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Walden University

College of Health Sciences

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Chris U. Okoro

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Walden University
2018

Abstract

Perspectives of Primary Care Physicians on Adopting
Electronic Medical Records in the Atlanta, Georgia Area

by

Chris U. Okoro

MS, Walden University, 2012

BA, University of Memphis, 2009

Abstract Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy
Health Services

Walden University

November 2018

Abstract

Slow adoption of electronic medical records (EMR) by primary care physicians in medical office practices has not facilitated the EMR adoption process. The problem is the slow pace of EMR adoption by primary care physicians in the Atlanta, Georgia area has become a public health concern. Research regarding the lived experiences of these physicians with EMR implementation and utilization may identify reasons for the slow adoption. The purpose of this phenomenological study was to explore the lived experiences of primary care physicians, who practice in the Atlanta area, regarding their perception, successes, barriers, and urgency of adoption of EMR in their healthcare practice. Lewin's change management model of health services served as the framework for the study. Data was collected during face-to-face interviews with 19 primary care physicians at Grady's Ponce de Leon Clinic and Grady's East Point Clinic in Atlanta, Georgia. Participants were physicians or residents and not those in authority to make decisions about the EMR at the two clinics. NVivo 10 and automatic coding was used for data analysis to develop themes from the interviews. The findings revealed that the adoption of EMR has enabled primary care physicians to spend more time with their patients, but the barriers such as a lack of interoperability and lack of training, has fostered a feeling of disinterestedness towards EMR adoption. This study supports positive social change that EMR adoption aids in improving patient safety and outcome.

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August 2018

Dedication

This dissertation is dedicated first to Almighty God, my savior, my redeemer, my strength and my all in all, for His divine mercies, grace, and favor that saw me through thick and thin to the completion of this remarkable milestone. I also dedicate this dissertation to my parents. Dad, I wish you were here to celebrate this achievement with me, but I know that I have made you proud where you are in Heaven. Mom, words cannot express my gratitude to you. Thank you for believing in me and training me to believe that everything is possible in life.

And finally, to my dearest wife, you have been a constant source of encouragement and great cheer at every step of the journey. To our lovely children—Angel Nneoma Okoro and Christabel Ihuoma Okoro: I know you were too young to understand the daily sacrifices I made to complete this journey, but your innocent smiles and hugs always lifted me up, gave me a reason to hope, and kept me motivated even when I felt like giving up on this dream.

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Chapter 1: Introduction to the Study

Introduction

Across the political spectrum, the federal government supports greater investment in electronic medical record usage to significantly decrease costs and improve health outcomes. This has led legislators to enact the Health Information Technology for Economic and Clinical Health (HITECH) Act as part of the American Recovery and Reinvestment Act of 2009. The act called on health care providers to adopt electronic medical records (EMRs) to improve the quality of care by providing open access to health information (HITECH, 2009). The legislators were expected to engage all physicians to adopt the EMR. This led the Center for Medicare and Medicaid Services (CMS) to estimate that \$22.5 billion would be paid from 2011 – 2022 to eligible providers who adopted EMR technology (CMS, 2016a).

The problem is that failure to adopt EMRs has become a public health concern (Wellstar, 2015). Research on the lived experiences of those physicians with EMR implementation and utilization experience may identify reasons for the slow adoption. Slow adoption may significantly increase healthcare costs, decrease health outcomes, and lead to compliance issues with meaningful-use (MU) EMR requirements (Kulhanek, 2011). The association between adoption of EMRs and physician resistance to the switch to paperless records () in physician office settings is not known in Atlanta rural communities (Cherico, 2016). Studies conducted by Jang, Lortie, and Sanche (2014) confirmed that operating costs of EMR systems are higher per patient in community-based health care than in larger medical facilities, although the return on investment is

still positive (Jang, Lortie, & Sanche, 2014). Approximately 81% of surveyed physicians in the Atlanta, Georgia area had no plans to adopt an EMR, and 9% of physicians recorded their intention to withdraw from EMR implementation due to difficulties when surveyed in November 2015 (American Academy of Family Physicians, 2016, p. 3). The AAFP applied the label "persistent non-adopters" to the physicians who had no plans to adopt EMR and expressed concern that this group would isolate themselves by this refusal (AAFP, 2016). A recent study by the National Center for Health Statistics discovered that over two-thirds (71%) of EMR adopters said that the system was time-consuming (National Center for Health Statistics, 2015).

A Harvard medical study about adverse drug events cited the Institute of Medicine's report, "To Err is Human," and noted that 46.6% of adverse events due to paper medical record errors in the study were preventable (Drug adverse events and electronic medical records, 2015; Harrington, Kennelly & Johnson, 2013). Of these adverse events, 27.6% was due to the physician negligence and 19% was due to drug complications due to giving the wrong drug to the wrong individual because of inconsistency in paper documentation by physicians. The other 53.4% was due to lack of EMR adoption or EMR system failure (Hoyt, 2015). To reduce medical errors, provide effective communication, information sharing among clinicians, and improve storage of patient medical records, information technology in healthcare needs to be embraced (Harrington, Kennelly, & Johnson, 2013; Kulhanek, 2011). The use of EMR technology would eliminate the risk of paper medical records, which could be lost, incomplete, or illegible (Hoyt, 2015).

Background to the Study

In 2009, the HITECH Act allocated more than \$30 billion as a financial incentive to promote the adoption of information technology (IT) among health care providers with a focus on EMR systems, encouraging primary care physicians to adopt robust EMRs (CMS, 2016b; HITECH, 2009). According to the Drummond Group (2013), the United States healthcare system continues to lag due to complications resulting from physicians' unwillingness and inconsistency in adopting the EMR especially, in rural parts of Atlanta, Georgia.

A recent literature review revealed a lack of research on the physician's perceptions of physician adoption of EMR in various physician office-settings in rural parts of Atlanta (Wellstar, 2015). At the hospital level, findings from a 2014 research study conducted at Wellstar Health System Douglasville, near West Atlanta, indicated that EMRs had important effects on the professional satisfaction of physicians, both positive and negative (Wellstar, 2015). According to the study, physicians approved of EMRs in concept, describing a better ability to remotely access patient information and improvements in quality of care (Wellstar, 2015; Yee et al., 2012). For many physicians, the current state of EMR technology appeared to significantly worsen professional satisfaction in multiple ways (Wellstar, 2015; Lanham, et al., 2014).

A substantial number of studies support evidence that poor adoption of EMR by eligible providers (physicians approved to meet the MU requirement of EMR) contributes to the high risk and prevalence of health care-related complications (Boulos et al., 2014; NCHS, 2016). In some physicians' opinions, EMR implementation experiences among

hospitals and private office settings vary (Sisko et al., 2014). Unlike hospitals, many physician office settings in rural parts of Atlanta were considered late adopters due to little or no oversight of regulatory agencies in the region (Joint Commission, 2015; IOM, 2002). Studies suggested that, unlike urban hospitals that experience progress in EMR adoption, smaller or rural hospitals were less likely to adopt EMRs well as practices headed by physicians over the age of 55 (Wittier, Ngo-Metzger & Lebrun-Harris, 2016).

Most physicians confirmed that transitioning into some EMR systems have been successful experiences, while others did not have a seamless transition (Thompson, Varvel & Sasinowski, 2016). For example, in 2002, Cedars-Sinai Medical Center in Los Angeles, CA attempted to implement a new EMR system, but the \$34 million system failed due to numerous factors (Cedars-Sinai Medical Center, 2013). Physicians were unhappy because the new physician order-entry system for medications, labs, and procedures were more time-consuming than doing the orders by hand (Cedars-Sinai Medical Center, 2013). Physicians often found themselves spending extra time to avoid the system's warnings because there was no room for flexibility within the system (CMS, 2016a; Hoyt, 2015). The system was implemented with numerous decision-support mechanisms, which created transparency in data analytics and alerts that could not be overridden by physicians (HIMSS, 2014).

This flaw was a result of not obtaining adequate physician input for the EMR system and not enough prior testing (Becker's Hospital Review, 2016; Cedars-Sinai Medical Center, 2014). These problems then made it difficult to obtain buy-in from the physicians, which ultimately caused several hundred physicians at Cedars to refuse to use

the system after only 3 months and lead to the withdrawal of most physicians from Cedars Health System (CMS, 2016b; Becker's Hospital Review, 2016). Mayo Clinic implemented the EPIC EMR system, a sophisticated IT infrastructure that will cost upwards \$1 billion in the next 5 years (Becker's Hospital Review, 2016). This measure was taken according to Mayo Clinic CEO, John Noseworthy, to enhance physician's engagement in EMR usage, increase physician retention, and to boost patient-physician relationships (Becker's Hospital Review, 2016).

Policymakers plan for future health care needs and costs to handle the predicted burden and EMR complications (American Hospital Association, 2016; Earl, 2015; Anderson, 2014). Anderson (2014) and Lium (2013) highlighted evidence of the complex and diverse nature of EMR adoption strategies that are predisposed by varied physician perspectives, poor regulatory oversight, and lack of training by other health care professionals. Belue et al. (2012), noted that slow adoption of an EMR in healthcare can induce poor health outcomes among immigrant populations, including minority populations, who generally experience most of the socioeconomic inequalities in the United States. CMS (2016a) and the United States Health Information Management System Society Analytics (2015) identified associations between technical quality of EMR levels and physician experience. The researchers identified that high-quality care has both technological and interpersonal aspects. The two studies further dictated the recommended provision for EMR adoption and the extended duration or deadline required for the final approval of required EMR functionalities.

