coordinating health care service delivery.

A Review of the Professional and Academic Literature

The purpose of this literature review was to explore the strategies used to develop and implement information technology systems for processing electronic health records. The conceptual framework for this study is Lewin's change theory-three step model for change. Onwuegbuzie & Weinbaum (2016) stated reviewing current literature of topic demonstrates awareness. I provided continuous up to date awareness of the research topic using literature. Literature reviews inform analysis and interpretation of sources for the

research process (Onwuegbuzie & Weinbaum, 2016). The literature sources for this study includes peer-reviewed articles, scholarly journal articles, seminal books, and published dissertations.

I reviewed 175 sources, with peer-reviewed sources constituting 161 or 92%. In the literature review, I reviewed 71 sources with 67 or 94% peer-reviewed articles from journals. The study references include 162 current references or 93% and the literature review contains 63 current references or 89%. The primary databases review includes health sciences, business, and management on online databases in the Walden University Library and Google Scholars. I searched online databases including ProQuest Dissertation, Electronic Business Source Complete, ProQuest Central, and EBSCOhost. Additional online sources include the Cochrane Reviews, PubMed, and Web Knowledge databases.

I used the following keywords to search for literature: *healthcare implementation, electronic health record development, health information technology, electronic medical record, computerized physician order entry, computerized patient record, strategic change challenges, information technology systems, healthcare mandates, Lewin's change theory, provider adoption,* and *clinical documentation.* I retrieved some resources from books or special reports on studies regarding developing and implementing information technology systems for electronic health records. The literature review covers the conceptual framework - Lewin's change theory, analysis of the conceptual framework, supporting and contrasting theories for the framework, strategies for developing and implementing EHR's, healthcare delivery and quality for EHR's. The

review covers change strategies and addresses potential barriers for EHR implementation from the organizational perspective. The potential themes from the study include leadership implementation controls for change, EHR technology project vendor, implementing the EHR system, and context of implementing EHR as a system.

Conceptual Framework: Change Theory of Nursing

Lewin published the change theory of nurse in 1951 (Lewin, 1951). How change is managed varies depending on the business nature, the change, and the individuals involved (Inokuchi et al., 2014). Organizations having the capability of managing change appear to prosper (Fritz et al., 2015). The key element is how individuals within the organization understand, as well as deal with the process of change (Worley & Mohrman, 2014). Lewin developed a three-step change model that is an appropriate conceptual framework for understanding the strategies for developing and implementing information technology systems for electronic health records. Using Lewin's change model is simple and critical in different phases of the change management application referred to as the unfreeze-change-refreeze (Eden et al., 2016).

Lewin's first step regarding the change behavior process entails unfreezing the current situation or the status quo. Researchers stated that the status quo is the equilibrium state which is when opposing forces are balanced (Eden et al., 2016). Unfreezing is vital in overcoming the strains of personal resistance to change, as well as the group conformity to change (Fritz et al., 2015). There is an achievement of unfreezing through the application of three diverse methodologies which include increasing the forces that direct away from current situation, decreasing restraining forces which

negatively affect change, and find a combination of both methods (Eden et al., 2016). Researchers suggested Lewin's change model is critical to raising the driving forces that direct the behavior away from the current situation or the status quo and causes a change to occur (Hossan, 2015). Behavior as defined in the change model is forces being balanced working in opposite directions (Hossan, 2015). Decreasing the limiting forces that negatively impact the movement from the current equilibrium causes opposition to change (Eden et al., 2016). When driving forces are the same as restraining forces, this is an equilibrium state of being which brings about no change (Fritz et al., 2015). Some actions that can aid in the step of unfreezing include the motivation of the participants by preparing them for change, developing trust and recognition for the change need, and actively participating in recognizing challenges and coming up with solutions within a group (Nguyen, Bellucci, & Nguyen, 2014).

The second step of Lewin's model in the change behavior process is the movement that involves being more liberating or productive. In this step, the change behavior process is critical to moving the target system to a new equilibrium level (Mitchell, 2013). This action aids in the movement process including the persuasion of the management in agreeing that the status quo was not beneficial to them and encouraging them to perceive the challenge from a fresh viewpoint (Nguyen et al., 2014). Moving into a new state of being allows working together on a search for novel applicable information successful for transitioning. Connecting the group's views through communication to the powerful leaders who also support the change becoming reality

(Nguyen et al., 2014). This step of the change model assists organizational leaders with introducing change in a way that is strategic and systematic (Nguyen et al., 2014).

Refreezing is the third step of Lewin's model of three-step change. Step three should take place after the implementation of the change so the process can be sustained over a given period (Eden et al., 2016). If this step is not undertaken, there is a possibility for the change to be short-lived and the workers will revert to their old equilibrium (behavior) (Worley & Mohrman, 2014). Researchers have shown freezing is the actual integration of the novel values into the community values, as well as the traditions organization's use to reinforce an acceptable new state (Mitchell, 2013). Being repetitive and educating the organization on the new norm solidifying the change. The main aim of freezing is stabilizing the novel equilibrium coming from change through balancing both the driving, as well as the limiting forces (Emmanuel, 2014). One activity that can be applied in implementing Lewin's third step is through reinforcing the novel patterns, as well as institutionalizing them through formal and informal mechanisms such as the policies and procedures (Mitchell, 2013).

Lewin's change model indicates the effects of forces that either enhance or inhibit the process of change (Cummings, Bridgman, et al., 2015). The driving forces enhance the change process while the limiting forces oppose the change (Cummings, Bridgman, et al., 2015). Change happens when the combined strength of one force is greater in comparison to the strengths of the opposing set of forces (Emmanuel, 2014). Research studies examining the occurrence of change within the Lewin's change theory have similar findings (Emmanuel, 2014; Cummings, Bridgman, et al., 2015).

Analysis of the Conceptual Framework

Lewin's change model is rational and goal- and plan-oriented. The main concepts of Lewin's change theory are addressing implementation, motivation, and adherence to organizational change (Lewin, 1951). Driving and restraining forces and equilibrium stabilizing are required processes for Lewin's change model to be effective for sustaining organizational change (Eden et al., 2016).

Healthcare facilities continue to integrate new technologies and software to manage the challenge of change with stakeholders buy in giving the organization a competitive advantage for successful implementation. Careful planning and structured execution provide a smooth transition for organizations using Lewin's change theory. Employee participation is an effective strategy for driving change in the desired direction with knowledge sharing to drive forces with minimum resistance. Limiting forces such as organizational processes impede change because they push the employees in the opposite direction (Mitchell, 2013). Lewin's change theory of nursing model indicates the impacts of the forces that either promote or inhibit the organizational change process (Worley & Mohrman, 2014). There is an occurrence of change when one force's combined strength is more than the pooled strength of the opposing sets of forces (Mitchell, 2013). Lewin's change theory of nursing model is vital for managing change and guiding the process to engage all stakeholders in successfully creating change within the organization whether planned or unplanned.

Supporting and Contrasting Theories

The social cognitive theory created by Albert Bandura in 1963 is interpersonal and addresses how the change of behavior is impacted by the environmental influences, individual aspects, and behavior attributes (McLeod, 2016). Social cognitive theory uses behavior change interventions to explain why interventions are successful or fail based on both employee motivation and behavior (Mitchell, 2013). Organizational environment complexity represents the level of performance standards enhancing changeability for the employee. Lewin's change theory of nursing model makes rational sense because it considers both the external, as well as internal environmental situations not behavior (Worley & Mohrman, 2014). With the social cognitive theory, focus is on the internal and external factors that expose and align with behavior change for employees. This theory does not address change processes for implementing information technology systems for EHR but provides a range of interaction from a cognitive perspective including mediational processes for attention, retention, and motivation (McLeod, 2016).

Lippitt's theory of planned change involves an agent of change instead of the change process itself (Al-Haddad & Kotnour, 2015). Lippitt's theory of planned change (1958) is an extension of the Lewin's three-step change theory of nursing which is based on recruiting an external change agent to create a plan to effect change (Lippitt, Watson, & Westley, 1958). An exchange of information is continuous throughout the change process by the change agent with all stakeholders. Lippitt's change model has a cyclical process with a concentration on the change agent that includes seven steps that include exploring and examining the organizational problem, planning and establishing change action to be taken, apply and stabilize the change, lastly evaluate the change (Al-Haddad

& Kotnour, 2015). The seven steps for Lippitt's change model include diagnosing the problem, make assessment of motivation, evaluate change agent's resources, change objects selection, assign change agent role, stabilize change, and terminate relationship with change agent (Lippitt et al., 1958). Specifically, Lippitt's theory of planned change focuses more on the role and the responsibility of the change agent than on the change evolution. In comparison, Lippitt's change theory steps one-three relate to Lewin's unfreezing phase, next Lippitt's steps four-six relate to Lewin's changing phase, while Lippitt's step seven is comparable to refreezing Lewin's last phase.

The transtheoretical model of behavior change by Prochaska and DiClemente's (1983) is different from the Lewin's change model (Clark et al., 2015). This model of behavior change represents five stages of change: pre-contemplation, contemplation, action, maintenance, and relapse with progression being cynical not linear using single steps (Davis, Campbell, Hildon, Hobbs, & Michie, 2014). The transtheoretical model of behavior change takes the relapse or the failure for converting to the preferred behavior (Davis et al., 2014). Change can require several approaches and the actions or stages for behavior change may be deemed appropriate by leadership (Clark, Heiderscheidt, & Peel, 2015). Using the transtheoretical model of behavior change, the individuals who may relapse, failing to meet their change efforts can revisit the stage of contemplation, and make plans for future actions (Clark et al., 2015). Upon review of this model structure which takes failures to convert to desired behavior, the transtheoretical model of behavior change as described by Davis et al. (2014) would not provide the change approach for implementing information technology systems for processing electronic

health records. Lewin's change theory of nursing does not involve behavior change and is appropriate for the EHR implementation process. Transtheoretical model of behavior change references only individuals and their readiness for staging change.

The theory of planned behavior (TPB) developed by Ajzen (1991) for predicting and understanding how intentions of an individual reflects on their actions. With TPB, the key component is behavioral intent which includes perceived control over the skills required for performing an action with the desired behavior (Kautonen, van Gelderen, & Fink, 2015). Ajzen (1991) posits the theory of planned behavior applies to evaluate diverse behavior patterns through the use of three constructs: individual attitude, subjective norms, and the perceived behavior control. Kautonen, van Gelderen, and Fink (2015) states that both intention and behavioral control will determine behavioral achievement influenced by attitude. The theory of planned behavior was not appropriate for this study because I am not exploring the individual's behavioral intentions but looking at the strategies used in developing and implementing the information technology systems for processing electronic health records.

The three opposing theories for this study include social cognitive theory, Lippitt's theory of planned change, and the transtheoretical model of behavior change which offer explanations for understanding each theory regarding the phenomenon. Improving the chances of success for implementing change in organizations requires planning carefully and building the foundation. The following section provides an overview of alternative theories including Kotter's change management model and

Prosci's Awareness, Desire, Knowledge, Ability, and Reinforcement (ADKAR) change model as they relate to and support the conceptual framework.

Implementing EHR requires more than the application of technology. Kotter's eight-step change model (1995) developed by John Kotter indicates an organizational change has both emotional and situational components that can be managed with a dynamic, nonlinear eight-stage approach (HRSA, 2013). Kotter's change model includes these eight steps: create a sense of urgency, form a powerful coalition, create a vision for change, communicate the vision, remove obstacles, create short-term wins, build on the change, and anchor the changes in corporate culture (Hornstein, 2015). Being logical and consistent, the three phases for Kotter's change model may create short-term successes while requiring leadership to be engaged with supporting the change process for the organization. Phase one is creating a climate for change which include steps one, two, and three, phase two is engaging and enabling the whole organization which includes step four, five, and six, and phase three is implementing and sustaining the change which includes steps seven and eight (Hornstein, 2015). Leaders can manage the challenges for the change initiative using this organized three-phase process (HRSA, 2013) along with the eight-step approach.

Phases are consistent to Lewin's change theory which represents the unfreeze, movement, and refreeze process (Hornstein, 2015; Worley & Mohman, 2014). Kotter's phase one included steps 1, 2, and 3 (create a sense of urgency, form a powerful coalition, and create a vision for change), then phase two includes steps 4, 5, and 6 (communicate

the vision, remove obstacles, and create short-term wins), and phase three has steps 7 and 8 (build on the change and anchor the changes in corporate culture) (Hornstein, 2015). Lewin's change theory model is less flexible than Kotter's eight-step change model (Hornstein, 2015).

The principles and strategies of change management should be integrated into the development and implementation process during all phases to create an alignment (Worley & Mohrman, 2014). Other researchers have modified theories from the original Lewin's change theory of nursing for the creation of modified theories (Hornstein, 2015; Worley & Mohman, 2014) providing a rigorous, complex, and time-consuming change management process. While Kotter's change model theory has similarities to Lewin's change theory of nursing, the content and predictors differ with Kotter being an eight-step approach and Lewin a three-step approach.

Change management manages the change process by identifying the ambiguous, structure, and direction. The Prosci's **A**wareness of the need for change, **D**esire to support and take part in the change, **K**nowledge of how to change and what to do, **A**bility to implement the change on a day-to-day basis, **R**einforcement to sustain the change (ADKAR) change model developed in 2003 by Jeff Hiatt and focuses on goal-oriented change management for organizations and individuals (Worley & Mohrman, 2014). ADKAR change model fails to demonstrate the difference between organizational and individual changes, and fails to label change as complex (Hornstein, 2015). Most scholars found ADKAR change model to focus on results from change management tactics or approaches.