Increasing EMR adoption is a top priority for the rural and urban communities in Atlanta and the United States in general. Agencies such as the American Recovery and Reinvestment Act of 2009 (ARRA), an economic stimulus package enacted in 2009, the HITECH Act, the Health Insurance Portability and Accountability Act (HIPAA), and the Office of the National Coordinator for Health Information Technology (ONC), are part of the United States' policy initiatives (Healthy People 2020; Belue et al., 2012). These agencies are resources for the entire health system to support the adoption of health IT and the promotion of nationwide health information exchange to improve health care (Healthy People 2020; Belue et al., 2012). These agencies align and modernize how Medicare payments are tied to the cost and quality of patient care for hundreds of thousands of doctors and other clinicians (CMS, 2016b; Lium, 2013). Physicians are satisfied with the convenient reimbursement methods by CMS as one of the benefits of EMR (Ridell et al., 2014).

This qualitative, phenomenological study sought to provide an understanding of the perspectives of primary care physicians about slow EMR adoption in the remote regions of Atlanta. This study has implications for social change, for example, increased awareness of the challenge of slow EMR adoption, improved data security practices to prevent data violations, and more physician involvement in EMR adoption for private practices (Livingston, 2012; Lium, 2012). The study findings could inform policymakers and lead them to design evidence-based policy and program interventions to address slow EMR adoption challenges experienced by physicians in rural parts of Atlanta. This study

is expected to provide information to fill the gap about EMR adoption challenges by primary care physicians.

Problem Statement

The problem is that the slow pace of EMR adoption of primary care physicians in the Atlanta, Georgia area has become a public health concern (DesRoches et al., 2012). Research on the lived experiences of these physicians with EMR implementation and utilization could identify reasons for the slow adoption. Slow adoption could significantly increase healthcare costs, decrease health outcomes, and lead to compliance issues with MU EMR requirements (Kutscher, 2015; Lanham et al., 2012). Getting doctors on board with the new system is important to enable them to comply with the MU EMR requirements in order for primary care physicians to receive reimbursement for care. In the literature search, I found some qualitative studies that focused on barriers and challenges of EMR alone. DesRoches, Campbell, and Rao (2008) conducted a study where 4% of physicians reported having an extensive, fully functional electronic records system, and 13% reported having a basic system. Most of the articles were not very detailed and comprehensive on primary care physician standpoints. The lack of details about the perspectives of primary care physicians towards the adoption of EMR in the Atlanta, Georgia area and the physicians' sparse use of EMR was the primary rationale for this study (Wittie, Ngo-Metzger, Lebrun-Harris, 2016).

The attitudes of primary care physicians towards EMR adoption in the Atlanta, Georgia area is a rising concern for the modern-day health care organizations that tend to be recognized by policymakers and other stakeholders in their use of technology to

promote better care, improved outcomes, and reduced costs (Price et al., 2013; Moody et al., 2004). Many qualitative studies have addressed general problems of EMR adoption, but a lack of evidence on physicians' opinions persists (Jang et al., 2014; Masters, 2014). The positive social change problem of physicians' reluctance and undesired feelings towards the adoption of EMR in the Atlanta, Georgia area is overwhelming (Healthy People 2020; Belue et al., 2012). The possibility of associated outcomes that might devalue goals for developing EMR as one tool to reform health care delivery and improve health outcomes is evident (Healthy People 2020; Belue et al., 2012). The noncompliance of physicians towards EMR may reduce the ability of health care professionals to support positive social change, patient engagement, and population-based management (Wittie, Ngo-Metzger, & Lebrun-Harris, 2016).

Other related studies and articles determined that increased barriers to interoperability of clinical workflow persist; limiting EMR communication across a diverse set of mostly private providers or physician private office environment in the United States (Sisko et al., 2014; Appari et al., 2013). HIMSS Analytics (2015) acknowledged that the United States health care delivery system loses over \$25 billion annually due to poor analytics, physicians' reimbursement problems, and related delivery model issues by physicians. Thompson, Varvel and Sasinowski (2016) implied that federal legislation is known as a powerful stimulus for change to accelerate the pace of EMR, reduce per capita costs of health, and improve quality and experience of care in private settings. It is uncertain how federal legislation can reduce poor EMR adoption with over 40% failure rates in private medical facilities, which signifies a 15% decline of

patient care nationally (Thompson et al., 2016). Likewise, statistics showed that increased medical errors, which are prominent following physicians' reluctance about EMR adoption, affected performance evaluation and caused private health care organizations to lose an average of \$4 million in 2015 (Hoyt, 2015; Mahler et al., 2007). Poor EMR usage has led to inconsistent diagnoses, wrong treatments, and the physicians lack of interest in EMR systems (AHA, 2016).

Purpose of the Study

The purpose of this phenomenological study was to explore the lived experiences of primary care physicians, who practice in the Atlanta, Georgia area, regarding their perceptions of, successes in, barriers to, and urgency of adoption of EMR in their healthcare practice. Physicians who practice in two Grady Health System primary care offices—one in East Point, in rural Atlanta, and the other in Ponce de Leon, in urban Atlanta—were recruited to participate in the study. I sampled research participants until data saturation was achieved using semistructured interviews with open-ended questions. The primary care physicians in this population spent time between both the urban and rural practices, East Point and Ponce De Leon, which exposed them to both patient populations. Grady Health System primary care doctors provide complete inpatient and outpatient services.

The primary care physicians chosen for this study were at the forefront of all care coordinating roles. These primary care physicians managed common chronic illnesses, such as high blood pressure, high cholesterol, diabetes, and asthma in the inpatient sector. The primary care physicians and residents assisted in disease management, such as

healthy lifestyle counseling and routine follow-up care for chronic ailments. The expected social change implications of this study relating to healthcare cost, quality and access may involve the accessibility of patient EMRs by primary care physicians to learn about patients preexisting conditions.

In my literature search, I found a few scholarly articles that discussed the challenges of EMR adoption. although not specifically in the Grady Health System or in Atlanta, Georgia. Boonstra et al., (2014) and Berner et al. (2005) analyzed barriers perceived by physicians to the adoption of EMRs nationwide. DesRoches, Campbell, and Rao (2008) conducted a study where 4% of physicians reported having an extensive, fully functional electronic-records system, and 13% reported having a basic system. The lack of details about the perspectives of primary care physicians about the adoption of EMR in the Atlanta, Georgia area and the physicians' sparse use of EMR was the main rationale for this study (Wittie et al., 2016). Primary care physicians were selected because they are at the forefront of providing necessary comprehensive and continuing general health care services to patients; their influence can affect the perception of diverse teams in the organization (Taplin et al., 2013).

Research Questions

RQ1: What have been the lived experiences of primary care physicians regarding the adoption of an electronic medical record?

RQ2: What are the perceptions of primary care physicians regarding their successes or barriers regarding adoption of electronic medical records?

RQ3: What are the clinical priorities that have impacted physician adoption of EMR?

Theoretical Framework

The framework for this study was based on the Kurt Lewin's change theory, and Lewin's three-step model. It was much a significant part of managing change in the workplace in the 21st century and were used in this research project (Kritsonis, 2005). This change theory evolved in the 1940s, and the theory of "Unfreezing-Transition-Freezing" has been instrumental in health care performance improvement and quality standards (Bozak, 2003). The Lewin model was the epitome of a planned change theory and had helped the organizational growth of many health systems (Grant & Schmittiel, 2015). WellStar Health System is a five-star hospital with over 2000 beds in the Atlanta, Georgia area and has been known for its adoption of Lewin's change model in its clinical decision Support Unit (Wellstar, 2014). This model is very rational, planned and goal-oriented (Kritsonis, 2005; Sassen, 2009).

Organizational changes in the field of IT boast of various change models (Ridell, 2014). Lewin's theory presented an outline to help the researcher in visualizing, planning, and integrating the change model phases: unfreeze, transition, and freeze. Unfreeze disassembles the present mindset; the transition stage enhances new behaviors, while the freeze stage reinforces and reshapes the accepted change (Bozak, 2003).

The Electronic Medical Record Adoption Model (EMRAM) developed in 2005 by Healthcare Information and Management System Society (HIMSS) Analytics is presented as an approach that is used to operationalize Lewin's Change Theory. The

organization's purpose was to reflect how physician offices adopt IT infrastructures and paperless medical records (Hoyt, 2015).

The EMRAM model affirmed that this is a critical time for health IT. There are significant barriers to improving the adoption of EMR among primary care physicians in the Atlanta, Georgia area. Most of these drawbacks stem from the user experience. HIMSS Analytics' EMR Data will help the researcher explain and justify plans and initiatives (HIMSS Analytics, 2015; Anderson, 2014) for adopting EMR among primary care physicians in nonfederal acute care hospitals and physician offices. If institution-specific needs are identified, more specific interventions will be implemented for addressing it. EMRAM aids in the creation of authentic documentation and easy-to-use functionalities for accessing patients' clinical information (Anderson, 2014).

Nature of the Study

The paradigm in this study guided the researcher to explore to a high degree and keep the focus on how EMR usefulness can be efficiently maintained to the Atlanta, Georgia area. Qualitative methodology paradigms do not generate results but rather they direct researchers to suitable locations to seek answers (McMillan & Schmacher, 2009). This study centers on a phenomenological inquiry. Here, the researcher will utilize the phenomenological design to accomplish the examination of a phenomenon and the meaning it holds for those interviewed (Patton, 2002).

This research study included the use of semistructured interviews as the primary method to collect data. Thematic analysis was considered in this project and was used for encoding qualitative information and for categorizing the strategy. The best way to

conduct research is moving from the broader approach first (Moustakas, 1994). Informed by Patton (2002), this study assumed a streamlined approach to data collection using questionnaires. The 10 interview questions plus demographics were designed in simple English language, and the participants were interviewed in the English language also. Phenomenological studies are designed to identify individual perspectives, perceptions, and understanding of a situation (Leedy & Ormond, 2010). Conversely, quantitative models pursue a more targeted focus using specific questioning and unbiased analysis using statistical measurements (Pabst et al., 1996).