ADKAR change model is a systemic phenomenon which involves multiplicity of variables with interdependence; each alphabet refers to the following stages: awareness of the need to change, desire to support and participate in the change, knowledge of how to change, ability to implement required skills and behaviors, and reinforcement to sustain the change (Hornstein, 2015). Using the ADKAR change model allows various goals for change management teams to focus on steps, outcomes, and results that can be sustained and implemented (Saulnier, 2017). This ADKAR change model provides help and support to transitioning employees during the change process, also to diagnose and treat change resistance by employees (Saulnier, 2017). Recognizing disruptions by introducing data and information showing discrepancies between behaviors desired by the organization to engage in the change process (Worley & Mohrman, 2014). Similarly, "awareness and desire (A and D in the ADKAR model) reflect unfreezing, knowledge and ability (K and A in the ADKAR model) reflect moving, and reinforcement (R in the ADKAR model) reflects refreezing" (Worley & Mohrman, 2014, p. 4).

"Action research extended this model by suggesting that change was more cyclical than that implied by the refreezing stage but still held to the basic change logic" (Worley & Mohrman, 2014, p. 4). The ADKAR change model makes it possible to identify and evaluate reasons why changes are not working but ADKAR change model does not provide organizational continuous improvement while offering solutions to identify barrier points at each stage of change process (Worley & Mohrman, 2014). The ADKAR change model focuses on outcomes and does not provide a framework to

examine strategies for developing and implementing information technology systems for electronic health records.

Strategies for Developing and Implementing EHR's

Acknowledgment of the significance of the implementation and application of the health information technology in improving the healthcare delivery has been increasingly widespread. EHRs continue to undergo transformation due to innovative computer technologies altering the definition of meaningful use and presaging continued changes for healthcare. The Health Insurance Portability and Accountability Act (HIPAA) of 1996 and the Patient Protection and Affordable Care Act (ACA) set national standards to reduce paperwork along with streamlining business processes for EHR's (Adler-Milstein et al., 2014; Zhang et al., 2013). National study data from CMS showed many healthcare facilities will be assessed a penalty for not meeting adoption criteria for EHR meaningful use by the fiscal year 2015 (Adler-Milstein et al., 2014). Hospital adoption of EHR continues to increase with 59% currently for having at least basic EHR. In 2011 in the United States, only 20%-25% of hospitals kept medical records electronically (Zhang et al., 2013). The change has accelerated since the 2009 Health Information Technology for Economic and Clinical Health Act (HITECH), which increased the usage of EHR information technology with a $30 billion effort to transform healthcare delivery (Zhang et al., 2013).

The key responsibility of the health information technology is in the reshaping of the health care system (Riddell et al., 2014). Automation of the clinical, financial, and administrative transactions through the application of information technology is critical in

improving the overall quality of care by increasing efficiency, eliminating errors, and enhancing consumer confidence in the healthcare system (Amarasingham et al., 2014). To facilitate clinical and management processes and reduce the cost of healthcare, numerous healthcare institutions have implemented EHR systems to enable the accessibility of clinical information at the patient care point (Riddell et al., 2014). Electronic access will create a reduction of patient medical errors resulting from gaps in health information due to poor communication among providers regarding past medical history (Amarasingham et al., 2014; Wears, 2015). The system of EHR provides access to the progress notes or procedure data and may aid other functions as well including computerized provider order entry (CPOE) and clinical decision support systems (Amarasingham et al., 2014). In addition, tools that aid management procedures including scheduling and billing are becoming common features of the EHR systems (Amarasingham et al., 2014).

The strategies of developing and implementing information technology systems for EHR have been increasingly discussed. The strategies encompass both the human and the organizational aspects of EHR implementation including the poor usability of EHR interfaces, the resistance of clinicians to adopting EHR use, and the reactions of the patients to the EHR (Miotto & Weng, 2015). The key to successful implementation of EHR projects is how well the technology is implemented and how it can be applied in improving the clinician's performance (Miotto & Weng, 2015). Measuring the volume of patient visits, laboratory turnaround times, and work productivity is important factors for determining successful implementation of the EHR system (Nguyen et al., 2014). The

implementation of EHR systems is complex and entails a wide range of organizational and technical aspects (Amarasingham et al., 2014). Healthcare executives need to have an understanding of the strategies in developing information technology systems for processing EHR. Physicians presented factors that limit adoption of EHRs include complex computer screens, a lack of standards for data exchange, and unexpected system crashes while in use (Kessler & Hitt, 2016). Research by Sheck, Hefner, Sieck, and Huerta (2015) shows only about 59% of healthcare providers are functioning with a partial or full EHR system, although the implementation is increasing. Clinical practice environments are considered complex and unpredictable, and EHR is disruptive technologies with slow, problematic implementation despite evidence that shows EHR provide improved service delivery and positively influence organizational performance (Birken et al., 2015). Researchers found change management is the key characteristic for EHR implementation in complex organizations that deal with unpredictable contingencies (Boonstra, Versluis, & Vos, 2014).

Healthcare Delivery and Quality for EHR's

Healthcare delivery can be more beneficial with efficient and effective information technology. EHR allow all providers to focus on an individual's treatment by providing total care across each discipline (NCDHHS, 2016). There is a need for effective development and implementation of information technology systems for health records not based only on cost savings but also with a focus on improved health care (Ben-Assuli, 2015). Most physicians with EHR reported the use enhanced patient care overall (78%), helped them access a patient's chart remotely (81%), and alerted them to a

potential medication error (65%) and critical lab values (62%) (King, Patel, Jamoom, & Furukawa, 2014). Between 30% and 50% of physicians reported: "EHR use was associated with clinical benefits related to providing recommended care, ordering appropriate tests, and facilitating patient communication" (King et al., 2014, p. 392). Though the healthcare information system is not the only avenue for addressing issues of quality in the healthcare industry, it can be one of the controlling and drive components for improving the delivery of healthcare (Ben-Assuli, 2015). Quality information is the outcome of the quality information system (Boonstra et al., 2014). Strategic health information system developments to improve the performance of an organization is needed (Ben-Assuli, 2015; Boonstra et al., 2014). Prior to choosing a model of operation, an assessment should be completed (Ben-Assuli, 2015; Boonstra et al., 2014). The qualitative significance of the health information system in clinical, along with management applications benefits the investment (Ben-Assuli, 2015). EHR is the main element in improving the quality of healthcare through the incorporation of interoperable healthcare systems (Jones & Furukawa, 2014). The major aspects of implementing EHR usually involve systems integration, time constraints, cooperation in training, interoperability, and technical team support (Nguyen et al., 2014). Sharing clinical information between hospitals and providers using an electronic health information exchange improves sources of care coordination (Jones & Furukawa, 2014; King et al., 2014). The service delivery and quality of information technology for EHR's management application should improve the organizational performance for all stakeholders.

Presently, when a patient is treated by several practitioners of healthcare, the patient often doesn't have comprehensive information regarding their illness or medication previously prescribed (Brovman et al., 2016). The majority of the clinical errors are not because of an individual's carelessness but rather due to the organizational and management errors of the healthcare system (Brovman et al., 2016). Independent investigations completed by the U. S. Department of Health and Human Services (HHS) have cited numerous circumstances of the medical practices that did not attain the needed forms, which led to the errors resulting in millions lost each year. Using EHR would reduce healthcare cost for the patient.

Technology has a possibility of improving healthcare quality, safety, efficiency, timeliness, and effectiveness while providing better patient-centered care (Anderson et al., 2015; Brovman et al., 2016). Sources of medical error cited include numerous physicians treating the same patient without all having access to the patient's comprehensive medical record with each storing distinct, partial medical records in different places (Anderson et al., 2015). Most physicians (65%) reported they were alerted to potential medication errors by EHR that enhanced patient care overall (Jones & Furukawa, 2014). Studies show incorporating health information system will improve the quality of healthcare delivery (Anderson et al., 2015). Experts in the health care industry agree that an EHR-based health information system would provide greater coordination of information, minimize errors due to handwritten prescriptions, and lead to higher health care quality (Anderson et al., 2015). Health information systems were typically proprietary products, obtained in separate modules, and expanded ad hoc (Clark et al.,

2015). This resulted in “stovepipe” systems; each collected patient care data differently, and the majority had duplicated a large amount of data and contained noninteroperable functions (Clark et al., 2015). Currently, the health information systems must connect hospitals, offices of physicians and other units of business that are mutually dependent but located at diverse places, each with dissimilar business functions (Clark et al., 2015). Health care professionals and providers would provide better health care operating and using the HIS to achieve the purpose and benefit of the EHR (Schoville & Titler, 2015). Managing patient data, which traditionally involved paper charts, could be replaced by EHR to reduce wait time for patients and enhance clinical decision-making.

Point of care charting is one of the strategies for developing and implementing information technology systems for EHR (Green & Cifuentes, 2015). Stakeholders need to be involved in the process of system development and implementation, particularly with regard to the data entry template’s configuration. They also need to provide support for clinical decisions as well as how the systems will be introduced (Wears, 2015). For example, staff should be offered effective training on how the system is configured and how it will be used (Green & Cifuentes, 2015). Nevertheless, the optimizing point of care charting with EHR should begin and continue after training to ensure effective application of the system (Wears, 2015). To accomplish this, studies have shown a need to map the workflow and processes as they are being practiced currently (Cifuentes et al., 2015). A regular discussion should be arranged with the people using the EHR system to determine problem areas and develop strategies to aid in the adoption of new workflow procedures or to adopt the EHR system to ensure optimal application (Wears, 2015). For

example, study data from 203 doctors regarding workflow indicated a significant increase in productivity once EHR implementation was completed (Nguyen et al., 2014). Observing directly how employees are applying EHR is needed (West, Borland, & Hammond, 2014). Any number of aspects can cause issues, many of which can be corrected easily with additional training or a slight alteration of the system (Wears, 2015; West et al., 2014).

Clinicians are likely to collect and record much more data in the EHR than when they used paper charts (Ratwani, Zachary Hettinger, Kosydar, Fairbanks, & Hodgkins, 2016). The relative lack of data collection in the past has caused challenges that increased documentation in the EHR has mitigated (Cifuentes et al., 2015). A team of clinicians should undertake the review, as well as make decisions on the data requirements uses (Ratwani et al., 2016). Furthermore, there is a need to assess if alternative data sources would minimize the burden of data entry (Ratwani et al., 2016). Healthcare service can be simplified with a portable treatment process using shared clinical data securely accessed by diverse health care centers (Prabhakaran, Balamurugan, & Charanyaa, 2015). EHR share patient medical information and permits medical information to follow easily through different modalities of care providers (McCowan et al., 2015). The cross sharing of information is facilitated for authorized health care providers in real time using EHR, allowing the individual and provider access to the complete treatment plan.

Collected data does not need to be reentered for each office visit by the clinician once the EHR system is implemented, which saves time. The gender of the patient, date of birth, family history, history of the past medical, and other data that rarely changes do

not need to be collected again (Green & Cifuentes, 2015). If there is a need to recollect data, the vendor must discuss this system problem with the leadership. In some circumstances, there is a need to assess if the system allows the patients or the caregivers to enter the data (Green & Cifuentes, 2015). In addition, the collected data can appear worthless if the clinicians needed to enter data don't know any clear purpose (Ratwani et al., 2016; Wells, Rozenblum, Park, Dunn, & Bates, 2014). For instance, a hospital may decide to improve the prevention of disease in a community through the collection of data on whether patients have had their seasonal flu shot, vaccination against pneumonia, as well as mammography (Wells et al., 2014). If most of the patients decline such kind of procedures at their hospitalization period, there is a possibility for the clinicians to question the value of data collection (Wells et al., 2014). Studies have shown a need exists for the clinicians to be involved in making a decision regarding data collection and should be given the aggregate result (Krist, 2015). If the results do not indicate little value, there is a need for the practice to be fine-tuned to be more practical, which may need a modification to the electronic health records (Krist, 2015).

Potential Themes

The potential themes I expected to emerge from the interview questions include strategies for developing and implementing information technology systems for processing EHR. Potential themes include leadership implementation controls for change, EHR technology project vendor, implementing the EHR system, and context of implementing EHR as a system. I discuss each potential theme in the following section

that may also create patterns and or trends on the research topic applying Lewin's change theory as the conceptual framework.

Leadership implementation controls for change. The involvement of senior management is vital in the successful developing and *i*mplementing information technology systems for electronic health records. Most frequently, the executive team may be involved in the process of selection and negotiation of price, but fall to the sidelines during the implementation stage because of implementation complexities (Bajwa, Singh, & De, 2017). The need for a senior executive, preferably a clinical executive, should take on the project sponsor's responsibility and ensure the full support from the CEO (Ruffin et al., 2015). Furthermore, the project should be seen as a top-driven strategic priority. The interdepartmental steering committee should consist of three or more members and is critical to the EHR implementation success as suggested by the Health Information Technology Research Center (Dolezel & Moczygemba, 2015). Senior executives need to demonstrate the electronic health records implementation is not just an information technology project, but instead a transformation of business which encompasses foundational alterations in achieving the designated goals (Bajwa et al., 2017; Ruffin et al., 2015). The basic goal is explicit improvements to care of the patient and safety, which will frequently need the organization to streamline the delivery of care in meeting the changing needs of the healthcare system reforming (Ohno-Machado, 2014).

Studies have shown the need to have a good understanding regarding the project risks at the executive level (Bajwa et al., 2017). In the provision of suitable management

visibility, the need to have efficient management controls is vital. Executive management needs to consider developing a risk matrix in addressing both the project risk management and the operations risk management (Ruffin et al., 2015). Both project risk and operations risk management are tools which can be invaluable in the management of the system of electronic health records toward a *knowledgeable* launch (Bajwa et al., 2017). An expectation of challenges exists, nevertheless, if a plan put in place which encompasses effective tools, and the plan is accurately executed, simply those challenges become part of the process (Middleton et al., 2013). Studies have indicated project risk management encompasses management of the project activities' risks through having a good understanding regarding the outstanding challenges, ensuring fixes, and including the suitable workarounds, are in place in a sensible way and evaluating the risks and their influence on the project (Middleton et al., 2013). Operations risk management encompasses having a good understanding regarding the operations risks prior to the activities of the project that can impact the operations and mitigating risks making the businesses sense (Ruffin et al., 2015). Operational and project risk will include coming up with the approaches of detecting impact and early warning systems, developing the workarounds, triggering times for the workarounds' implementations, and creating risk management ownership across the enterprise, and the project team (Middleton et al., 2013; Ruffin et al., 2015).

The need to validate the commitment of the company to the project is real (Cole et al., 2015). Having a *yes* nod from the executives to the idea 6 to 12 months before the key individuals are notified of their duties and commitment does little in ensuring

resources will be there when required (Mitchell, 2013). Executives need to be aware of the timelines that will impact their units and commitments (Cole et al., 2015). Studies have shown that if there is not backup regarding the committed individual's loss from a given unit, there is a possibility of challenges in getting a replacement when required (Cole et al., 2015). Senior executives should be assisted with the templates of planning that recognize any additional resources that might be missing at a given point and aid in identifying a game plan for securing those resources (Middleton et al., 2013). The company's *A* team should be available since the plan is one of the most critical aspects of the successful strategies to develop and implement information technology systems for processing electronic health records (Cole et al., 2015; Middleton et al., 2013).

In addition to the change orders, the other enormous *change* intrinsic with the implementation of electronic health records is the change to the flows of the business, and processes that considerably impact the workers (Bae & Encinosa, 2016). Clinical documentation workflow is a critical area addressed by change management Chung and Basch (2015) imply that a big part regarding the management of change is integrating clinical processes for expectation management alignment. Leaders need to explain the expectations and benefit of the change, including the improved safety of the patient, better productivity opportunities, richer research data, and the clinical uses to staff.

Management plays a critical role in communicating expectations to the vendor product efficacy, support implementation, needed investment and resources, scope and schedule management, alternate approaches to the flows of businesses, and processes (Chung & Basch, 2015). The messaging should come from the executive team, not the

information technology department (Bae & Encinosa, 2016). Sharing the implementation process details and benefits with all the stakeholders from the selection of products should satisfy EHR adoption (Boonstra et al., 2014), during the implementation of the resolutions of post-implementation regarding issues is critical to successful deployment of electronic health records technology. Strong support from the senior management is significant to the project, along with vendor management and equally critical for the process of change management. Variables considered for implementing the EHR system, that shape organizational change includes time, change approach and management (Boonstra et al., 2014). The physicians, and nurses are more willing in embracing the change if the senior management is involved actively in the process that creates socio-technical negotiation (Cucciniello, Lapsey, Nasi, & Pagliari, 2015). *There is no turning back* message must be communicated early and frequently by the executive team.

Stakeholders should be reminded that the adoption of the electronic health records is not an option, but a requirement (Campion et al., 2014). EHR adoption elements include the following: promote the vision, create a quality case, time management, manage the process expectations, acknowledge the transition, recruit experienced leaders, communication, training, improve functionality, and acknowledge other priorities (Sheck et al., 2015). Initially, during the stages of learning and training, the novel electronic health records will be slower. Acquiring new skills for training, communication, and increasing knowledge are important as indicated from Fritz et al. (2015). Staff needs to learn not only the *survival techniques* but to look for workflow, and process changes that

take advantage of the novel functionality given by the electronic health records system (Cifuentes et al., 2015).

Novel functionality needs to be viewed as an improvement opportunity for the healthcare organization (Campion et al., 2014). Studies reveal new or upgraded system implementation is the perfect time in modifying the existing flows, and processes to be more efficient (Cifuentes et al., 2015). Incentive payments need *meaningful use*. For that reason, the training should not educate users just on the system's basic functionality but should emphasize an expectation regarding the system's efficient use (Campion et al., 2014). Whenever possible, the new process's benefits should be communicated clearly. Involvement and interaction of the physician are critical for EHR development (Kessler & Hitt, 2016). Successful development and the implementation of the electronic health records frequently involves at least one physician to take an important role in the whole process (Cole et al., 2015). The physicians listen to and learn best from other physicians (Cole et al., 2015).

EHR technology project vendor. Vendor scope and budget creep are critical factors in the successful development and implementation of information technology systems for EHR. Previous studies have indicated that the definition of service is of significance in an EHR agreement whether the agreement is priced as a fixed-fee transaction or in terms of time and materials (Kessler & Hitt, 2016). To achieve success, organizational leaders must fairly evaluate the skills of all internal participants and compensate to ensure they develop skills they lack (Boonstra et al., 2014).

A great deal of *in-flight* modifications affects the implementation of EHR (Boonstra & Broekhuis, 2010. If the change is not minimized and adequately controlled in the process of developing and implementing information technology systems for EHR, the installation can be expensive. A wide services' definition is helpful in restricting vendor claims for *out-of-scope* actions, as well as requesting additional money (Watjatrakul, 2014). Essentially, the vendors take the position that any duty not included in the applicable statement of work (SOW) is a change and the vendor has no obligation to work on a change if it does not comply with the prices and adjustments in the schedule (Ratwani et al., 2016). Thus, each statement of work must provide a complete and detailed account of the services (Watjatrakul, 2014). An organization needs to maintain a budget for the implementation of information technology for the processing of EHR.

Most high-level SOWs will not work effectively in the framework of an EHR implementation agreement (Jones & Furukawa, 2014). When the vendor requests a change, usually the SOW does not include tasks with an above-average detail level (Watjatrakul, 2014). An illusory protection frequently from the vendor typically requires the customer's agreement to make changes. As a project progresses, the right to disagree with any changes frequently involves the decision to stop work (Jones & Furukawa, 2014). Often, the vendor needs to continue working to address legitimate disagreements regarding necessary changes to stay on schedule (Jones & Furukawa, 2014).

Vendors need to manage employee turnover and have the right subject matter experts to successfully develop and implement information technology systems for EHR (Olayiwola, Rubin, Slomoff, Woldeyesus, & Willard-Grace, 2016). Management of

vendor staff continuity is important in light of the increasing demand for the implementation of EHR (Boonstra et al., 2014). Health care providers face competition in finding enough information technology staff to complete successful and timely implementation of EHR projects (Chung & Basch, 2015). Assuring sufficient vendor staffing on the front end and managing staff turnover as the project progresses are important factors in project creation and cost containment for organizations (Olayiwola et al., 2016).

Project progress is aggravated by the incentives phasing that puts a premium on the quick movement towards the implementation of EHR (Cifuentes et al., 2015). The issue is not just the timing of when incentives are paid but also the cumulative amount providers qualify to obtain for more overall impetus funding (Ratwani, Fairbanks, Hettinger, & Benda, 2015). Consequently, studies show a need for organizations to adopt contract language requiring vendors to use properly trained qualified personnel and limiting vendors' ability to reassign key personnel (Olayiwola et al., 2016). As part of their contracts, vendors offer organizations the right to reassign poorly performing vendor staff, with the vendor absorbing the ramp-up costs, and transfer of knowledge from reassignments (Green & Cifuentes, 2015).

The brand list maintained by the Office of the National Coordinator for Health Information Technology (ONC) provides tested EHR technology products that meet their standards (NCDHHS, 2016). At the outset of EHR implementation, the acceptance testing tactic, along with other approaches to the success of the project, should be in place (McAlearney et al., 2015). Contract agreement should comprise a comprehensive *default*

acceptance process applicable in situations where a more explicit process is not defined in a SOW (Watjatrakul, 2014). Organizations should never agree regarding the vendor-promoted idea of the *deemed acceptance (*Olayiwola et al., 2016).

As organizations proceed with implementing EHR, they may find alterations in one area may negatively affect a prior functioning module. EHR vendors in the United States should create more clinically useful EHRs that support care plans with functionality, interoperability and integrated software (O'Malley, Draper, Gourevitch, Cross, & Scholle, 2015). Implementing EHR may be problematic in knowing whether all the pieces are properly functioning together without challenges. As a result, acceptance cannot be tied to time; instead, acceptance needs to be tied to the proceedings. Challenges and problems can be distressing to organizations because organizations purchase licenses ahead of planned implementation (Olayiwola et al., 2016). General project success includes both the software and the vendor acceptance of the application implementation (McAlearney et al., 2015). Furthermore, a vendor's software warranties have the possibility of expiring, which requires inspecting before an organization even starts implementation (Zappavigna, 2014). The organization needs the vendor's contract to be drafted to ensure the software is working correctly before acceptance and final payment (McAlearney et al., 2015).

Though early identification regarding project issues is a shared duty for all project participants, organizational leadership needs to have a process in place that encompasses formalized participant tasks in identifying and addressing the issues as they emerge (McAlearney et al., 2015). According to researchers, organizations must recognize

numerous actors are involved in the implementation of EHR (see Dolezel & Moczygemba, 2015). In each step of the implementation process, the responsibility for managing the critical interdependencies should be recognized (Birkhead, Klompas, & Shah, 2015). Often, this concept is dismissed by physician dominance who view themselves as having responsibility for overall management of a project. Therefore, adding an agreement to address obligations of the vendor's approach to project management for achieving successful development and implementation by working together with the organization is essential (Watjatrakul, 2014; Zappavigna, 2014).

In a multivendor environment, the commitment of the vendor is vital to address any challenges and work through such concerns from an organizational perspective (Birkhead et al., 2015). Efficient operation in a multivendor environment requires cooperation among all service providers as well as a collaboration so that service-connected issues that might cross over from one area of service or vendor to another are addressed (Shivade et al., 2014). The vendor should actively provide service and support to the operations while maintaining collaborative tactics to cross over concerns with the organization.

Implementing the EHR system. Change strategy encompasses the actual process of implementing the system of EHR (Shivade et al., 2014). In change strategy, numerous aspects include the time, the approach of change, and the change management. Implementation of EHR may result in anxiety, uncertainty, and concerns regarding the likely negative impacts on the work process and quality (Cifuentes et al., 2015). Therefore, change strategy aids in creating a positive atmosphere of objective

directedness, co-creation, and partnership. Active support and involvement of the management are positively connected with the successful development and implementation of EHR (Campos-Castillo & Anthony, 2014). Also, supportive leadership counterbalances the medical dominance of the physicians (Shivade et al., 2014). Previous studies have indicated strong leadership counterbalances the medical dominance of the physicians (Birken et al., 2015). For instance, a medical dominance of physicians and the status and autonomy of other health professionals' hampers partnership and teamwork, which complicates the development and implementation of EHR (Shivade et al., 2014). Strong leadership will prevent otherwise dominant physicians during the implementation phase of EHR from diverse studies (Dolezel & Moczygemba, 2015; Shivade et al., 2014). Furthermore, organizational leaders should set an example, and apply the system themselves (Boonstra et al., 2014). Similarly, the development and the implementation of EHR is supervised by leaders recognized by medical employees such as head nurses, clinicians, and physicians.

Aiding the development and implementation of the senior management of an organization continuously declares the project to be of highest importance and supports the project with adequate financial and human resources (Campos-Castillo & Anthony, 2014). In addition to the project being of highest importance, observational, cross-case comparative study of 11 diverse practices indicated barriers and challenges about uncertainty and delays for the development and implementation of EHR process must include discussing with the clinical and hospital workers (Cifuentes et al., 2015). Adequate human resources comprise the selection of competent and experienced project

leader's familiar with the implementation of the EHR (Lammers & McLaughlin, 2016). Furthermore, recent research findings by Cifuentes et al. indicate organizational process must be understood by leadership and employees (Boonstra et al., 2014; Lammers & McLaughlin, 2016). Styles of leadership for diverse phases are important (Schoville & Titler, 2015). In the selection decision, participatory leadership is valued, whereas a more hierarchical style of leadership is preferred during the actual implementation (Schoville & Titler, 2015). For these reasons, leadership must align with organizational change.

Clinical staff participation in the development and implementation of EHR increases support for and acceptance of the project (Schoville & Titler, 2015). The participation of end-users (i.e., clinical staff) fosters commitment and enables problems to be solved quickly. The EHR system may not be perfect for all but the critical component is that the clinical employees should become owners rather than the system's customers (Wears, 2015). Clinical workers need to participate in all the levels and steps from the initial selection of the system onwards. Involvement should have an all-encompassing timeframe, starting from the early implementation stages, when the initial requirements of the vendor are formulated and continuing through to the start of application phase (Lammers & McLaughlin, 2016). Clinical workflows should evolve along with EHR development to maximize and produce synergy (O'Malley et al., 2015). The establishment of multidisciplinary work groups who control the content of EHR, and rules regarding information sharing aid in the acceptance of EHR and ensure a clinical dataset approach (Boonstra et al., 2014; O'Malley et al., 2015).