I used Colaizzi's seven-step descriptive phenomenological data analysis technique as employed by Seidman (2013) to document, extract, organize, and analyze the collected data. I also used NVivo II, a computer-assisted qualitative data analysis software to organize and analyze the collected data (Saranto & Kinnunen, 2013). Colaizzi's data analysis technique enabled me to elicit an exhaustive description of the phenomenon under investigation as described in Smit (2012).

Operational Definitions

In this section, I defined and elaborated on the meanings of the key terms and phrases frequently used in this study.

Clinical workflow analysis: According to HIMSS (2014), clinical workflow analysis or incompatibilities are favorable or unfavorable workflow changes that necessitate the need for system workarounds or the consequence of improper integration. The HITECH EMR incentive programs have been managed to drive EHR adoption. However, as more hospitals and practices have embraced HIT, the number of complaints

of poor usability, workflow disruptions, and decreased productivity has grown (CMS, 2016a). Thus, EMR systems have been one of the most important factors in bringing discussions of clinical workflow to the forefront. Of course, this does not mean that inefficient workflows did not exist before EMR systems, only that EMR systems provided sufficient contrast with known processes so that the differences became apparent.

Electronic Medical Record: HHS (2014) argues that EMR (EMR) systems, is "an electronic record of health-related information on an individual that can be created, gathered, managed, and consulted by authorized clinicians and staff within one health care organization (p.123)". EMR has the potential to provide substantial benefits to physicians, clinic practices, and health care organizations (CMS, 2016a). These systems can facilitate workflow and improve the quality of patient care and patient safety.

Health disparities: The term disparity in health care is often interpreted to mean racial/ethnic disparities (Healthy People 2020). In this study, health disparities according to the United States Department of Health and Human Services (2014) states that, "Health disparities are gaps in the quality of health and health care that mirror differences in SES, racial and ethnic background, and education level" (HHS, 2014, para 2).

Interoperability: For this manuscript, interoperability was defined by the Health Information Management Systems Society (2014) as the extent to which systems and devices can exchange data and interpret that shared data.

Meaningful use: CMS (2016a) maintained that MU is utilizing certified EMR (EMR) technology to: Improve quality, safety, efficiency, and reduce health disparities. Engage patients and family. Improve care coordination, and population and public health.

Office-based medical practices: Office-based medical practices are typically divided into single-specialty and multispecialty practices. The defining characteristic of single-specialty practice is the presence of two or more physicians providing patients with one specific type of care (i.e., primary care or a specific sub-specialty practice), while multi-specialty group practices are interpreted as offering various types of medical specialty care within one organization (Masters, 2014).

Primary Care Physicians (PCPs): According to the American Academy of Family Practice (2014), the term primary care physician is a specialist in Family Medicine, Internal Medicine or Pediatrics who provides definitive care to the undifferentiated patient at the point of the first contact (Hoyt, 2015; AAFP, 2014). This physician takes continuing responsibility for providing the patient's comprehensive care. This care may include chronic, preventive and acute care in both inpatient and outpatient settings (Hoyt, 2015; AAFP, 2014). Such a physician must be specifically trained to provide comprehensive primary care services through residency or fellowship training in acute and chronic care settings (Brunt & Bowblis, 2014; Khosrow-Pour, 2014).

Primary care practice: A primary care practice serves as the patient's first point of entry into the health care system and as the continuing focal point for all needed health care services (AAFP, 2014). Primary care practices provide patients with ready access to

their physician or to an established supporting physician when the main physician is not available (Harrington et al., 2013).

Socioeconomic Status (SES): SES is "a composite measure that typically incorporates economic, social, and works status. Income measures economics, social, education and occupation respectively" (CDC, 2015, para. 7).

Assumptions, Limitations, and Delimitations

The purpose of this phenomenological study was to explore the lived experiences of primary care physicians who practice in the Atlanta, Georgia area regarding their perceptions of, successes in, barriers to, and urgency of adoption of EMR in their healthcare practice. Three assumptions were made about the scope of the study and the interview process: The participants would be willing to be interviewed and maintain confidentiality to provide accurate information for the study. The participants would tell the truth and not just say what they thought the researcher wanted to hear. The PCPs shared a personal experience with EMR and provided their perspectives without bias.

Scope of the Study

According to Kirkwood and Price (2013), the scope of study provides for the boundaries of the study. The central focus was to explore the lived experiences of primary care physicians, who practice in the Atlanta, Georgia area regarding their perceptions of, successes in, barriers to, and urgency of adoption of EMR in their healthcare practice. The proposed study included male and female physicians with experience in office-based medical practices in the Atlanta, Georgia area. Primary care physicians in office-based settings had experience of the workflow and pace regarding

the challenges and rigors of practicing in a busy office. The interviews were set to take 30–45 minutes and gather information about the lived experiences of the participants and EMR adoption.

Limitations

This study was limited in three ways. First, this qualitative study was limited only to two physician practices at the Atlanta area. The physicians are employees of two medical offices used as the research sites, belonging to Grady hospital. Secondly, these physicians did not represent all physicians in the “Atlanta, Georgia area,” which does not allow the research results to be generalized.

Delimitations

Sturmberg et al. (2014) defined delimitations as rules created by the researcher for a study to ensure boundaries are kept. The first delimitation was that publicly available documents, including peer-reviewed studies and the gray literature, could be used as sources for analysis. The second delimitation was that programs related to a health topic or known social determinants of health would be included. The third delimitation was that only English speakers would be included. The fourth delimitation was that the participants, physicians, would be practicing in the two clinics of the Grady Health System.

Significance of the Study

This qualitative study was useful in implementing EMR that would (a) improve the efficiency and quality of care for patients with chronic illnesses, (b) reduce readmissions, and (c) save time and costs. The EMRs assist in the coordination of the

care process. This study sought to enhance the knowledge of EMR adoption issues and address the perspectives of primary care physicians about EMR adoption in the Atlanta, Georgia area. Such understanding may, in turn, lead to the building of sustainable and profitable compliance strategies to meet patients' needs (Harrington, Kennerly, & Johnson, 2013). These efforts could ease some of the challenges affecting the health care system in the Atlanta, Georgia area. This study could also lead to the design and development of evidence-based policy and program interventions tailored to the needs of primary care physicians in office setting.

This dissertation research may fill a gap in EMR adoption by addressing the point that the care of complex patients may be improved by reducing incorrect diagnoses or delays in diagnosis; EMR adoption may lower costs due to improved quality of care in the Atlanta, Georgia area.

Implications for Social Change and Generalizability

This study has implications for social change. They involve the accessibility of patient EMRs by primary care physicians so that they could learn about patients' pre-existing conditions and thus make an informed decision about the best treatment. The study sought to provide insights to learn the EMR adoption challenges experienced by primary care physicians in the Atlanta, Georgia area.

The findings from this study could be disseminated to explain how primary care physicians perhaps help in finding similar perceptions elsewhere, thereby detecting a larger pattern. Other social change implications include the following: (a) improved efficiency and quality of care for patients with chronic illness; (b) improved quality of

care, reduced readmissions, and improved patient health could reduce costs by millions of dollars for a health care system's fully integrated EMR (Kasthurirathne et al., 2015). This knowledge may create chances for future research in other parts of United States by investigators interested in studying the perspectives of primary care physicians about EMR adoption.

Summary

The extent to which EMR adoption enhances patient safety cannot be over-emphasized. Despite being a vital component of a multi-billion-dollar health care business, EMR adoption in the Atlanta, Georgia area is believed to experience slow adoption by physicians. Despite, the fact that EMR is known to reduce medical errors and improve patient satisfaction, most primary care physicians do not participate in the adoption of EMR. This phenomenological study set out to explore the beliefs of primary care physicians and to provide study participants an opportunity to express their perceptions about EMR adoption.

Chapter 2 will present a detailed review of various research findings of physicians' perspectives towards EMR adoption. Chapter 2 will highlight the current literature gap on EMR adoption by primary care physicians. An exhaustive search of the literature yielded discussions about EMR adoption by physicians, Lewin's change theory, organizational behaviors, and government regulations on the MU and health care improvements through EMRs.

Chapter 2: Literature Review

Introduction

The purpose of this phenomenological study was to explore the lived experiences of primary care physicians, who practice in the Atlanta, Georgia area regarding their perception, successes, barriers, and urgency of adoption of EMR in their healthcare practice. I developed the roadmap that led to the fundamental factors or overview before presenting the structure, shape, and gap in the study. Despite ubiquitous technological headway in electronic or digital media through the enactment of HITECH Act and ARRA designed to provide improved quality and cost-efficient health care by using an EMR, 60% of physician offices exchange reports transmitted through a health information exchange, whereas a 40% exchange rate exists among clinical care summaries (Yin, 2014). In 2014 alone, the federal government provided approximately \$600 million to assist in the development of essential financial resources for IT infrastructure to registered health information technology vendors (Smith et al., 2015). In 2009, President Obama pledged more than \$50 billion to be used for health IT between 2009 and 2014 (Decker et al., 2014). Another \$20 billion was set apart for the 2009 economic stimulus package in the ARRA to assist providers making the initial push (Gregg, 2013).

The Department of Health and Human Services (HHS), in addressing the MU objectives, maintained that primary care physicians need assistance in meeting the MU criteria after the 2015 attestation deadline (Kutscher, 2015). HHS and the CMS further addressed MU by making the objectives a part of its ongoing accreditation process. By developing such initiatives and examining additional opportunities, more options, such as

using features that satisfy stages of “MU” standards and monetary incentives, became available to assist physicians who meet the MU criteria (Grant & Schmittiel, 2015).