Management will need to train the end-users and provide the real-time support for the successful development and implementation of EHR. Often, end users lack the necessary experience to use the software provided for the EHR system (Lammers & McLaughlin, 2016). Society or workplaces without information systems are unimaginable; a large explicit system such as EHR still requires considerable training to be applied accurately (Boonstra et al., 2014). The significance of training is frequently underestimated, and insufficient training will establish an obstruction to the use of EHR (Lammers & McLaughlin, 2016). The organization should provide proper sufficient real-time support training with location and time for all users on learning how to use an EHR system (Kessler & Hitt, 2016).

Implementing a system of EHR includes both clear guidance and room for emergent change as an implementation strategy. A good strategy enhances the development and implementation of EHR (Boonstra et al., 2014). Development will entail careful planning and preparation, efficient communication, a sustainable business plan, and the mandatory implementation (Davis Giardina, Menon, Parrish, Sittig, & Singh, 2014). In complex organizations, such as hospitals, emergent change is a factor and the implementation approach is founded on a development model which might initially even encompass the parallel application of the paper (Boonstra et al., 2014). The development and implementation of electronic health records are comparatively unpredictable based on previous studies due to unanticipated contingencies for which individuals cannot plan (Davis Giardina et al., 2014). When contingencies manifest and create change unexpectedly they should be dealt with immediately (Boonstra et al.,

2014). Therefore, contextualizing development and implementation of EHR is critical in order to better prepare for unforeseen changes (Wells et al., 2014).

Resistance of clinical staff members is a major hurdle to the development and implementation of electronic health records, but can be minimized (Boonstra et al., 2014; Cucciniello et al., 2015). EHR implementation within a health care organization will involve staff resistance (Cucciniello et al., 2015). Physicians comprise a dominant disciplinary in hospitals (Hripcsak, Albers, & Perotte, 2015). Therefore, their possible resistance regarding the development and implementation of electronic health records may be a major impediment and may require workarounds for clinicians. Whether a physician accepts or rejects the implementation of electronic health records depends on whether he or she accepts having work activities being altered (Hogan-Murphy, Tonna, Strath, & Cunningham, 2015). The possibility of acceptance will be increased if the implementers address concerns of physicians as well as other clinical workers (Well et al., 2014). A significant increase in productivity and workflow after implementing EHR system exists based on a research study with 203 physicians (Nguyen et al., 2014). Assigning staff of adequate number and providing other resources is critical to the successful EHR (Hripcsak et al., 2015).

Developing and implementing a large system of EHR needs considerable resources including human resources (Boonstra et al., 2014; Hripcsak et al., 2015). EHR implementation is not only about installing technology but using information systems that integrate and communicate the change initiative in health care (Boonstra et al., 2014). Therefore, super users may increase the possibility of success along with a sufficient

number of applicable individuals (Hripcsak et al., 2015). In addition, the development and implementation of EHR require having adequate time and financial resources available (Dolezel & Moczygemba, 2015).

Context of implementing EHR as a system. The context category regarding the process of developing, and implementing electronic heath records encompasses internal variables including resources, abilities, philosophy, politics, and external variables including economic, political, and societal aspects (Gagnon, Nsangou, Payne-Gagnon, Grenier, & Sicotte, 2014). Large urban nonprofit teaching hospitals can develop and implement these systems because they have more financial resources, a greater readiness for change, and less emphasis on revenue than smaller hospitals (Jones, Rudin, Perry, & Shekelle, 2014). Large care providers have more economic capabilities in comparison to small hospitals (Jones et al., 2014). System-allied hospitals are also able to share costs (Jones et al., 2014). Furthermore, the Office of the National Coordinator for Health Information Technology (ONC) along with the Centers for Medicaid and Medicare Services (CMS) continue to establish standards for certifying bona fide EHR systems (NCDHHS, 2016). Often, hospitals located in metropolitan regions have an electronic health records system in place with a comparison to the rural healthcare providers who continue to have challenges with the implementation process (Jones et al., 2014).

Using an establish experienced vendor that will focus on the development and implementation of EHR to provide a system that covers the specific requirements of the healthcare organization should be flexible and cooperative (Boonstra et al., 2014). When a healthcare organization chooses a vendor, they should ensure the structure matches

specific requirements of the organization (Ratwani et al., 2015). In addition, deal with a vendor that offers mature and successful products with the necessary knowledge regarding the market of EHR organizational readiness (Watjatrakul, 2014). Also, vendors need to identify hospital workflows and adapt products accordingly as well as maintain a trust connection with the leadership (Watjatrakul, 2014). Having a clear understanding of return on investment for the organization, the EHR system's initial prices should not be the prevailing deliberation (Ratwani et al., 2015). Organizations need to research the vendor's references in concern of oriented cost, especially if challenges arise (Boonstra et al., 2014)

Having hospital staff with prior experience regarding information technology in health care increases the possibility of successful development and implementation of EHR (Bae & Encinosa, 2016). To work effectively with EHR, users must have the ability to operate computers and sufficient typing knowledge (Bae & Encinosa, 2016; Jones et al., 2014). Regarding the EHR system, the user with prior experience and knowledge may cause minimal uncertainty and reduce disturbance for the user and this could lead to a more progressive assertiveness for implementation (Birken et al., 2015). Furthermore, an organizational philosophy supporting collaboration and teamwork enhances the successful implementation EHR because trust between employees is high (Bae & Encinosa, 2016). A history of collaboration, teamwork, and trust between diverse stakeholder groups may reduce resistance to change (Cucciniello et al., 2015). Management must give credit for major wins during the change process. Advances in technology are more adaptive in the implementation phase of electronic health records

(Tate et al., 2014). Nevertheless, the creation of favorable culture is not essentially easy, and a wide-ranging method encompasses the incentives, providing an allocation of resources and a responsible disciplinary team (Bae & Encinosa, 2016). The development and implementation of electronic health records are most likely in an organization having little bureaucracy (Kessler & Hitt, 2016).

Literature Review Summary

Research regarding the implementation and the application of the health information technology in improving the healthcare delivery has been increasingly acknowledged. A case study is an appropriate research design to use for exploring EHR system implementation and to identify successful strategies. The need for effective development, as well as implementation of information technology systems for electronic health records is not based only on the cost-centric approach, but with a focus on the health care quality and delivery. With the focus being on healthcare quality, the need regarding the strategic health information system developments, as well as assessments prior to choosing a model of operation and connecting HIS for improvement to the performance of an organization. The point of care charting is one of the strategies for developing and implementing information technology systems for electronic health records. The involvement of senior management is vital in the successful developing and implementing information technology systems for EHR. In addition, the appropriate allocation of qualified resources in managing both the project, along with the vendor relationship is a critical element to the successful implementation.

Transition

In section 1 of this qualitative case study, I began with the background of the problem, the problem statement, purpose statement, and then described the nature of the study. The research question and the interview questions were included in section 1 as well to explore the strategies healthcare executives use to integrate and streamline the information technology system for processing electronic health records. Section 1 also contains the conceptual framework, Lewin's change theory, and operational definitions to define key terms in the study. I provided an explanation for the assumptions, limitations, delimitations, and significance of the study, along with a review of the literature for the professional and academia for the foundation of the study. The literature review was organized with a structured outline to address healthcare information technology studies that provide themes that contribute to the conceptual framework.

Section 2 includes the purpose statement, the role of the researcher, participants for the study, and the research of the methodology and design. The population and sampling method, ethical research, data collection instruments, and data collection techniques are also contained in section 2. I discuss the data organization techniques and analysis in this section as well. Lastly, concluding with the reliability and validity components of the study.

The information in section 3 begins with the purpose statement of the study, the research question and a summary of the findings. Other components include the application of professional practice, implications for social change and recommendations for action and further study. The researcher reflections on the research experience and provides a concluding statement for the reader.

Section 2: The Project

The purpose of this qualitative single case study was to determine strategies healthcare executives used to develop and implement information technology systems for processing electronic health records. This section begins with the role of the researcher followed by the participants information for the study. The purpose statement includes the intent for the research. This section also includes the research method and research design along with details of population and sampling. I provide ethical research considerations with a thorough informed consent discussion. The section also includes an overview of the data collection instruments, data collection techniques, data organization techniques, and data analysis. I conclude the section with a rigorous reliability and validity component.

Purpose Statement

The purpose of this qualitative single case study was to explore strategies healthcare executives used to develop and implement information technology systems for processing electronic health records. This specific population group included healthcare executives who supported the use of computerized provider order entry and clinical decision-making support. Eight participants for the single case study included clinicians, managers, and physicians at a health care organization in Charlotte, North Carolina. The eligibility requirement was that the participants had experience in creating strategies they used to develop and implement information technology systems at their health care facility. All participants for the study had a minimum of 4.5 years of experience with the

operations and administration of the healthcare organization due to the clinical data information that was requested.

I conducted this single case study in Charlotte, North Carolina at the worksite where a human services healthcare organization employed the research participants. Findings from this study may result in a positive social change that includes the improvement of healthcare service delivery using electronic technology for documenting physician visits. Patients and their families could benefit by spending less time on office visits while making the process more efficient for each clinical discipline accessing and using the information for community healthcare.

Role of the Researcher

The role of the researcher for a qualitative case study is to select study participants, collect, organize, and analyze data (Yin, 2014). The researcher has a specific responsibility and role in the development, design, and implementation regarding their study. Sharing the perspectives of the participants regarding the phenomena was the role of the researcher (Onwuegbuzie & Weinbaum, 2016). Defining the problem shapes the significance of the study while addressing a specific important problem (Marshall & Rossman, 2014). Kawar, Pugh, and Scruth (2016) noted that the research process includes data collection and analyzing, then report the study findings. I followed the ethical guidelines to perform and participate in the research process which included collecting data, analyzing data, and reporting the results.

As a health care clinician of 16 years, I was mindful of my professional and personal biases during the study. I remained aware of my personal beliefs in order to

remain objective to ensure I minimized biases. I was not an employee of the organization chosen for this study. Furthermore, I did not have a personal relationship with the survey study participants.

The Belmont Report established the ethical values for conducting research, including: respecting privacy, beneficence, and justice (Robinson, 2014; HHS, 2015). I conducted the research following the principle of respect for study participants by providing informed consent for participation in the study. The principle of beneficence prescribed no risk or harm to the participants and the benefit of participation in the study, the principle of justice prescribed treatment as being fair and equal for the selection of participants and participation (Robinson, 2014; HHS, 2015; Kawar et al., 2016).

I included member checking and cross checking after the interview sessions to mitigate biases and increase research validity. Researchers mitigated adverse effects during data collection but it is impossible for the researcher to remove all biases (Ponterotto, 2014). I used member checking to ensure my personal biases, preconceived thoughts, and beliefs were kept aside for the integrity of the data collection. Researchers should accept results of the data that may be contrary to expectations to assist in avoiding bias (Fusch & Ness, 2015; Ponterotto, 2014; Yin, 2014). Prior to conducting the study, participants should not have personal relationships with the researcher to avoid any bias (Ponterotto, 2014). I did not have a personal relationship with any of the participants.

The in-depth semistructured interviews lasted approximately 30 minutes each and consisted of six open-ended questions about strategies healthcare executives used to develop and implement information technology systems for processing electronic health

records. Addressing all concerns that the participants had about participating in the semistructured interview (Alsaawi, 2014), so I made them comfortable before the research process and during the research process. Using an interview protocol with research questions (Appendix B) created a power balance and avoided dominance by the participant or interviewer during the interview session as suggested by Leins, Fisher, Pludwinski, Rivard, and Robertson (2014). I used the interview protocol as a guide. Asking the interview questions, in a neutral manner while observing and monitoring the tone, nonverbal communication, and mannerisms of the participants is the role of the researcher. I listened attentively to interpretation by each participant of all responses and comments provided.

Participants

I sought permission from one healthcare human services organization's leadership for access to potential employees for the study. Participants included employees of a non-profit health care organization and included healthcare executives in the North Carolina area. Researchers should address the specifications to select and find participants that do not unfairly include or omit participants (Ellard – Gray, Choubak, & Crann, 2015; Lo Iacono, Symonds, & Brown, 2016; Yin, 2014). An occupation or line of work for the participant is a specification suggested by Lo Iacono et al. (2016). All participants did meet the eligibility criteria: (a) located in the Charlotte, North Carolina metropolitan area, (b) had at least 4.5 years of healthcare experience, (c) assisted with the EHR development and implementation strategies for the organization. Volunteers at the organization are

excluded unless they meet eligibility criteria for purposes to achieve data saturation, if necessary.

My strategy to gain access to member participants was through fieldwork, the network of provider organizations and professional associations, and existing contact recommendations. Google search is a resource to use for Internet support to identify and to research potential participants (Smith & Mader, 2014). I used Google search as a strategy to gain access to potential participants. Hamilton and Stichler (2015), Smith and Mader (2014), and Byrne et al. (2016) stated that using Google search to contact potential participants at the organization for interviews was quick and efficient. I used use email to gain access to participants for requesting voluntary participation in my study.