EMR as Innovation to Federal Government

Federal government leaders have an interest in the quality and efficiency of health care delivery and health care quality, as evidenced by federal health care legislative endeavors. For the majority of the 20th century, up to 69% of primary care physicians nationally used paper medical records to document patients’ medical information (Kutscher, 2015). Government stakeholders believed that EMRs are a benefit for physicians in private office -settings in managing patient care (Cherico, 2016). Looking up information, delivering results, and using electronic prescriptions are valued functions for EMR systems (Gregg, 2013). Delays occur when clinical information is not readily available. Along with systemic delays associated with prolonged processing time from physicians entering information (Charles, Gabriel, & Searcy, 2015; Zandich, 2008). Surveys from organizations such as the American Hospital Association are suitable for determining adoption rates after the HITECH and ARRA passed new laws regarding adoption. The adoption of basic or comprehensive electronic records increased from 17.7% in 2012 to 31.9% in 2014 (AHA, 2016). The communities in Atlanta, Georgia rely on the private clinics as critical components of the region's economic and social fabric, which is why medial data and the use of EMR systems has to work well for all involved. These physicians’ clinics are typically great employers in Atlanta, Georgia area (Kustcher, 2015).

The legislation did not affect all who practice medicine. Eligible physicians under ARRA include Doctor of medicine, osteopathy, and dental surgery, as well as podiatrists, optometrists, chiropractors, and physician assistants. The legislation excluded hospital-based professions such as pathologists, emergency room physicians, and anesthesiologists.

External factors affect the rate of EMR adoption. Despite the external factors designed to influence adoption, such as pay-for-performance programs, government agencies such as the CMS, outside vendors, and government legislation, declared that such factors might not translate into swifter or more effective rates of adoption (Kenneally et al., 2013). In response to this problem, federal health IT policy makers focused on promoting technical interoperability, privacy, and security (Lium, 2012). The 18 requirements of the ARRA that health care providers must earn EMR certification before 2015 enhanced the technology adoption dilemma (ARRA, 2014a). Reports from the Joint Commission (2015) suggested that if the problem of EMR adoption continues, Medicare and Medicaid costs could represent 25% of the U.S. economy by 2050.

Literature Search Strategy

This section discusses the literature search strategy. A description of databases and search engines is followed by a list of search terms and publication dates and types. The theoretical foundation included the Lewin's model of change. An extensive review of the literature presented an overview and necessary detailed information in relevant areas of EMR adoption.

I searched, gathered, and reviewed germinal and current literature relevant to the study problem regarding adoption of EMR by primary care physicians in the Atlanta, Georgia area. For this study, 79% of the references were from 2012 to 2017. This is an avenue to lay out the current state of research in the researcher's field. I assessed peer-reviewed journal articles, information from government agencies, and private and non-profit foundations' official websites. I reviewed other related publications, including conference papers on EMR adoption, EMR system functionalities, IT access in healthcare, barriers to EMR adoption, the physicians' standpoint, and new regulations concerning EMR adoption deadline. I used the following databases: MEDLINE with full text, PubMed, ProQuest Central, and ProQuest Health and Medical Complete.

I referenced old sources to emphasize the progress in the EMR adoption prior to the 2015 deadline and the move to new 2018 EMR adoption period in the history of the United States health care delivery system. The 2015 deadline is a requirement within the ARRA) that health care providers must earn EMR certification before 2015 (ARRA, 2014a). The new 2018 EMR adoption deadline is an extension of the prior period in 2015 due to delays of health care providers to obtain EMR certification (ARRA, 2015). Fewer studies are available focusing on EMR adoption with reference to physicians' perspectives in the Atlanta, Georgia area. I primarily reviewed studies on EMR adoption relating to all health care professionals and the patient population who share similar characteristics and contributed their insights. I tried to couple these terms in various combinations around the concept of physicians' adoption of EMR. This concept is not a theory but a better approach to finding peer-reviewed articles. The digital, as well as print

versions of literature were obtained for review. Table 1 lists the strategy used in the literature review for this study.

Table 1

Strategy Used in Literature Review

Topic	Search terms	Databases and Journals
The advancement of EMR	Keyword used in the search were “EMR AND	Academic search complete database (87) articles
Adoption of EMR in Georgia State, rural parts of Atlanta.	Adoption”, “Perception AND EMR”, “EMR AND Atlanta, Georgia State”,	ProQuest central (28) articles
Barriers of EMR	“Qualitative” “Rural Clinics” Electronic Medical Record system functionalities,	Walden University database (102) articles.
Federal government health care initiatives and decrees	technical issues, non-compliance with standards of practice, physicians’ attitude	PubMed (145) articles
Meaningful use standards.	The Health Information Technology for Economic and Health Act (HITECH), American Recovery and	
Lewin’s change leadership model	Reinvestment Act (ARRA), Health Information Portability and	A comprehensive search of PubMed, ProQuest, ERIC
Primary care physicians in remote Atlanta communities,	Accountability Act (HIPAA) Health services leadership, leadership training, leadership characteristics,	Google Scholar (170) articles
Future of EMR	barriers to leadership and leadership styles	Medline (36) articles
	new regulations concerning EMR adoption deadline, physician standpoint, EMR training and retention, paperless medical records,	ProQuest Health (48) articles

Kurt Lewin's Change Model

Lewin's model of change is the theoretical framework I used in this study. Kurt Lewin (1890 – 1947), a Gestalt social psychologist, has been acknowledged as the “father of social change theories” since several contemporary models are at least loosely based on Lewin's work. He is lauded as the originator of social psychology, action research, as well as organizational development. Lewin's theory is relevant to the complexity of EMR implementation. Lewin's model is designed to assist physicians to realize the importance of the quest for change and transition through the change process (Aday & Andersen, 1974). Variations in the healthcare environment and government regulations are forcing healthcare organizations to implement EMR by 2015 (Noah, 2011; Kaminski, 2011). The Lewin's Change Model is beneficial to healthcare organizations in handling challenges in the evolving health care.

Lewin's force field analysis model is gainful in evaluating, supporting and restraining forces during the change procedure (Bradbury-Jones, Taylor & Herber, 2014). The driving force embraces the change process and helps the organization to realize the goal whereas the restraining forces impede the change process (Kaminski, 2011). The state of equilibrium must be avoided for change to be effective. The state of equilibrium occurs when both forces are running simultaneously or at the same pace (Sassen, 2009). For change to be affected, the driving force must outweigh and be more significant than the restraining force. Lewin's theoretical framework provides formidable method to improve technological systems (Bozak, 2003).

Lewin's model assumes that the perceived benefits influence the healthcare organizations as well as the patients receiving care (Green, 2014). Exploring the predisposing factors of health beliefs as constructed in the model can help explain how willing recent physician perspectives have affected the adoption of EMR. The LCM may be used to explain primary care physicians' perspectives towards the adoption of EMR. The model consists of several constructs to understand why physicians' adoption of EMR is on the decrease. The physicians' challenges in meeting or complying with the required MU standards are understandable with the use of Lewin's change model (Hsiao et al., 2015). Lewin's model portrayed the need for rapid EMR adoption (Menke et al., 2001; Turisco & Rhoads, 2008). Lewin's Change Model has four essential factors; perceived susceptibility, perceived severity, perceived benefits and perceived barriers with cues to action and self-efficacy (Jang et al., 2014).

Lewin's Change Management Theory and its Application

In every part of this research study, there is an emphasis on the discussion concerning the standpoint and perspectives of primary care physicians in the Atlanta, Georgia area as it relates to the adoption of EMR. In the ensuing discussion, I will focus on Lewin's Force Field Analysis model consisting of three steps namely; unfreeze, change and refreeze, to buttress the implementation of this research study (Xierali, Philip, & Paul, 2013). Unfreezing stage involves challenging the beliefs, values, attitudes, and behaviors of physicians to accept that change is necessary and building a new way of operating (Bozak, 2003). The best technique to achieve the objectives of this step is the identification of the driving and suppressing factors or forces in the physician practice or

organization (Bozak, 2003). The change stage, called the change curve, involves helping primary care physicians focus on issues of personal transitioning and understand how the changes will benefit them (Bozak, 2003). The refreezing stage is essential for consistency and stabilization of the change to EMR usage (Bozak, 2003). The refreezing stage helps the physicians', or the organization internalizes or institutionalizes the changes.

Interactions and collaborations with staff or management are very effective way for the physician to gather much-required information concerning the matter (Xierali, Philip & Paul, 2013). Studies have shown that the use of the Lewin's change model is very useful in understanding the adverse effects of EMR adoption by physicians. A study conducted by Green (2014), describes the knowledge and beliefs about the slow adoption of EMR and its potential risks and challenges in prevention, among physicians. This study demonstrated that primary care physicians were less concerned about the adoption stages of functional EMR and were less likely to participate or engage in seminars or programs to improve EMR efficiency (Gregg, 2013).

Lewin's Change Management Theory Versus the EMRAM Model

The Lewin's change model is simplified, and the model shifted from focusing on change management to social psychology and organizational development to offering structured approaches that enable healthcare providers to evaluate the importance of change, and transition through the modification processes required to reach the optimal goal in building for the widespread adoption of EMRs with particular attention to remote populations (Golberg, 2012). The refined LCM model distinguished between measures of potential and realized access towards EMR adoption.

The EMRAM is an additional theoretical framework that could be applied to this study. However, the processes appeared convoluted than Lewin's Change Theory. EMRAM is an eight-step process that allows the researcher to analyze an organization's level of EMR adoption, chart the organization's accomplishments, and track the progress of the organization against other healthcare agencies across the country (HIMSS Analytics, 2015). Following criticisms of failure to take into consideration all the relevant social networks and related issues, the EMRAM framework has not been refined to accommodate changing needs in the health services field (Bernard, 2013).

The Lewin's change model also accommodates environmental factors and provider-related influences, health behavior, health outcomes and concepts of equity, efficiency, and effectiveness (Pynn, 2015; Golberg et al., 2012). The changes Lewin's change model has undergone over the years have addressed many of the problematic concerns it faced earlier; making it one of the most suitable models available for studying changes in healthcare technology and use.