I introduced myself to each potential participant prior to interviews at their worksite. In my introduction, each participant received an informed consent document explaining the details pertaining to the study before the interview session. Haahr, Norlyk and Hall (2014) noted that the procedure for establishing a cordial working relationship with the participants was to ensure respect, honesty and maintain transparency for the engagement process. Haahr et al. (2014), Ellard-Gray et al. (2015), and Marshall and Rossman (2016) recommended that creating and building a sense of trust, allowed the participants to share meanings, perspectives, and maintain good relations between the participant and the interviewer. An interviewer should allow each participant to share perspectives and meanings on the phenomenon experienced to build and create a trusting dialog (Haahr et al., 2014). I explained the purpose of the study and the benefits of participation to enhance the trust and transparency for the participants.

The participants in healthcare aligned with the research study purpose to explore strategies for developing and implementing information technology system for processing electronic health records. Bromley, Mikesell, Jones, and Khodyakov (2015), Fusch and Ness (2015), and Yin (2014) stated that conducting research practices involved applying a variety of responsibilities while maintaining priorities in the process. Clinicians, healthcare managers, and physicians articulated in-depth information to the open-ended interview questions from their perspective of the research phenomena aligned with my study.

Research Method

Knowledge of research methodologies is essential for both conducting research as well as determining the soundness of the findings (Tong, Winkelmayer, & Craig, 2014). The most suitable research method for this study was qualitative. Qualitative researchers collect subjective data from organizations to explore and explain the phenomenon from the participant's knowledge (McCusker & Gunaydin, 2015). Researching with a qualitative methodology enabled me to explore and gain insight into participants' perspectives and experiences with rich descriptions of strategies for implementing information technology systems. Hyett et al. (2014), McCusker and Gunaydin (2015), and Yin (2014) posits using qualitative research method allowed open-ended questions to provide meaningful research reporting by the investigator. Researchers using strategies for research methodology include specific research study techniques that collect and analyze data to create knowledge. The Lewin's change theory of nursing conceptual framework guided this study's research question. When exploring strategies healthcare

executives used to develop and implement the information technology system for processing electronic health records the qualitative method is applicable for the organizational research.

Using a quantitative approach for this study would not have uncovered emerging organizational characteristics because the quantitative approach centers on examining relationships among variables (Hyett et al., 2014; McCusker & Gunaydin, 2015; Yin, 2014). Qualitative research builds and tests theories of change and uncovers new phenomena for an organization (McCusker & Gunaydin, 2015). Integration for the organization included synchronization to select the most effective and appropriate information technology system. The study objective did not require analysis of variables using number quantification data. Therefore, the quantitative research method is not chosen for the study topic.

Combining both qualitative and quantitative approaches in the same study is the mixed methods approach (Hughes, 2016; Latunde, 2017; McCusker & Gunaydin, 2015). The mixed methods researcher uses the quantitative and qualitative research methods sequentially or concurrently to understand a phenomenon of interest (Hesse-Biber, 2016; Turner, Kane, & Jackson, 2015; Yin, 2014). Due to the rigorous data collection and the analysis process along with time constraints, the mixed methods approach is not suitable.

Research Design

A case study research design allows a researcher to obtain data content through human interaction while adding value to the study of participant's experiences (Yin, 2014). Using a single case study research design as described by Owonikoko (2016)

assists with obtaining an in-depth understanding referring to the details and richness of a phenomenon in real-life context. Using a research design is a requirement for researching a doctoral topic, I selected the case study approach (Haahr et al., 2014; Owonikoko, 2016). I focused on a single individual case or a small group to sustain a universal perspective utilizing a case study design (Yin, 2014).

I selected a case study design to support the analysis and in-depth case exploration of the strategies to develop the information technology system for processing electronic health records. I explored one healthcare organization, which allowed me to use different data sources and to interview several participants to identify specific strategies to justify using a single case study. I have shared the design selected, the other designs considered for this study include ethnographic, phenomenological, narrative inquiry, and grounded theory. Details of each design follows.

The goal of ethnographic research design is studying culture groups over a prolonged time in a natural setting, and collecting data through observation (Fusch & Ness, 2017; Hyland, 2016; Molloy, Walker & Lakeman, 2017). I did not inquire about understanding the behavior of participants, a culture or community relating to a phenomenon, which is why the ethnographic research design was not suitable for this qualitative study. The case study approach is appropriate to explore the process for developing strategies with human involvement interaction while combining data collection of documents to justify the research.

Using a phenomenological research design to comprehend why an event occurs requires an examination describing the participant's contextual experiences (Madjar,

2014; Percy, Kostere, & Kostere, 2015; Willis, Sullivan-Bolyai, Knafl, & Cohen, 2016). In the phenomenological research design, the meaning of participants lived experiences is the focus (Perry et al., 2015), which was not appropriate for this study's focus. Using data to develop descriptions of detailed events includes a variety of sources available in case study research that justifies the selection for a case study over the phenomenological design (Yin, 2014).

Narrative inquiry involves a process of storytelling experience by the participant leading to research challenges determining accurate memory of the facts while describing a phenomenon from a relived single perspective (Miller, 2017; Wolgemuth, 2014; Yin, 2014). Therefore, the narrative approach was not appropriate for this study because the case study design is a bounded system used to develop a rich description and data analysis by the researcher. A grounded theory strategy requires focusing on the development of theory generated from data collection (Cooke, 2014; Hussein, Hirst, Salyers, & Osuji, 2014; Khan, 2014). The grounded theory would not have allowed research openness needed for data collection during this case study to justify exploration of strategy development; the grounded study was not used or suitable for this research topic.

Data saturation included face to face interviews with each participant to ensure participation for obtaining the relevant data on the phenomenon experience (Meyer & Ward, 2014). Data saturation was achieved by interviewing 5 participants' answers until no new patterns or themes were determined from the data collected for the qualitative research (Fusch & Ness, 2015). Achieving data saturation required ensuring no new

themes were determined, coding and replication of the study demonstrate the same results with no new findings (Yin, 2014). When the researcher finds no new data emerging, data saturation has been achieved (Fusch & Ness, 2015; Meyer & Ward, 2014; Yin, 2014). I crosschecked, transcribed data, and analyzed data to reach data saturation until no new information from interview participants evolved allowing redundancy of the responses. I used member checking to research for ensuring data saturation while increasing the research credibility (Houghton, Casey, Shaw, & Murphy, 2015).

Population and Sampling

The participant population consisted of current employees within one healthcare human services organization in Charlotte, North Carolina who could give pertinent information and experiences to developing strategies for implementing information technology systems in healthcare to improve organizational performance. Healthcare employees who had the responsibility for making information technology software implementation decisions was the population studied. I chose a healthcare human services organization for exploring strategies used to develop and implement an information technology system for processing electronic health records. I researched the organizations for successful information technology implementation before selecting to explore.

I used purposeful sampling for this case study. Qualitative researchers use purposeful sampling strategy for participants interested in their studies who have the expertise and understand the central phenomenon (Duan, Bhaumik, Palinkas, & Hoagwood, 2015; Paveglio, Abrams, & Ellison, 2016; Roulston & Martinez, 2015). The

essence of purposeful sampling was to select information-rich cases for the most effective use of limited resources (Duan et al., 2015, p. 525). Snowball sampling is a nonrandom sampling technique in which the researcher asks the primary study subjects to recruit or identify participants among their associates, making the sample grow like a rolling snowball (Kristensen & Ravn, 2015). Using snowball sampling technique, I recruited by email, telephone, and word-of-mouth healthcare managers from each profession within the chosen organization that had clinical disciplines to include the administration, management, operations, and finance in a healthcare human services organization based on work experience in the field of at least 4.5 years. I selected five human services healthcare professionals from one organization for my research using snowball sampling. I asked participants to refer other colleagues. Kristensen and Ravn (2015) identified using snowball sampling or chain sampling in similar studies to achieve data saturation successfully. I invited other colleagues with expertise on the pertinent topic to contribute to the study enhancing purposeful snowball sampling. The participants had experience with the successful strategy implementation of the information technology system for the health care facility. My selection criteria included each participant having active employment status with the organization, able to attend an interview, and contribute information addressing the phenomenon allowing in-depth experiences to explore the strategies used to develop and implement the information technology system for processing electronic health records.

Estimation of the sample size was mandatory by the Walden University institutional review board (Khan, Barratt, Krugman, Serwint, & Dumont-Driscoll, 2014).

The researcher should have a large enough sample size for redundancy of response and replication of the study (Yin, 2014). Using a case study with information systems research, Sharp et al. (2014) recommended up to a maximum of 25 interviews to accomplish data saturation. A small sample size was perfectly acceptable in a case study (Elo et el., 2014; Molenberghs et al., 2014; Yin, 2014). I did achieve data saturation after the engagement of five participants. Data saturation included interviewing each participant uncovering no new data by member checking with data validation (Marshall & Rossman, 2016; Thomas, 2017; Yin, 2014). Adequate participation along with the sufficient research design was a requirement for reaching data saturation (Yin, 2014). I could gain clarity through the meanings, and emerging themes from the participants to determine no new concepts or ideas for completing data saturation.

The participants were willing to attend interview sessions and allow 30 minutes of time for interviews at the healthcare facility. I conducted the semistructured interviews held at the participants' organization facility to record responses in a private conference room as the designated location site (Merriam & Tisdell, 2015; Silverman, 2016). Access to the organization will be continuous until the final research stage (Eriksson & Kovalainen, 2015). The climate-controlled room included a round table and two chairs for the meeting and ensured easy access for the participants. The closed room was quiet with a calm environment to make the participants comfortable for the interview session.

Ethical Research

Montalvo and Larson (2014) advised that researchers craft understandable informed consent letters for participants' ease in comprehension concerning the research

process. Each participant reviewed a consent form document to present the research process along with the interview questions for the study (Bristol & Hicks, 2014). I presented each participant with an informed consent to introduce the study objectives, risks and benefits of the study, and intent prior to beginning the research study (Cummings, Zagrodney, & Day, 2015; Khan et al., 2014). Upon receiving the signed consent, each interviewee received a copy of the signed consent form and the original copy filed to store for 5 years upon completion of the research.

Participants could exit the interview session at any time during the process without penalty or consequence. The participant could contact me by phone, email or face to face visit to withdraw from the study. Being study members and voluntary participants, I explained the option to withdraw their consent at any time for improving trust and transparency (Cummings, Zagrodney, et al., 2015; Houghton et al., 2015; Kaye et al., 2015). If withdrawing from the study, I would have provided the original consent form requiring their signature.

Participation in the research study did not include an incentive for participating. An incentive is any type of influence by giving a gift card or a discount coupon to influence participation in the research study (Medway & Tourangeau, 2015). Researchers use incentives as an attractive tool to motivate participants into the sample study for increased response rates (Medway & Tourangeau, 2015). A financial incentive was not part of the participation for this research study.

Conducting ethical research to preserve the participants' interests is an important aspect in researching to preserve the participants' freedom to speak, rights, and wishes.

Keeping ethical standards while communicating and collaborating professionally during research interviews was vital. Cummings, Zagrodney, et al. (2015) suggested that participants are stakeholders to the researcher. All researchers have an individual and collective responsibility to ensure ethical practice and responsibility in ensuring compliance by all participants (Kaye et al., 2015; Cummings, Zagrodney, et al., 2015). The ethical treatment and respect reside in the confidentiality of all participants during the study by professionally handling the research process. By signing the confidentiality agreement, I will not disclose confidential information regarding the research study.

I stored collected data for the research study in a password protected file on the computer's hard drive. The data collected will only be accessible by me as the researcher. I will protect the confidentiality of the participants by keeping hard copy material and computer data in a locked container, computer hard drive or USB tool and only accessible by me. All participants are aware research data received will be confidential for 5 years then deleted and destroyed after 5 years of study completion. Destruction of the electronic files and shredding of all documents ensures confidentiality.

I ensured the privacy of each interviewee by using codes for each participant to maintain confidentiality. De-identification is the coding system which includes labels that have numbers and the process to prevent a person's identity from being available to connect with information, that includes privacy for research participants completing human subject studies and their affiliated organization (Deleger et al., 2014). When working with participants, confidentiality ethical principles are applicable to the research process to protect and minimize the individual's reputation. Confidentiality of each

participant remained private for the study. Walden University's approval number from the Institutional Review Board for this study is 08-23-17-0272545.

Data Collection Instruments

Qualitative research required the researcher to collect the data from different instruments to gain an in-depth understanding of participant experiences of the phenomenon by utilizing interviews, observations, artifacts, visual texts, and questionnaires (Kaczynski, Salmona, & Smith, 2014; Marshall & Rossman, 2016; Yin, 2014). Being the primary collection instrument for qualitative data was the role of the researcher through direct interaction with research participants for an exchange of insightful knowledge and information with specific details (Latunde, 2017). I guided the data collection with open-ended interview questions using an interview protocol (Appendix A).

As the primary instrument for my data collection, I used semistructured interviews with each participant to explore the strategies for developing and implementing information technology systems for electronic health records. I asked the same open-ended questions to each participant to exchange experiences and understand interactions between the interviewer and participant on the research topic. Therefore, the interview protocol (Appendix A) included the use of a script to discuss the process, take notes for highly descriptive information, and collect relevant data for the research study.