Several approaches for studying changes to EMR technology adoption, access to, and use of health care services exist, including the sociocultural impact of electronic documentation (Blumenthal & Collins, 2014). Lewin's Change Model is not only relevant to the conceptualization of the study phenomenon but is a commonly used framework for studies focusing on understanding change management of health care services as it relates to technology (HIPAA, 2017; Anderson, 2014). This study seeks to understand the perspectives of primary care physicians in the adoption of the EMR services in the Atlanta, Georgia area. The concept of predisposing, enabling and need

factors is relevant to understanding the perspectives of primary care physicians towards the adoption of the EMR. To ensure that the features and functionality of EMRs in the Atlanta, Georgia area are certified to enable MU, the Lewin's Change Model will be the focus.

The Meaningful-Use Standard in the U.S. Healthcare

MU, in a health information technology (HIT) context, defines minimum U.S. government standards for using EMR and for exchanging patient clinical data between healthcare providers, between health care providers and insurers, and between healthcare providers and patients (HITECH, 2011). Its rules, known as MU measures or MU criteria, determine whether a healthcare provider may receive federal funds from the Medicare EMR Incentive Program (HIPAA, 2017). HITECH stipulated that, beginning in 2011. Healthcare providers would be offered financial incentives for demonstrating *meaningful use* of EMRs until 2015, after which time penalties may be levied for failing to demonstrate such use (HITECH, 2011). Healthcare organizations are required to go through a process of meaningful use attestation for compliance and governance paperwork, to prove they have completed the stage requirements and are eligible for reimbursements. Organizations that do not attest to time will incur penalties (HIPAA, 2017). Some organizations have chosen to opt-out of the program at stages 2 and 3 because of lack of progress on meeting the requirements or lack of budget to complete the hospitals EMR (ARRA, 2014a).

In meeting the MU standards, the EMR program has been successful in installing standardized technologies in millions of healthcare organizations (Gregg, 2013).

Executing the technology-led transformation also requires that physicians use EMR in standardized ways. This step of the program is proving difficult (Green, 2014). CMS defined MU standards to ensure that all data are entered in the EMR or the national health information exchange, are accurate and reliable (CMS, 2016a). Healthcare organizations must comply with a new stage of MU each year (Mutula, 2014). In early stages, compliance means using EMR for record-keeping (e.g., visit notes and patient demographic information) and administrative (e.g., billing and payments) functions (Gregg, 2013). Physician offices must consult general reference materials and guidelines based on the best available evidence from the Center for Medicare and Medicaid Services (Blumenthal et al., 2014).

The required features in late stages of MU are more prescriptive than they are supportive (Cherico, 2016). Some features interrupt physicians' use of the EMR to display messages that remind physicians of error especially, on how to order exams (Schwann et al., 2012). Alerts and reminders appear in pop-up style windows. Some features are difficult to analyze, external medical research data and an organization's own EMR needed to provide care recommendations (Ash et al., 2012). According to the HITECH Act, physicians must progress through four stages of MU and ultimately make decisions based on the outputs of such features; if they do not, they are fined (Buell, 2012). The program is in jeopardy. CMS postponed deadlines until 2018 for late-stage MU compliance, citing physicians' difficulty in implementing advanced, prescriptive EMR functionalities in areas (Cherico, 2016; CMS, 2016b). This study will seek to

understand how and why this delay occurred by exploring the perspectives of physicians to adopt EMR in the Atlanta, Georgia area.

The primary care physicians' perspective towards the adoption of EMRs is among the health challenges experienced by the health care delivery system in the Atlanta, Georgia area (Decker et al., 2014). The patient population in the Atlanta, Georgia area such as Whites, Blacks, and Latino Americans experience adverse health outcomes attributed to the use of paper records by primary care physicians in private medical offices (HHS, 2015; Smith et al., 2015). The priority on EMR emphasized the existence of the relationship between digital media and health care improvement practices (Green, 2014). Basic use of the EMR was anticipated to improve the legibility and accessibility of physician progress notes, patient medication, and allergies, and correct billing and reimbursement documentation in physician office-setting (HHS, 2015; JHIM, 2013).

Despite the CMS (CMS, 2016b) projection that \$35.5 billion will be paid from 2011 – 2022 to eligible providers who adopt EMR technology, adoption of EMR fails to keep the pace in the Atlanta, Georgia area. Approximately 81 percent of physicians in the Atlanta, Georgia area had no plans to adopt an EMR when surveyed in November 2015 (American Academy of Family Physicians [AAFP], 2016). Some primary care physicians suggested that electronic records adoption and the concept of reducing costs and quality are relatively new and in transition (Frels & Onwuegbuzie, 2012). This issue emphasized the reluctance of many physicians in the Atlanta, Georgia area, towards adoption after the 2015 deadline. The challenge of getting doctors on board with the new system is eminent

(McHugh, 2014). Currently, the focus is on working through functionality and design issues in the physician office-settings as suggested by (Seidman, 2014).

Importance of Meaningful Use in the Physician Office Setting

A 2005 RAND study estimated that the health care industry could save \$142 billion to \$371 billion annually in the United States through adopting interoperable electronic records (Wittie, Ngo-Metzger & Lebrun-Harris, 2016). Whether the physician is implementing a new EMR or replacing an existing EMR to help the health care practice move from Stage 1 MU (MU1) to Stage 2 MU (MU2), or implementing new models of care, the five essential factors discussed in the Lewin's Change model serve as catalysts for achieving success (DesRoches et al., 2015). The quality of care is of high importance in health care (Kutscher, 2016; Earl., 2015). The transition to EMR adoption is a performance improvement objective that enhances the chances of quality in the care continuum (CMS, 2016; Pfortmiller, Mustain, Lowry, & Wilhoit, 2011). Changes in the technology platform involve technological changes throughout the organization (Sisko et al., 2014). The provision of EMR fosters patient safety, ethical practice, and proficient physician practice.

Physicians' Business Behavior

Ethical perceptions of an organization should resonate loudly in the mission, vision, and values of the organization. Physicians' establishment and maintenance of relationships with patients and stakeholders promote goodwill and trust (Plummer et al., 2014). Inefficiencies in operations can decrease an organization's adaptability in changing environments and are considered as counter-productive sustainability measures

(Richardson, 2016). Inefficiency in communication between providers adds to wasted funds and a decrease in quality (May et al., 2014).

The EMR system entails both technical and behavioral pattern (Kelley, Brandon, & Docherty, 2011). Most physician practices are yet to use basic EMR for diagnosis and treatment (Green, 2014). Paper documentation or short physician note is common among physicians in the rural Atlanta communities (Kelley et al., 2011). Most physicians are reluctant to change, and this increases the challenges of EMR adoption (Bozak, 2003). Vest and Guam (2011) reported that physicians could spend over 30 minutes charting for every two hours involved in patient care. Another study maintained that nurses, pharmacists, and other clinicians spend over two hours of their shift manually documenting paperwork (Poissant et al., 2005).

Leaders of organizations must accept and assume the expected responsibility for collaborative change in building the organizational skill set to meet the evolving demands in a complex environment (Taplin, Foster, & Shortell, 2013). According to some literatures, many physicians acknowledged that illegible documentation on notes lead to inaccurate interpretation of clinical findings (Smith & Smith, 2015).

Benefits of Electronic Medical Record

EMR can address complex clinical workflow challenges (Hoyt, 2015; Smith et al., 2013). According to Turisco and Rhoads (2008), new EMR systems produce error alerts and attributes that serve as “electronic helping hands” and assist physicians in ensuring best care processes (p.19). Redundancies related to documentation are reduced up to 98.9% by EMR safety features and foster rapid clinical data retrieval (Turisco & Rhoads,

2008). EMR functionalities improve patient safety culture, better transitions of care and these testimonies are used to further improve the IT systems in health care to strengthen interdisciplinary care where multiple health care providers can access the same information or record simultaneously.

Various studies showed that successful adoption of EMR could reduce medication errors and enhance the quality and safety of patient outcomes (Thompson, Varvel, & Sasinowski, 2016; Whittaker et al., 2009). Studies by State of Georgia Public Health Department showed that in 2014, 72% of physicians using EMR in the State of Georgia disclosed better job satisfaction, rapid patient recovery, high production input on the part of the physicians and overall, improvement in the health care delivery system (Georgia State Public Health Department, 2015). The benefits of EMR are imminent in the State of Georgia and the adoption of EMR in private practices undergoes severe challenges in the Atlanta, Georgia area (Wellstar, 2015).

In discussing the Health Information Exchange, health care providers are increasingly sharing clinical data with other providers who care for the same patient by using electronic Health Information Exchange (HIE) (Shield, 2016). In the United States, more than 100 organizations facilitate HIEs among provider organizations, and 30% of hospitals and 10% of ambulatory clinics participate (Rudin et al., 2014).

Further, in exploring Electronic prescribing, a 2011 American Medical Association (AMA) survey of electronic prescribing (eRx) indicated that 22% of physicians used an eRx program. For those who operated an eRx program, 63% used the functionality through an EMR system, 17% used an Internet-based system, and 16% used

stand-alone eRx software (Creswell et al., 2013). The respondents listed the benefits of eRx as reduced risk of medical errors, efficient workflow for physicians, and abridged refill requests and authorizations (Creswell et al., 2013).

Reduction of Medication-Related Error

Previous literature emphasized physicians' perspectives of EMR as a benefit, improving the quality of care depending on the software system, its set-up, implementation, use, and maintenance (Sturmberg & Lanham, 2014). In an AHIMA 2014 survey, forty-eight distinct factors were identified that influenced EMR success based on physician feedback. Overall, 22/43 studies (51.2%) and 50/109 physician measures (45.9%) showed positive impacts, 18.6% of studies and 18.3% of measures had negative impacts, while the remaining did not affect (Earl, 2015). For instance, systems with triggers or detecting features generate alerts whenever a risk or noncompliance is indicated, and these have been supportive measures to many physicians in the care process (Thompson, Varvel, & Sasinowski, 2016). Various EMR systems have programmable infrastructures in place that audits medication routines or raise queries to inform staff of missed medication (Kulhanek 2011). A cohesive pharmacy database to input medications can trigger monitors to allergies, side effects, drug interactions (Rudin et al., 2012).

Independent EMR Infrastructures

The separate units or composition of EMR are appropriate for storing documents, scheduling, health assessment documentation, prescription writing, billing and accessing lab and diagnostic imaging results (Decker et al., 2014). The EMR has various

infrastructures necessary for hospital or medical office discharge archive; laboratory results, performance improvement reporting and clinical decision support (Charles, Gabriel & Searcy, 2015). VistA program is a modern EMR infrastructure utilized by the Veterans Affairs Hospital system in the Atlanta, Georgia area which has been beneficial to physicians (Earl, 2015). Most of the vendors such as EpicCare, Inc., using old platforms called MUMPS, created access to reliable EMR infrastructures to enable physicians in promoting the adoption of electronic documentation (Charles, Gabriel & Searcy, 2015). Health Management Organizations (HMOs) in the Atlanta, Georgia area are utilizing these systems which over time have moved from highly efficient coupled systems to more independent and portable interoperable systems to enhance EMR adoption (Earl., 2015).

Barriers to EMR Adoption in Practice Medical Settings

EMRs are an innovative improvement to existing processes, and this innovation and ongoing implementation process will involve an attempt to address the barriers relating to health care quality, increasing costs, and decreasing medical errors (Hoyt, 2015; Pynn, 2015). Researchers of existing studies examined implementation level of EMR by physicians in the districts of Atlanta, Georgia and found out that common reasons limiting the adoption of EMR in private practices include not having the following: robust EMR features that support clinical use (Siedman, 2014). This study concurs with the few above-stated reasons. However, there are needs for in-depth studies for undisclosed findings surrounding physicians' perceptions on EMR adoption in the Atlanta, Georgia area. The gap between urban and rural private clinics could have

significant consequences for the quality of care for all Americans (Riddel et al., 2014; Ajami & Arab-Chadegani, 2013).

Financial Complexities

The major barrier to adoption of the EMR's system, as identified by some studies, was a misalignment of cost and benefits or financial reimbursement. Lorence, Sivaramakrishnan, and Richards (2013) investigated the effects of primary care physician resistance towards EMR adoption. The economic cost of implementing EMRs monthly in most health care facilities depending on the size ranges from \$20,000 to \$45,000 per physician (Lorence et al. 2013). Despite the intent of government incentives in support of IT adoption by physicians, the incentives alone may not help sustain operations. For example, smaller practices sustained \$174,000 to \$296,000 in costs annually, which exceeded the incentive payments (Skinner, 2013). Some practices incurred additional costs (in the form of decreased revenue) from seeing fewer patients during the EMR transition period. Financial benefits varied from none in practices that made few work practice changes and retained paper processes to more than \$20,000 per physician per year in the few practices that eliminated most paper processes (Ajami et al. 2013; Lorence et al. 2013). Many researchers shared a common knowledge that embracing digital media is the avenue to reduce medical errors in healthcare (Price, Singer, & Kim, 2013; Harrington, Kennelly, & Johnson, 2013).

In agreement to the cost issue and physician standpoint, a recent study, conducted in 2015 by the Healthcare Financial Management Association (HFMA), surveyed senior healthcare finance executives at private medical offices of various sizes and regions. The

purpose was to identify how healthcare financial executives view the barriers to the EMR's adoption and the actions government can take to encourage adoption. Based on the 176 responses, the functions in which the greatest number of private clinics reported significant progress were interoperability issues, results in management, electronic health information/data capture, and lack of national information standards and code sets all were recorded below 35% whereas the two most significant barriers were lack of available funding at 58% and concern about physicians at 65% (Ajami & Bagheri-Tadi, 2013).

Interoperability Issues

The health care industry is a dynamic industry and the largest employer in the United States. It comprises approximately 17% of the U.S. GDP (May et al., 2014). Despite its effect on the U.S. GDP, the lack of effective technology adoption is challenging. These physicians reported EMRs to be challenging due to a multiplicity of screens and safety triggers or alerts (Hoyt, 2015; Academy of Nutrition and Dietetics, 2014). Poor data exchange frustrates the physicians and the only solution when no technical professional is on-site is to resolve to a paper system, and this increases physician resistance to EMR adoption (Cherico, 2016). Most times, the EMR systems due to poor networking conditions may shut down or develop technical difficulties in the middle of clinical documentation and reporting making it difficult for the physician to complete the procedure of care (Cherico, 2016; Kustcher, 2013; Alqurani et al., 2012).

In synthesizing studies related to the key concepts and/or phenomena under investigation to produce a description of what is known about them, what is

controversial, and what remains to be studied, many researchers clearly stated as what is known that the EMR, popularly in physicians' offices, and the EHR, maintained by provider, are harmonious and compatible technologies (Seidman, 2014). The study, *Drug Adverse Events and Electronic Medical Records* (2015) were congruent with other investigations that showed both technologies work hand in hand to ensure added advantage and convenience.

Acceptance of New Vendors and Technology

Technological change can also affect physician's attention and perceptions towards the care process (Hoyt, 2015; Journal of Health Information Management, 2013; Price et al., 2013). Many vendors are making EMR easy-to-use technology; some physicians reported inadequate electronic data exchange between the EMR and the conglomeration of clinical data systems, such as lab and radiology (Mutula et al. 2015; HHS, 2015). Doctors are reluctant to new technologies due to presumptions that it may obstruct their traditional method of discharging their job responsibilities (Shield, 2016; Price et al., 2013).

The introduction of EMR may install or induce negative feelings or attitudes of most physicians in the practice settings especially, the elderly physicians who are susceptible to paper records (Mutula, 2014). These changes may cause physicians to develop feelings such as fear, anxiety, anger, resentment, confusion, exhaustion, and irritability (HHS, 2015; Price, Singer & Kim, 2013). These restraining forces may affect the physician's desire to implement EMR in the Atlanta, Georgia area (Earl, 2015; Harrington et al., 2013). In many research findings, other issues that may affect EMR

adoption or implementation are not limited to; the cost of selecting and adopting EMR systems, lack of infrastructure to support computerized documentation, acceptance of new technology, time to adequately train and provide ongoing technical support for employees and problems with computer equipment (Thompson, Varvel, Sasinowski, 2016; Wittie et al., 2016). Prior studies examined the effectiveness of EMR, but none has specified the perspectives of physicians in moving slowly to adopt the EMR. Most of the focus has been on the devaluation of paper records as this increases the chance of medical errors (Xerali et al., 2015; Hoyt, 2015; Wolf et al., 2011). Lewin's change process is reliable for policymakers and stakeholders in finding solutions to the barriers.

Socioeconomic Factor

The study findings of Appari, Johnson and Anthony (2013) were congruent with other investigations which showed that socioeconomic status and the constituting elements are classified as determinants of health in this computer age and are factors recognized for their relationship to the adoption of EMR in the Atlanta, Georgia area. Examples of socioeconomic factors contributing to the advancement of IT according to some physician studies are health care quality and performance improvement, correct diagnosis, right treatment and access to healthcare (Anderson, 2014). Due to evolving technological challenges in health care, physicians should be well-equipped to resolve complex health care problems and provide the best care for their patients. Researchers posted a direct relationship between socioeconomic factors and health outcomes (Decker, Jamoom & Sisk, 2013). Recent health reform efforts include opportunities for improved

and coordinated medical care for many segments of the Atlanta, Georgia population at risk of adopting and utilizing the EMR (Jamoom et al., 2012).

Prior studies examined the effectiveness of EMR; none has specified the perspectives of physicians in moving slowly to adopt the EMR. Most of the focus has been on the devaluation of paper records as this increases the chance of medical errors (Xerali et al., 2015; Hoyt, 2015; Wolf et al., 2011). Prior research on the EMR had largely focused on technical issues but rarely on adoption issues (Anderson, 2014). Such oversight prevented a better understanding of physicians' resistance to new technologies and the antecedents of technology rejection.

History of EMR in the Atlanta, Georgia Area

The vision of documenting patient medical history electronically was initiated in the 1960s by Larry Weed who created strategies for incorporating comprehensive EMR into medical practice (Banner & Olney, 2009). Weed's innovation brought the idea of making EMR accessible to other stakeholders in the health care business (Jamoom et al., 2012). Weed's ingenuity was recognized as a breakthrough in the medical practice although many physicians were reluctant to the technology. The Institute of Medicine brought EMR to the limelight in 1991 after recommending the adoption of EMR by every physician in the year 2000 and developed strategic plans on how to attain that goal (Price et al., 2013).

In the Atlanta, Georgia area, physicians who adopted EMR use it for recording medical interactions with patients to enable the physicians to make sound and accurate judgment in the care process (Brunt et al., 2014). In 2014, studies reported EMR adoption

rate at 55% in small physician medical offices (Wellstar, 2015). The EMR adoption still experiences a gradual take off in the Atlanta, Georgia area (Boulos, et al., 2014; Boyd & Price, 2012).

EMR Implementation Barriers in the Atlanta, Georgia Area

Researchers at the Healthcare Information and Management Systems Society reported that 87% of primary care physicians surveyed in 2012 were planning to implement or had implemented an EMR system (HIMSS, 2015). This survey reported a lack of physician support and the complexity of meeting the MU criteria within the required time frames as a barrier for physicians in the Atlanta, Georgia area (Kenneally et al., 2013). There is paucity in the kinds of literature examining physician perspectives towards the adoption of EMR in the Atlanta, Georgia area. Previous studies demonstrated that non-adherence to EMR adoption explained the incongruity experienced in the US fragmented healthcare system (HHS, 2015; Hoyt, 2015; Ash et al., 2012). The glaring gap depicts that the physicians' standpoint in EMR adoption is unknown in the Atlanta, Georgia area. This research project will focus primarily on the perspective of physicians towards the adoption of EMR in the Atlanta, Georgia area as it affects the possibilities of receiving needed health care.