As recommended by Fusch and Ness (2015), Onwuegbuzie and Byers (2014), and Yin (2014), I conducted member checking to ensure accuracy and verify the information obtained from each research participant. Member checking processes

decrease misinterpretations and ensure accuracy and creditability by having the participants cross check the interpretations from the interview for changes or corrections if necessary to their responses (Birt, Scott, Cavers, Campbell, & Walter, 2016; Houghton et al., 2015). I used member checking to provide each participant of the study a summary of my interpretation of their responses' concerning the interviews to ensure data accuracy.

Popular with most qualitative data collection and widely used are interviews face-to-face for exploring and reflecting on firsthand information from the participant (Latunde, 2017). I used in-person interviews as the primary data collection technique. I used an interview protocol (Appendix A) including a list of open-ended questions to allow open conversation for honest, meaningful responses during the semistructured interview sessions. An interview protocol guides the process for obtaining data, interpreting findings, and documenting the research results (Alsaawi, 2014; Labaree, 2014). Observation of the participant during the interview was part of my process, and the interviewer needs to be aware of the tone of voice and reactions (Yin, 2014). Most researchers believe conducting interviews only focused on verbal data while omitting the rich information that could be available from nonverbal communication data (Onwuegbuzie & Byers, 2014).

Data Collection Technique

Probing participants during semistructured interviews allowed participants to elaborate on my study topic and explore the phenomenon further by the researcher (Lancaster, 2017; Yang, Huang, & Hsu, 2014; Yin, 2014). I used a semistructured

interview procedure to probe for more detail from the participants. Asking non-leading questions to get a response with a rich description of the experience from the participants' perspectives explaining how the strategy for the development of change increases an organization's success with the implementation of information technology (Tong & Dew, 2016). Using triangulation will provide a comprehensive understanding for gathering multiple perspectives addressing the phenomenon research study from all aspects as described by Carter, Bryant-Lukosius, DiCenso, Blythe, and Neville (2014). Triangulation includes four different types of collection for case studies which are theory, investigator, data, and methodological (Fusch & Ness, 2015). For this qualitative single case study, I used the methodological triangulation technique to facilitate deeper understanding of this phenomenon.

Data collection with face to face interviews was advantageous allowing a researcher to evaluate the nonverbal behaviors and gestures of the participants, while the disadvantage of this procedure involves the traveling time to the participant's location for the interview process versus telephone and online with no traveling involved (Mealer & Jones, 2014). Interview sessions as a data collection method that seems to be intrusive to the participants, along with being susceptible to bias could create a disadvantage for the researcher (Haahr et al., 2014; Morse, 2015). I alleviated my bias by setting aside personal views and judgments. Another advantage of face to face interviews for this case study was being able to reach multiple participants at one location site. Face to face semistructured interviews provided an advantage to establish rapport and create a

connection with the participant (Mealer & Jones, 2014; Yin, 2014). I used in-person interviews as the primary data collection technique.

The researcher can collect several sources of data using case study research to include document and archival records of data information (Latunde, 2017; Yin, 2014). Advantageous for data collection was documentation memos/forms and archival records provided from the participant of my study with access to the company public records; the disadvantage of collecting this data was that the information could have been misleading, inaccurate, and outdated (Latunde, 2017; Lewis, 2015; Yin, 2014). Collecting company documents for the research study enhanced the qualitative research data.

I sent an email to request participation to several potential candidates to find out if they were interested in the research study topic and I asked them to reply by email. I contacted and follow up by telephone concerning potential participants to ask for their participation. The participants did receive an introduction letter (Appendix D) along with an e-mail explaining the research study and participant criteria requirements to participate. I scheduled each semistructured interview to be convenient for both the participant and myself with the meeting conducted at their worksite for convenience.

I expected each interview to last 30-45 minutes allowing opportunities for follow up questions and responses. I requested formal permission using a Letter of Cooperation to conduct interviews on company premises during company time in a private location with the participant present (Appendix C). The Letter of Cooperation outlines the responsibilities of the researcher and organization's partnership allowing contact and access to organizational employees. I did take notes during the interviews to be reflective

of each participant for journaling and identify the participant. Each recorded semistructured interview session did have an electronic audio device to maintain the duration of time and for transcription purposes to ensure accuracy for what the participant stated during the interview. Also, recording the interview was appropriate to capture data more effectively, so I could focus on the interview content not missing key points (Jamshed, 2014). During data collection, theme development emerged from participants' experiences responding to the interview questions giving insight with explanations (McIntosh & Morse, 2015).

Researchers conducting interviews should validate by sharing the interpretation to confirm acceptance of accuracy and credibility by the respondents (Onwuegbuzie & Byers, 2014; Yin, 2014). Using member checking, I reviewed the results after collecting and evaluating the data with each participant individually. I shared the comprehensive review through transcripts, reflective journals, audio recordings, and note takings to capture every aspect of all interviews after completion of data analysis. I completed the transcript review process with each participant to ensure and confirm accurate information from the interview sessions. Sharing the results of my study with each participant to review the findings provided accuracy of my interpretation of data analysis. As the research instrument, I shared participants' responses with direct quotes from the interview questions concerning the studied phenomenon for the research topic. Member checking is a technique for exploring the data results for creditability (Birt et al., 2016). I completed the member checking process with each participant to ensure, validate, and confirm accurate information from the interview sessions.

Data Organization Techniques

Implementing data organization techniques appropriately maintains the integrity of transcribed interviews (Yin, 2014). The NVivo 11 software program was appropriate for use to upload and organize the raw data for coding into themes identified from my research study during interview sessions to transcribed field data, interview responses, and reflective journal entries (Hu et al., 2015; Rohatinsky, Jahner, & Jahner, 2016; Sotiriadou, Brouwers, & Le, 2014). NVivo 11 software effectively supported the qualitative research study information with comparative analysis to consider similarities, relationships, and differences.

The labeling system included the profile for each participant's identification cataloging with a coding system that included the date, time, location of the interview, and interviewee responses. Using a coding system had advantages for the labeling process so that I could identify each participant in the research study as part of the analysis. Research activity logs listed the unique identifier reference code for each participant to maintain confidentiality. Creating a master file is appropriate to maintain organization of the research study using company documents, reflective journals, note taking, and data labeled with recorded and written transcripts according to Labaree (2014), Lewis (2015), and Zori (2016). In conducting case study research, Zori (2016) suggested taking notes during the interview sessions.

All items are on a password-protected hard drive up to five years after completion of my doctoral study. The hard copy raw data is in a safe with a lock and access only available to the researcher to prevent unauthorized access and any data loss or

misplacement. The multiple locations for storage areas for security measures include the external hard drive, Microsoft Word files, laptop, and USB flash drive. Raw data is in a locked safe, and at the end of 5 years, all data collected will be destroyed (Korhonen, 2014; Merriam & Tisdell, 2015; Silverman, 2016).

Data Analysis

The major strength of data to support case studies exists in the multiple sources to create a supportive meaningful conclusion (Yin, 2014). Data analysis included data transcription and coding documentation for confidentiality of each participant. Qualitative researchers utilizing the case study design collected data from multiple sources by conducting methodological triangulation (Haahr et al., 2014; Hyett et al., 2014; Yin, 2014). Interpreting a phenomenon with triangulation requires the use of multiple methods to collect data that is in-depth and rich (Fusch & Ness, 2015; Marshall & Rossman, 2016). Methodological triangulation achievement includes company document reviews and face-to-face semistructured interviews along with observations of the participants' body language, their voice, intonation, and social cues.

Coding as a data analysis process for qualitative case study research recognizes patterns which surface with a phrase or word from the interview and that identified key themes for the study (Haahr et al., 2014; Yin, 2014). I followed the logical and sequential steps identified by Yin (2016) for analyzing data: compiled database-conduct face-to-face interviews, transcribed each interview with interview transcription of the data, disassembled data-organize specific data from interviews by code names and review documents by subjects, identified patterns, themes and potential-trends, reassembled

data-sort themes into categories, creating smaller segments to determine patterns from collected data, interpreted data compare and contrast results of the interviews and documents for conflicting reviews and justifying the findings, concluded data analysis-discuss and documented key results of the study, stated the outcomes, identified further research, and provided future research recommendations. Coding is the process of identifying, organizing, and arranging data by clearly defining and naming all codes logically and incorporating meaningful categories (Haahr et al., 2014; Thomas, 2015; Yin, 2014).

NVivo 11 qualitative software is appropriate to analyze and incorporate the participants' responses based on emerging themes or trends from the qualitative data analysis (Sotiriadou et al., 2014; Woods, Paulus, Atkins, & Macklin, 2015; Zamawe, 2015). NVivo 11 qualitative software traced the interview documents through diverse responses to create a theme that easily links and aligns the collection of data while it eliminates the task of sorting data and arranging data for the researcher (Woods et al., 2015). Qualitative content analysis is important to the NVivo 11 software program for data collection to code, classify, and identify themes (Rohatinsky et al., 2016; Thomas, 2015). NVivo 11 qualitative software is becoming increasingly important to qualitative researchers to aid with the data analysis process of the study (Zamawe, 2015). I used NVivo 11 qualitative software to support the data management of the data collection and to complete the data analysis process.

I analyzed data through Lewin's change theory of nursing (1951); this conceptual framework assisted with identifying the change process, interpreting data collection,

while determining data analysis meaning. Key themes and patterns of data that included the participants' interviews, literature review with newly published studies and conceptual framework correlated focus on the context of the words (Hesse-Biber, 2016; Onwuegbuzie & Weinbaum, 2016; Yin, 2016). I focused on key themes and patterns for my study by asking open-ended research questions to create and organize data to sort themes into categories for coding and manageability. Redundancies and bias interpretation for a case study data analysis included correlating the key themes while comparing other studies, literature resources, with current and previously published research (Yin, 2016). The use of Lewin's (1951) conceptual framework assisted with interpreting the meaning of data collected to relate the themes. Comparison of the conceptual framework and literature review provided an alignment for data analysis to establish the findings of my qualitative research study (Hesse-Biber, 2016; Yin, 2016).

Reliability and Validity

Researchers working to assure reliability when completing qualitative studies required different measures for determining dependability, credibility, transferability, and confirmability to conduct the study. For qualitative analysis, data reliability and validity are essential to establish during the research (Houghton et al., 2015). Reliability includes accomplishing validation by getting the same results with replication of the study (Fusch & Ness, 2015). Based on Titze, Schenck, Logoz, and Lehmkuhl (2014), qualitative researchers conceptualize trustworthiness, quality, and rigor for the concepts of reliability and validity. Qualitative research strategy refers to triangulation for testing validity as evidenced by the convergence of data from diverse sources (Carter et al., 2014).

Dependability

Dependability is to ensure the qualitative researcher's study results remain consistent and dependable repeatedly over time within different conditions (Anney, 2014). Focusing on case study database along with case study protocols are appropriate to demonstrate dependability as a crucial factor for qualitative research (Grossoehme, 2014; Marshall & Rossman, 2016; Yin, 2014). Dependability demonstrates research practices that ensure getting similar results with similar settings when recreating an original study (Grossoehme, 2014). Dependability establishes trustworthiness and confidence for the research study. I enhanced dependability by providing a rich description of the research process; the selected design, and instruments to collect data and analyze findings to allow for replication of the study. Dependability using member checking to ensure data interpretation and to confirm the accuracy of participant's contributions of experiences assisted with duplication of the research practices for future researchers.

Credibility

Credibility is the transcription of truth present in the interview sessions by each selected participant's views and opinions (Cope, 2014; Yin, 2014). Qualitative researchers establish credibility by providing interview summaries through member checking for each participant to prevent and minimize potential errors (Fusch & Ness, 2015). I used member checking and data saturation to enhance the quality of the research results and contribute to the credibility, dependability, confirmability, and transferability of the study. The interpretation and accuracy of data from the participants' responses for member checking are a crucial technique for credibility (Cope, 2014; Fusch & Ness,

2015; Yin, 2014). Triangulation is a process used to gather multiple types of data for cross-checking interpretations from several sources supporting validity (Fusch & Ness, 2015). Member checking and triangulation enhanced the quality control, trustworthiness, and credibility of the research study (Yin, 2014).

Member checking increases trustworthiness and reduces errors, where participants acknowledge accurate interpretation of the findings from interviews. Triangulation includes interviews, direct observation, document review, and reflective journals these sources will provide various viewpoints with multiple data collection to produce understanding. I compared and cross-checked to ensure reaching data saturation with no new information evolving from the analysis of the participants' responses to the interview questions.

Transferability

Transferability is applicable information researchers can use to transfer the findings and results of a research study to a different context (Houghton et al., 2015). Qualitative research allows the researcher to emphasize the total context in which the research takes place to enable readers to make changes to the transferability of the study's results to their own situation (Morse, 2015). Transferability refers to the transparency of the role of the researcher who transfers collected research data with contextual descriptions including the study's findings and results are transferable to similar research practices (Houghton et al., 2015; Morse, 2015; Yin, 2014). The external validity or transferability of a qualitative study includes data saturation, member checking, and data triangulation allowing thick, rich descriptions that ensures the validity aspect of the

research study (Yin, 2014). I provided information to the readers and researchers for them to determine whether the study participants, locations, industry, and data collection methods, interview session length, and data collection process are transferable for future research to different research settings or environments.