Adoption strategies vary depending on the size and organizational structure of the small physician practice (Boonstra et al., 2014). Some key issues and concerns associated with the adoption and use of EMRs are physician participation, administrative workflow changes, ethical dilemmas, security, training, and sustainability (Riddell et al., 2014). Successful implementation improves with the full involvement and the leadership of

physicians in organizational quality and financial goals (Brunt et al., 2014). Changes in the market necessitate a revision of current management strategic planning, philosophy, and communicating those changes (Brunt et al., 2014, Oroviogocoechea et al., 2010).

Sustainability Practices

The direction and activities that organizational leaders take to ensure survival represent an organization's strategic choice (Jalongo, 2013). A theory of building an organizational skill set may help to meet the evolving demands of competition (Hsiao et al., 2014). The Lewin's Change model involves the direction and activities the leaders of an organization take to achieve sustainability (Mutula, 2014). This model, based on the assumption of consistently regulated actions, secures a competitive advantage in each market. An autocratic style of planning provides a basis for leadership's vision of how an organization can best meet its mission.

A focus of the Lewin's Change model is the strength of the individual to forecast a set long-term vision of milestones (Gregg, 2014). The strategic choice method does not stress leveraging creative collaborations from internal resources. The health care industry is evolving from a transactional environment to an outcome-based economy (Blumenthal et al., 2015). A complex internal environment in an organization reflects Burnes's (2005) concern about the dynamic and nonlinear systems' ability to change. Leaders of complex organizations that operate in nonlinear dynamic environments can build sustainability and be cognizant of its environmental impact (Anderson, 2014; Buell, 2012).

Research Gap

The primary care physicians' perspective towards the adoption of EMRs is among the significant health challenges experienced in the Atlanta, Georgia area. Health Information Management System Society Analytics (2015) study reports that primary care physicians face tremendous challenges that affect their capabilities to produce evidence-based care due to slow adoption of EMR. In a similar survey conducted by the Center for Disease Control (CDC), researchers found that the prevalence of health risks and high mortality rate due to medical errors and poor diagnosis while using paper records contributed to the complicated health care issues in the Atlanta, Georgia area (CDC, 2014). This was because of slow EMR adoption rate while many physicians perceive EMR implementation as a significant burden. Many physicians' reluctance to embrace change gave way to continuous utilization of the traditional or conventional way of care. Common among the elderly physicians are the difficulties associated with switching EMR vendors, technical difficulties, and financial complexities that created decreased EMR adoption (CMS, 2016a; Seidman, 2014).

There is paucity in the kinds of literature examining physician perspectives towards the adoption of EMR in the Atlanta, Georgia area. Previous studies demonstrated that non-adherence to EMR adoption explained the incongruity experienced in the US fragmented health care system (HHS, 2015; Hoyt, 2015). The glaring gap is that the physicians' standpoint in EMR adoption is unknown in the Atlanta, Georgia area. Concerning physicians' opinions in other parts of the country, Kasthurirathne et al., (2015) took a different standpoint in the literature by stating that some physicians'

unwillingness to adoption of EMR is due to lack of better interoperability and easy adoption of healthcare applications that could be used to interact with clinical data. One of such resources is called an Application Programming Interface (API) for an EMR (EMR) system (Kasthurirathne et al., 2015). Other physician findings suggest that nationwide hospital EMR adoption is in progress, but the rural and small hospitals are ignored due to financial challenges, particularly now that penalties for lack of adoption have begun (DesRoches et al., 2015; Manitoba eHealth Primary Care Information Systems Office, 2014).

This research project focused primarily on the perspective of physicians towards the adoption of EMR in the Atlanta, Georgia area as it affects the possibilities of receiving needed health care. The prevalence of slow EMR adoption is common in the Atlanta, Georgia area due to non-accessibility of vendors, lack of interoperability and unavailable financial resources (Wellstar, 2015; Lium, 2012). It is unclear how medical facilities and physician offices in the Atlanta, Georgia area demonstrated quality and comprehensive care in the absence of EMR use. The justification for the current study was to explore EMR adoption from the lenses of those who experience the phenomenon.

In Chapter 3, I cover the following topics the researcher's responsibilities, participants, eligibility, participant selection, research method and design, research questions, population sampling, ethical research, data collection and analysis techniques, and ethical procedures for the research study.

Chapter 3: Research Method

Introduction

In this chapter, I repeat the purpose statement. Then I discuss the following topics: my role as researcher, participants, research method and design, population sampling, research ethics, data collection, data organization techniques, data analysis techniques, reliability, and validity.

The Researcher's Responsibilities

Interviews with primary care physicians in the Atlanta, Georgia area were the source of data for this qualitative study and its descriptive procedures were strategies that enabled researchers to give a detailed explanation of social interactions to address the concepts of validity and reliability (Marshall & Rossman, 2014). The accurate collection, transcription, and analysis of data rely on the probing questions from the researcher, and peer-review or debriefing with the participants (Grossoehme, 2014).

May, Mencl, and Huang (2014) opined that continued unexamined interactions, beliefs, and opinions could bias a researcher's viewpoint. Research bias and assumptions can also affect researchers' understanding of the respondents' experiences, and interactions with respondents may lead to construed or convoluted interpretations (May et al., 2014). The researchers used bracketing and clarification of issues to mitigate bias (Yilmaz, 2013; Rowley, 2012). Using bracketing was significant in order to set aside researchers' preconceptions and assumptions and thus create a valid and reliable research inquiry (Seidman, 2013).

The credibility of the qualitative research method is reliant on the competence of the research expert in analyzing, organizing and interpreting data (Grant & Schmittiel, 2015). In depth, description is, an essential provision for encouraging credibility because it guides the researcher to present the actual situation and context surrounding the research. Researchers can block their experience through bracketing which negates various assumptions (Rubenstein, 2011). Without this understanding, the audience will be unable to determine the study findings as credible and reliable.

The credibility of the research was complemented by refined qualitative interview protocol (Kristinsson, 2007). I implemented an interview process as a systematic guide for the research study. Spending adequate time with participants to gain an in-depth understanding of their lived experiences can lead to credible study findings (Yilmaz, 2013). Use of a semistructured interview gives room for flexibility to the participants (Rowley, 2012). In this study I conducted semistructured interviews and recorded them with audiotapes.

Participants

To define eligibility for this research, participants must be primary care physicians, residents or attending physicians practicing in the Atlanta, Georgia area and had experienced the phenomenon to be explored-the EMR. My objective was to identify and report physician attitudes or perspectives in the adoption of EMRs in the Atlanta, Georgia area medical practice. My plan was to gather adequate information for interviewing participants until data saturation is reached. In qualitative dissertations, the best method to approximate the number of participants is reliant on what the student and

committee deem reasonable to develop a convincing argument, independent of statistical testing (Rudestam & Newton, 2015). When a researcher gets excessive or repetitive responses, it is known as data saturation (Yin, 2014). Under qualitative inquiry, the sample size depends on data saturation (Rubin et al. 2014). Data overload is a point where no new information is required (Seidman, 2013). I interviewed participants until data saturation was reached. Data from fewer than 15 participants may not be enough to present balanced investigation of the study to accomplish research objectives. Data saturation is when data collected appeared sufficient in answering the research questions.

Eligibility Criteria

The emphasis on eligibility requirements in this study focuses on physicians or residents and not those in authority to make decisions about the EMR. To define eligibility for this research, participants must be primary care physicians, residents or attending physicians practicing in the Atlanta, Georgia area and have experienced the phenomenon to be explored-the EMR. Primary care physicians are at the forefront of providing necessary comprehensive and continuing general health care services to patients, and their influence can affect the perception of diverse teams in the organization (Taplin et al., 2013). Physicians' responsibilities and their ability to carry out their professional and ethical obligations may influence the perceptions of the entire organization (Beattie, Kim & Hagen, 2014). The study incorporated participants with extensive knowledge and information in medical practice. I interviewed only physicians or residents in my inclusion of participants. Many primary care physicians or residents have exposure to EMR usage, and they can account for issues that may impede the

adoption of EMR. I did not interview other health care workers who were not physicians. My inclusion of individuals with the same roles provided the opportunity to include different perspectives in the study (Rowley, 2012).

Participants Selection

Data saturation is a point where no new data is required (Seidman, 2013). To gather adequate information, my plan is to interview participants until data saturation is reached. In qualitative dissertations, the best method to approximate the number of participants is reliant on what the student and committee deem reasonable to develop a convincing argument, independent of statistical testing (Rudestam & Newton, 2015). Most studies do not recognize that no new themes go hand-in-hand with no new data and no new coding (O'Reilly & Parker, 2012). To be sure, the use of probing questions and creating a state of epoché in a phenomenological study design will assist me in the measure and quest for assessment of data saturation.

The geographic region I selected for the study was particularly appropriate when compared to the national average of office-based physicians with EMR-capable systems. On the national level, an average of 43% of office-based physicians has EMR capable systems and approximately 47% in the Atlanta, Georgia area (Hsiao et al., 2014). After securing approval from the organization under study, I sent e-mails to prospective participants.

The institution chosen for this study was Grady Health System's East Point and Ponce de Leon locations. These facilities are owned by the Grady Health System. These two medical offices provide comprehensive inpatient and outpatient medical, dental, and

clinic services. These clinics are owned and operated by Grady Health System. The two locations offer primary care to various kinds of patients. Grady's primary care doctors offer complete care for inpatients at the Grady Medical Center, follow patients after discharge and provide and manage outpatient health services. The primary care physicians in both clinics manage common chronic illnesses, such as high blood pressure, high cholesterol, diabetes, and asthma in the inpatient section. The outpatient sector assists in disease management such as healthy lifestyle counseling and routine follow up care for chronic ailments.