Confirmability

Confirmability occurs when the researcher's ability to develop and maintain the data collection and analysis of the results align with the representation of the participants' responses (Cope, 2014). The collection of evidence did not reflect my viewpoints or biases. Critical to establishing the validity of the study includes collecting unbiased data (Yin, 2014). Researchers should ensure confirmability to assure all levels of research rigor (Houghton et al., 2015). Establishing confirmability using a self-reflective journal was appropriate for note taking (Anney, 2014). I used data validation, member checking, and triangulation to draw conclusions from the results to confirm information accuracy for the research study on developing strategies to integrate the information technology system for processing electronic health records.

Data Saturation

The point of data saturation is reached by the researcher when new ideas, concepts, and themes are absenting after several interview sessions (Fusch & Ness, 2015; Marshall & Rossman, 2016). When data becomes redundant and repetitive from the participants' answers or responses, data saturation confirms no new information emerges (Yin, 2014). Data saturation enhances the quality of the research process while ensuring no information is missing during data collection. I did perform member checking until

data saturation occurred after cross checking and determining no new themes or patterns evolved. I reached data saturation after five completed interviews with no new themes emerging despite a goal of eight participant interviews (Marshall & Rossman, 2016). I gave the opportunity for participants to individually review the results of the data analysis upon completion of the interview sessions.

Transition and Summary

In this qualitative study, I explored the strategies for developing and implementing information technology systems for electronic health records. Section 2 contains the purpose statement for the research topic, my role as the researcher, and the study participants selected. I then gave a description of the research method and design, the target population, and the sampling method for the participants. The ethical research, data collection instruments, and technique are also in Section 2. I utilized audiotape for semistructured face to face interviews, to collect data while exploring the strategies and primary experiences of the participants. I discussed the data organization technique and data analysis then concluded with the reliability and validity of the study process.

In section 3, the information I address included an introduction, presentation of the findings, application to professional practice, and implications for social change. This section also contains a recommendation for action and further study including the researcher's reflections. Section 3 then closed with a concluding statement for the research study on exploring the strategies for developing and implementing information technology systems for electronic health records.

Section 3: Application to Professional Practice and Implications for Change

The purpose of this qualitative single case study was to determine strategies healthcare executives used to develop and implement information technology systems for processing electronic health records. This section begins with the introduction and the presentation of the findings. The purpose statement includes the intent for the research. This section also includes application to professional practice and implications for social change. I present the recommendation for action and the recommendation for further study along with the researcher's reflections. I conclude the section with the conclusion summary.

Introduction

The purpose of this qualitative single case study was to explore the strategies healthcare executives used to develop and implement information technology systems for processing electronic health records. Some healthcare leaders are uninformed or not receptive to change and lack strategies and knowledge to approach and manage change effectively within organizations. EHRs are a vital foundational tool for improving the quality of care for patients while maintaining safety. Approximately 70% of healthcare leaders' challenges are developing and implementing change as stated by Sheck et al., (2015).

The primary themes that emerged after analyzing and transcribing the interviews of research participants were communication and management plan for EHR implementation, information technology EHR vendor selection, and EHR implementation technical support strategy. All participants confirmed the importance of strategies for the

implementation process, finding the right vendor and technical support. The data originated from interviews with healthcare leaders, company documentation, and observations from one human services organization in North Carolina. The findings showed strategies healthcare executives used to implement successful EHR for providing better healthcare quality and service delivery.

Presentation of Findings

The research question for this study was: What strategies do healthcare executives use to develop information technology systems for processing electronic health records? The results of the study and findings provided from the data collection process using NVivo 11 software along with the semistructured interview responses and academic literature review were adequate according to Woods et al. (2015) similar studies analyzing qualitative data. With limited knowledge on EHR implementation, I explored and identified strategies healthcare leadership used to successfully develop and implement information technology. With an inductive approach, I used Lewin's change theory of nursing as my conceptual framework to compare and interpret research findings.

The study participants signed a consent form and approved audiotaping of the interviews. The specific themes that emerged from my study were vital for answering the research question and understanding the phenomenon regarding EHR implementation. All the participants had positive experiences with describing post EHR implementation, and they said the functionality made the work process simpler while providing efficient access to patient care coordination and increased productivity. All participants confirmed that, with limited sessions during office

visits, the EHR made the process more efficient having the patient health information available on the EHR without reviewing individual paper documents from different disciplines to offer options and recommendations for treatment. Study participants suggested adoption of EHR was mandatory for the healthcare organization to meet future government compliance and standards. The follow themes are the results from the raw data analyzed for this study: communication and management plan for EHR implementation, information technology EHR vendor selection, and EHR implementation technical support strategy.

The themes that evolved relative to the findings support the study and benefit the implementation of EHR to improve communication, shared decision making, while enhancing quality of care between health professionals. The themes identified from my study were communication and management plan for EHR implementation which are vital to the implementation process. The benefits of the change and how to manage the change process was communicated by the participants responses for organizational readiness for implementation. The plan of action had to include all disciplines to meet standards for EHR.

The next theme was the information technology EHR vendor selection that included the steering committee as part of the departmental team to select a certified and qualified vendor. The participants commented on the urgency to make the right choice of a vendor for successful implementation. Using buy-in as a strategy to have positive acceptance from all stakeholders. The EHR implementation technical support strategy was used to ensure the hands-on approach for completing technical assistance for

engaging the staff was effective. Most important to the leadership of the organization was maintaining a smooth implementation process decreasing complexities or challenges transitioning to the new information system. Participants agreed that employing technical assistance using real time enhanced operational performance for collaboration.

Overall, the organization used the foundational model of Lewin's change theory of nursing, including the three-step process of unfreezing-changing-refreezing for EHR implementation. The research of the managed change includes the first step to implement the unfreeze state by determining what requirement or standards were necessary to meet the organization's objective for implementing EHR. Participant X completed this process by attending a few medical healthcare conferences hosted by Division of Medical Assistance (DMA) and evaluating EHR vendors for implementation by the organization. As leadership championed for the change within the organization to increase care coordination sharing with other healthcare disciplines.

The second step of Lewin's change theory of nursing is where change typically happens using various phases with multiple steps over time to create action movement. Implementation provides a learning environment to destabilize the change initiative to modify change efforts by trial and error. By using driving forces, the leadership implemented change while minimizing resistant forces from the staff. The organization's transition was disruptive but effective based on evidence of successful EHR adaptation as expressed by the study participants.

The third step of Lewin's change theory of nursing is refreezing after the change and building on the stabilized new state. The study participants contributed to the shared

team experience for applied technical support creating sustained change with the appropriate conditions to solidify implementation actions of EHR for the organization. Maintaining sustainability in the refreezing state requires being repetitive and educating the organization on the change.

Theme 1: Communication and Management

Embracing new ways of managing change starts with a vision for the organization to stay ahead of their market. Creating a vision for the organization is the anchor that provides guidance for all stakeholders, both internally and externally. Strong leadership is the key to driving positive change and leaders should communicate a clear vision to bring about successful change. With the vision, focus cascades down to the strategic goals successful execution by leadership communication.

The participants confirmed that the process took years to create the strategic objectives and communicating with the stakeholders to obtain buy-in to implement EHR for the organization. Communicating effectively promoted the benefits of the deliverables in preparing the agenda for strategic alignment to establish and maintain transparency for implementation of the EHR project. By working together, board members, providers and leaders championed the transition and achieved success with EHR implementation. Participant Y expressed buy-in for the organization included all participants and staff determining the implementation process and the vendor and gave everyone a stake in making the decisions for the project. The healthcare organization created a steering committee for the EHR implementation project that was not based on this study. As suggested by Dolezel and Moczygemba (2015) and the Health Information

Technology Research Center, the steering committee consisted of three or more interdepartmental team members. The steering committee did not try to meet the mandate for incentive benefits through the United States government, they were working towards the trend of the future of electronic health records for the Center of Medicare and Medicaid Service (CMS) requirements, and maintaining competitiveness in the marketplace. The trend of electronic health records continues to evolve for future implementation use in the healthcare industry as presented by CMS.

Strategically, the participants wanted to push their boundaries for technological growth and innovativeness in healthcare. The organization's steering committee determined what functionality should be a part of the EHR for the vendor to structure the information technology system for implementation to maintain accountability for each department and being specific was critical for EHR implementation. EHR adoption early in the government mandate would prevent fines for the organization later with CMS deadline for implementation. The focus for the organization's leadership was on how to transition to electronic health records from paper documents as a means of communicating about the actions needed to get there. Each participant was involved in the process for accomplishing this task. All participants suggested technology integration was advantageous for interacting with other clinical information systems for collaborative efforts.

Research by Miotto and Weng (2015) indicated that how well technology is implemented continues to be the key to successful implementation of EHR. The technology for healthcare systems is unique in the different specialties that require

specific information for treatment or diagnosis. Ultimately, clarification of the steps required for organizational readiness given by leadership at each phase of the process for achieving successful outcomes included communicating to the staff. In this study, the healthcare professionals used Lewin's conceptual framework as a foundational change approach with the three-step action to implement change by unfreezing, moving and refreezing. All participants used each step of Lewin's theory to create significant change for implementing EHR. With concrete strategic objectives, accomplishing participation, and the development of understanding for the importance of EHR in the healthcare industry to share and communicate the coordination of care during a change process the team successfully moved the organization to becoming paperless using EHR.

Theme 2: Vendor Selection

For successful implementation, the participants indicated that selecting a vendor was vital for having the appropriate certified EHR system. The vendor strategy process for researching who to select for the IT vendor was overwhelming because the team had to identify practice requirements and coordinating those needs to diverse EHR systems for meaningful use. Participant X expressed that they started the vendor selection process about 2 years before implementation of the EHR in the healthcare organization. Participant X stated he attended the American Cardio Physicians conference along with other healthcare conferences to become educated on meeting federal regulatory standards for HIPAA, ease of use for IT, and type of functionality information recorded for the EHR. The team reviewed 10 certified vendors registered with Center of Medicare and Medicaid Services and the Office of the National Coordinator for Health Information

Technology on structured data and met established standards for EHR. The study participants included the medical director, a doctor, and a physician assistant assigned ownership of the EHR implementation project. The steering committee team members were participants in the research study because of the firsthand knowledge regarding the implementation of EHR for the organization.

The participants narrowed down the vendor search to three based on established criteria by the steering the team to identify the positive and negative aspects of each vender's EHR system based on templates, backup availability, and being able to increase functionality as services are created and made available. Specifically, having a trusting relationship with the right cultural fit was necessary for strategic alignment regarding the vendor. The implementation history of the vendor was crucial to resolve complexities during the process. After consulting with a few healthcare organizations currently employing EHR systems, the team could determine if the infrastructure would be appropriate for the integration of all current systems.

Research participant Z stated that, when visiting other healthcare EHR vendor organization locations for hands on evidence of EHR implementation, the team was able to get a better understanding of the process that was used and how that process would assist with selecting the appropriate vendor with the right fit. By observing the functions of the EHR implementation, the vendor could demonstrate time constraints for completing the process. Quality and efficiency were important elements for contract cost alignment with fixed fees as revealed from the participants responses. As time evolved, the team confirmed and approved a vendor called Integrated Health Systems that offered

a compressive package to the organization to enhance the EHR system with add-ons for future upgrades. The participants confirmed successful EHR implementation requires focus on the alignment of strategies for the organization and the information system.

Theme 3: Technical Support Strategy

The clinic team chose an EHR vendor that offered a comprehensive package including face to face training and hands-on training for all staff members with one-on-one onsite training support presented by the vendor. Participants expressed that technical and training support by the vendor was beneficial after going-live to expedite transition for higher levels of EHR adoption in the organization. The participants expressed that technical support was adequate, detailed, specific, and individualized as needed to integrate technology. Technical assistance and teaching modules were used for ongoing training for each participant to strengthen computer skills. This supports Fiks et al.'s (2015) statement that maximum adoption requires technical support to use the new EHR information system. The EHR system was launched using the entire system all together with a complete overhaul of the old system while maintaining workflow and managing patient care visits. Participant X indicated they did not want to use phases to accommodate training and workflow because it would slow the transition process down. The organization did use short phases to make progress. The use of Lewin's theory can guide how the change effects the organization prior to implementing EHR and overcome resistance while transitioning to a new system.

The participants expressed technical support sessions required working with different computer skill sets in different departments and time constraints.

Implementation for EHR with this organization was successful over a three to six-month period for the initial startup with continued ongoing technical support for upgrades and other flaws or errors. After completing the technical support for implementation, the selected vendor also supplied a technical support help line for the healthcare organization to call for providing additional assistance as part of the comprehensive package.

Lewin's Change Theory Approach

3-step process	***Unfreezing***- *preparing for the change within the organization.*	***Changing***- *implements participation buy-in with shared behavior.*	***Refreezing***- *solidify organization change process.*
Themes emerged	*Communication and Management Plan*	*Vendor Selection*	*Technical Support Strategy*

Figure 2. The NVivo 11 data themes that evolved from the word tree.

Summary of Themes

Given a 100% consensus among the multiple research participants, EHR implementation is not an option for healthcare organizations to be more efficient but a government mandate. Existing research concludes that the government mandate for meaningful use has increased the EHR implementation process by motivating

organizations with financial incentives. Healthcare leaders who participated in the study were from different backgrounds and could provide expert knowledge to implement EHR successfully for their organization. The themes that emerged from the NVivo 11 data word tree are shown in Figure 2. The research findings are linked and consistent to the conceptual framework for driving change management using all three steps of the process which include the following themes: communication and management plan for EHR implementation, information technology EHR vendor selection, and EHR implementation technical support strategy. I could identify one theme for each of the three phases from Lewin's change theory conceptual framework for this research study. Lewin's change theory significantly evolved during the unfreezing phase of communication and management plan with an explanation of the change process. Next the changing phase included prioritizing, delegation, and motivating all stakeholders for buy-in during transition and the vendor selection process. The refreezing phase for evaluation of the EHR implementation process for stabilizing the change and creating more opportunities for change as necessary to upgrade technology for the healthcare organization. Based on literature and research, Sturmberg, Martin, and Katerndahl (2014) advised that over the past several years, change was more likely to happen in response to disturbance which leads to desired change as indicated in Lewin's change theory.

Most strategies identified were consistent with the literature review and previous research on EHR implementation. Even though research is limited on EHR implementation, Ben-Zion, Pliskin, and Fink (2014) proposed one critical success factor include ensuring physician awareness to increase EHR adoption as presented in peer-

reviewed literature. This success factor was captured in responses expressed by the study participants of the healthcare organization. In comparing the themes to the peer-reviewed research studies, the themes confirm the existence of organizational strategies of EHR implementation based on comprehensive data resources. As stated by Nguyen et al. (2014) on prior research, the major aspects of implementing EHR usually involve systems integration, time constraints, interoperability, and technical team support to be successful. Research by Sturmberg et al. (2014) and Ben-Zion, Pliskin, and Fink (2014) posited the healthcare industry continues to make improvements to information technology for EHR implementation with practitioners being offered guidance on adoption success approach. Also, McAlearney et al. (2014) argued that EHR systems can drive improvements with healthcare quality but shortcomings with the implementation process is mostly due to organizational problems rather than technological problems.

My study findings confirm EHR implementation is complex and difficult but with the correct organizational strategy alignment and the right EHR vendor, the process could be less challenging for the organization. Sturmberg et al. (2014) provided extended knowledge enhancing complexity science which is an emerging approach that involves multiple theories with conceptual tools from different disciplines to study information systems while embracing complexity resolution. Using this approach would assist with a quicker implementation process for EHR and decrease complexity with the process.

Application to Professional Practice

The purpose of this qualitative case study was to determine strategies healthcare executives use to develop and implement information technology systems for processing

electronic health records in southeastern region of North Carolina. The participants provided the explanations that best contribute to the underlying preparedness for consistency in transitioning to change management. This study might influence other healthcare organizations to duplicate strategy acceptance and readiness for developing future electronic health records transitioning information technology systems to improve operational performance. Effective planning was required to ensure strategic synergy for the implementation process of electronic health records. Change management was necessary to get all stakeholders on board for buying-in to maintain clinical operation workflow continues smoothly during the transition period, resistance could harm or delay the process along with triggering workarounds (Cifuentes et al., 2015). The vendor agent would administer training to influence the change strategy for those engaged in the practical application of the process to develop or implement information technology system for processing electronic health records. Professional practice should include conducting analysis for the business to identify areas of performance improvement to meet business objectives of the healthcare organization. This study could assist with increasing revenue and reduce business cost and efficiency based on the results and findings from the research regarding strategic implementation of information technology systems. The strategic utilization of resources will achieve appropriate business challenges and outcomes with upper management support and guidance. Healthcare executive management and leaders must understand government policy regarding electronic health records to remain competitive in the industry and design strategies for operational success in the business. This study's significant contribution is imperative to

identify best practice business strategies for organizational success to develop and implement electronic health records.

Implications for Social Change

Exploring the strategies healthcare provider organizations use may create a social impact on what actions are necessary for implementing change for providing better healthcare. Business practitioners and researchers can use study results to understand how organizational management may align business strategies with information technology developments to enhance healthcare organizational performance to create positive social change in the community by an increase of patients being seen at office visits with documentation readily available to the healthcare professional. All communities need successful healthcare organizations to provide a broad range of services to meet their requirements to document for treatment, code and bill correctly, along with coordinating health care service delivery. Electronic health records adoption and implementation are vital for information technology clinical tracking to capture data documentation for more efficient patient visits. The results from my research may offer strategies that benefit healthcare organizations and society for implementing electronic health records.

Recommendations for Action

The goal in my qualitative single case study was to explore strategies healthcare executives use to develop and implement information technology systems for processing electronic health records. From the findings of the research study, I recommend healthcare leaders devise a strategic plan including communicate the project, establish buy-in for stakeholders, and select vendor with technological support for successful EHR

implementation allowing staff to engage with the process and maintain focus with clarity. Employing strategies for successful EHR implementation requires recommendations by healthcare management, clinicians, and vendor consultations. The recommended actions include the following: Communication and management plan for EHR implementation, create a team with associates from diverse clinical disciplines to identify and evaluate EHR implementation success strategies. Information technology EHR vendor selection, research the vendors for partnering based on experience, trust and transparency for implementing an EHR system successfully with adequate functionality. EHR implementation technical support strategy, develop interactive collaboration and integration between information technology EHR vendors and stakeholders.

Healthcare executives may gain strategy recommendations from within this research study to guide the actions of healthcare professionals for developing information technology systems for processing electronic health records. As indicated by McAlearney et al. (2014), using both healthcare literature and information technology the EHR implementation process can be successful based on applied evidence. The results from this study will have a variety of distribution outlets for healthcare practitioners, providers, and management to have access to improve operational performance. Using the ProQuest/UMI database, I will publish this study with the results to allow access to researchers and students. I plan to share and disseminate my research information through health care journals and business publications. My study may contribute to organizations moving forward with EHR implementation strategic planning to reduce challenges associated with the change process.

Recommendations for Further Research

In future studies, addressing the complexities of EHR implementation may contribute to exploring underlying patterns and relationships for organizational change success. My recommendation would be conducting a similar research study to explore strategies hospital executives use to overcome barriers to EHR system implementation. Healthcare researchers might identify and explore the privacy and security risk exposure of patient data while implementing EHR software for a qualitative future study. Also, conducting a quantitative research study might be interesting for EHR implementation.

The study included a small sample size, creating a limitation; a larger sample size could involve using a multiple case study research design instead of a single case study. Direct replication of this study using a multiple case study would increase the depth of the phenomenon with a larger sample size for generalizability of research findings. The geographical location could be in a different region of the United States to compare, identify, and explore variations in themes for other health-care systems or business practices implementing EHR.

Finally, additional studies could include guiding the study with a different conceptual framework to create essential questions for improving healthcare organizational practices and generating insights for positive clinical outcomes implementing EHR. I would suggest maybe the sociotechnical theory because this conceptual framework includes the collaboration of information technology with human performance. Sociotechnical theory as a conceptual framework would improve the acceptance of technology adoption by the organization with interdependency influence.

Reflections

After 4 years on this DBA journey at Walden University, I appreciated the opportunity for this enormous task and intense undertaking of conducting my qualitative research study. The doctoral study involved barriers and challenges which included the prospectus and proposal completion, the oral defense presentation, and lastly IRB approval for conducting my research. My hard work has been rewarding and provided beneficial results, while enhancing my leadership skills after reviewing the findings which has given me a broader perspective on EHR implementation. The topic selected allowed the opportunity to explore the processes and strategies healthcare organizations may use for successful implementation of EHR.

Composing the literature review was informative and challenging but allowed me to research hundreds of peer-reviewed journals and articles to support identified themes that emerged. EHR government mandate for system transition was vital for provider implementation and incentives which lacked due to complexities with preparation. With the selection of the study participants and using an interview protocol I could remove any personal biases that might have influenced my opinion. Furthermore, to reflect on EHR adoption open-ended questions were asked to gain a deeper context about the phenomenon from the research participant perspective providing data that was rich and thick. The study participants enjoyed the interview sessions as they provided personal experiences on the study topic. I learned the importance of member-checking to confirm the voice of the participant for collected data on the phenomenon.

Conclusion

The focus of this qualitative single case study was to explore strategies healthcare executives use to develop and implement information technology systems for processing electronic health records. Providers of healthcare should have access to a EHR system that can be used easily, document accurate patient information while improving and promoting effective communication. Understanding strategies for implementing an EHR system in an organization can lead to improved patient outcomes reducing healthcare cost and improved quality of service delivery. The findings from the study presented possible strategies to use during the EHR implementation phase for healthcare leaders to manage the challenges of change.

Furthermore, the themes identified from this study include communication and management plan for EHR implementation, information technology EHR vendor selection, and EHR implementation technical support strategy. These themes provide an application for professional practice to make the business more competitive for documenting patient care with EHR and implications for social change by reducing cost for healthcare. Additionally, implementation strategies are essential for healthcare leaders to increase the likelihood of successful rates of EHR implementation in organizations.

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Appendix A: Interview Protocol

Date _____
Interviewer _____
Location _____
Participant _____

Instructions:
A. -Explain the purpose of the study to the participant.

B. -Assure confidentiality of the research study.

C. - Participant makes informed decision about participation in the study after discussing risk and benefits.

D. -Audiotape the interview for transcription to complete data analysis.

E. -Assign each participant numeric and alpha identity code to cover confidentiality for recording on top of the page.

F. -Ask interview questions, then ask additional questions to explore participant's responses to get a better meaning from their perspective.

G. -Transcribe and review with the participant the findings for confirming data accuracy through member checking.

H. -Thank each participant for participating in the research study.

Protocol:
Keep research questions focused on study topic, using reminders to reduce researcher biases.

Review objectives at start of each semistructured interview.

Ask open-ended questions and record the participant's voice tone, non-verbal, and physical gestures.

Investigate responses with probing questions to get accurate perceptions of the comment.

Complete reflective journal before, during, and after the interview session.

Research Question:
What strategies do healthcare executives use to develop information technology systems for processing EHRs?

Initial Interview Questions:

1. What strategies do you use to develop the information technology systems for processing electronic health records?

2. What did you do to contribute to the implementation or designing the system for processing electronic health records?

3. How do you ensure appropriate actions are selected for developing and integrating information technology systems to process your organization's EHRs?

4. What challenges did you experience when developing and implementing the strategies for designing information technology systems for processing EHRs?

5. How did you address the barriers to implementing the strategies to develop information technology systems for processing EHRs?

6. What additional information would you like to add to strategies for developing and implementing information technology systems for processing EHRs?

Appendix B: National Institute of Health Certificate

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Priscilla Riddley** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 03/13/2015.

Certification Number: 1719953.

Appendix C: Letter of Cooperation

Community Research Partner Name: XXXXXXXXXX
Contact Information: XXX-XXX-XXXX Charlotte, NC

Date:

Dear Priscilla Riddley,
Based on my review of your research proposal, I give permission for you to conduct the study entitled Strategies for Developing and Implementing Information Technology Systems for Electronic Health Records within the XXXXXXXXXX. As part of this study, I authorize you to recruit and conduct 30-minute interviews to 8 healthcare leadership participants and obtain data for the research. I invite organization documents to be shared which will include e-mail messages, documents, and reports as part of the study. I also authorize contact with interviewees to perform member checking after the interviews with synopsized transcripts. Results dissemination will be completed via electronically as requested by organization employees. Individuals' participation will be voluntary and at their own discretion.

We understand that our organization's responsibilities include: access to personnel known to have direct experience with the organization and may provide information about strategies used to develop and implement EHR; one climate-controlled private conference room with a desk and two chairs; with adequate facility access and use of resources. The Human Resource manager will act as the administrative contact for the organization to provide supervision for the designated interview research sessions, ensuring appropriate resources are available. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Sincerely,

XXXXXXXXXXX

Walden University policy on electronic signatures: An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically. Electronic signatures are regulated by the Uniform Electronic Transactions Act. Electronic signatures are only valid when the signer is either (a) the sender of the email, or (b) copied on the email containing the signed document. Legally an "electronic signature" can be the person's typed name, their email address, or any other identifying marker. Walden University staff verify any electronic signatures that do not originate from a password-protected source (i.e., an email address officially on file with Walden).

Appendix D: Introduction Letter

Date:

Re: Doctoral Candidate – Research Study

Dear_____,

My name is Priscilla Riddley and I am a Doctor of Business Administration (DBA) candidate at Walden University. I am conducting a doctoral study project to explore strategies healthcare leadership use for implementing EHR systems. I am seeking face-to-face interviews with employees who assisted with and were directly involved with the development and implementation of EHR for XXXXXXX.

Based on your experiences with the implementation of EHR systems, I would like to conduct an interview with you to gather information about your perceptions regarding strategies for developing and implementing information technology systems for EHR. The interview will be approximately 30 minutes of your time, allowing you to select the date and time once notified of approval from Walden IRB process. Your participation will be instrumental for ensuring I collect data from health care leaders with a broad spectrum and direct knowledge of EHR implementation relevant to my study. I will protect your identity. Your participation is completely voluntary, and you may withdraw at any time.

I will send you an email with the informed consent attached for your review and signature. The informed consent provides an outline of your rights and the background information for the research study. If you have any questions, concerns, or require additional information, please contact me at (XXX)XXX-XXXX or XXXX@WaldenU.edu. Thank you for your time and consideration.

Sincerely,

_____
Priscilla Riddley, MS
DBA Candidate of Walden University