Permission to participate was obtained using the context in Appendix A, the informed consent. As a strategy to gain access to the study participants, Grady Medical Center provided contacts of potential participants to the researcher. The researcher e-mailed eligible participants using the introductory e-mail in Appendix B. The example of the consent form for the participants is in Appendix A. The process of consenting assured that members freely offered their approval through a uniform Informed Consent Form (ICF) that is applied to all subjects before interviews.

The researcher used a computer thumb drive to store the transcribed interviews from participants (Jalongo, 2013; Jacob & Furgerson, 2012). Mutula (2014) suggested that to properly preserve the data, thumb drive, audio tapes, and a backup disc for Microsoft word files from the participants; the materials were stored in a locked fire-safe box at the researcher's home. The transcribed data would be archived for five years because this is the standard recommended time beyond which the data will be discarded safely. The data would be archived so that the analysis can be replicated in a published

article. Data Protection signifies the reliability, repeatability, and consistency of the research study (Yin, 2014).

Qualitative Research Method and Design

The problem is the association between adoption of EMRs (EMRs) and physician resistance for the switch to paperless record (EMR) in physician office-settings is not known in the Atlanta, Georgia area (Cherico, 2016). The purpose of this phenomenological study was to explore the lived experiences of primary care physicians, who practice in the Atlanta, Georgia area regarding their perception, successes, barriers, and urgency of adoption of EMR in their healthcare practice. This section addresses the framework and inquiry design utilized for this study. Knowing that any given design may reflect some imperfect interplay of purpose, I provided reasons why qualitative methodology was the most appropriate methodology for this study.

Research Method

Qualitative research as an exploratory discovery method begins with beliefs and the use of interpretative/theoretical frameworks that inform the study of research problems that will enable the understanding of the phenomenon from a holistic interpretation (Yilmaz, 2013). By supporting the realist perspective of understanding the lived phenomenon, attitudes or feelings, qualitative research complements quantitative approaches such as surveys and experiments (Bernard, 2013). To study this problem, qualitative researchers use an emerging qualitative approach to inquiry, the collection of data in a natural setting sensitive to the people and places under study, and data analysis that is both inductive and deductive and establishes patterns and themes (Goldberg,

2012). The qualitative study adds depths and substance to experimental results and plays elucidating roles (Galvin & Todres, 2012).

The center of qualitative study was to identify and report the development of the phenomenon focusing on the participants' perspective and ideas (Seidman, 2013).

Research experts keep a focus on learning the meaning that the participants hold about the problem or phenomenon, not the assumptions of the researchers themselves in a qualitative study (Houghton et al., 2013). The participants' meaning may lead to diverse views on the issue or throw more light for future studies. Qualitative studies are good at identifying variables by talking directly to people and gathering their stories to get a detailed understanding (Wolcott, 2014). Using the qualitative method aligns with the goal to explore the perspectives of the participant physicians in the adoption of EMRs (Houghton et al., 2013).

The qualitative study complements the quantitative study. Researchers use the qualitative study to provide leads or feedbacks as descriptive information to large-scale quantitative explanatory research (Dworkin, 2012). Researchers use qualitative research to produce results that are unattainable using quantitative measures (Frels & Onwuegbuzie, 2012). One of the major goals of Health Services Research is to solve current and emerging health-related problems so that resources can be better utilized to improve the health status of the population (Houghton et al., 2013). The strength of qualitative research includes its relative high validity and appropriateness for topics that are difficult to analyze quantitatively (Denzin, 2012).

I considered a quantitative approach initially and observed that this method covers more participants and presents broader and more generalizable findings with surveys and experiments (Rubin & Rubin, 2012). The quantitative method is an effort of supporting the results and experimental interpretations carried out so that explicit comparisons can be made between or across different intervention conditions (Klassen et al., 2012). A quantitative approach involves research that is independent of context, values, be free from societal or cultural values (Yilmaz, 2013). The holistic view of approaching research study is non-existent in the quantitative method.

The qualitative research approach tends to understand, describe, discovering meaning into the participants lived experiences by focusing on the phenomenon's relevance to health service (Marshall & Rossman, 2014). The qualitative study delves into the social and cultural phenomenon under study from a rich perspective (Rubin & Rubin, 2012). Using qualitative research, most of the health services research is conducted to solve health-related problems so that past research and future investigations can build upon the present (Klassen et al., 2012).

Social constructivists investigate the challenges surrounding the phenomenon from a holistic perspective. Qualitative management research offers an appropriate instrument necessary for selecting the type of protocol for grouping the experience or ideas of the respondents (Yin, 2014). The qualitative method serves as an appropriate framework for identifying and reporting the researchers study outcomes in a standardized format based on the participants' experiences with the phenomenon (Roulston, 2014; Creswell & Miller, 2000).

Research Design

There is no one standard approach in conducting a qualitative study. In other words, as the central architect of this qualitative study, I compared the qualitative research designs of the ethnography, case study, and phenomenology. I selected a phenomenological method for this study to provide an appropriate response to the research questions that required an understanding of social or organizational processes as recommended by (Moustakas, 1994). The phenomenological inquiry is a qualitative study technique that focuses on the lived experience of the study participants by investigating the phenomenon (Yin, 2014). Phenomenology holds that what is important to know is what people experience and how they interpret the world in gaining in-depth meaning, perceptions, and beliefs of study participants (Lee & Sandelowski, 2012; O'Reilly, & Parker, 2012). Phenomenological studies attempt to understand or portray individuals' natural meaning of their beliefs (Seidman, 2013). It is based on early 20th-century philosophy and involves the use of rich descriptive interviews and in-depth analysis of lived experiences to understand how meaning is created through perception (Yin, 2014).

Phenomenologists believe the best way for researchers to know what another person experience is to experience it through a field technique (Sorsa et al., 2015). This research design will enable me to obtain detailed information about the perspectives of primary care physicians towards EMR adoption in the Atlanta, Georgia area. Detailed interviews in Grady's medical offices will be classified as the primary data in this study. Interviews are tools for data gathering aimed to capture essential information that supported the accomplishment of the study objectives. Interviews are regarded as

effective data collection method required for participants to communicate their problems and concerns to the research professional (Jalongo, 2013). What is essential in interviewing is to maintain a working relationship with the participant (May et al. 2014). Semistructured interviews suggest a more collaborative approach, where the researcher and the participant approach equality in questioning, interpreting and reporting (Rowley, 2012). A semistructured interview process with open-ended questions yielding about 30-45 minutes tape-recorded interview sessions with a single participant will be applied in this study (Walker, 2012). I will incorporate analyzing, coding, and review transcripts for themes. The study will involve critical transcript review and coding to generate study findings (Smit, 2012).

Research Questions

Phenomenological research questions are to uncover and obtain the detailed understanding of the participant's experiences of the phenomenon under study (Hageman & Frederick, 2013). Unlike quantitative studies where research questions attempt to measure quantitative factors and to determine causal relationships (Morse, Lowery & Steury, 2014; McMillan & Schumacher, 2009), phenomenological research questions are designed to explore the qualitative essence of the meaning of human experiences (Hageman & Frederick, 2013). With these constructs in mind, I formulated three phenomenological research questions, which I used to obtain the responses needed to understand the phenomenon of the perspectives of primary care physicians towards EMR adoption in the Atlanta, Georgia area.

RQ1: What have been the lived experiences of primary care physicians, who practice in the Atlanta, Georgia area regarding the adoption of an electronic medical record?

RQ2: What are the perceptions of primary care physicians regarding their successes or barriers in the adoption of electronic medical records?

RQ3: What are the clinical priorities that have impacted physicians' adoption of EMR?

There is no one standard approach in conducting a qualitative study. In other words, as the central architect of this qualitative study, I compared the qualitative research designs of the ethnography, case study, and phenomenology. I selected a phenomenological method for this study to provide an appropriate response to the research questions that required an understanding of social or organizational processes as recommended by (Moustakas, 1994). The phenomenological inquiry is a qualitative study technique that focuses on the lived experience of the study participants by investigating the phenomenon (Yin, 2014). Phenomenology holds that what is important to know is what people experience and how they interpret the world in gaining in-depth meaning, perceptions, and beliefs of study participants ((Lee & Sandelowski, 2012; O'Reilly, & Parker, 2012). Phenomenological studies attempt to understand or portray individuals' natural meaning of their beliefs (Seidman, 2013). It is based on early 20th-century philosophy and involves the use of rich descriptive interviews and in-depth analysis of lived experiences to understand how meaning is created through perception (Yin, 2014).

Population and Sampling

Qualitative inquiry focuses in depth on small samples (Wilson, 2012). Obtaining participants with the required years of experience is necessary to collect extensive details in purposeful sampling (Walker, 2012). This study used the purposive sampling strategy. The population for this study was primary care physicians who had utilized the EMR system for health care-related reasons who work at two health clinics in the Grady Health System. What would be *bias* in statistical sampling or a weakness becomes intended focus in purposive sampling. Purposive sampling is an economical way of generating a representative sample of potential participants that have experienced a phenomenon (Uprichard, 2013). Purposive sampling method is a nonprobability method of sampling using a prior knowledge of the population before the sample is selected (Marshall, Cardon, Poddar, & Fontenot, 2013). The logic of purposive sampling lies in selecting information-rich subjects to create an in-depth understanding about issues related to the inquiry rather than empirical generalization (Wilson, 2012; Walden University Center for Research, 2009).

There is no one-size-fits-all method to reach data saturation. Data saturation is reached when the ability to obtain additional new information has been attained and when further coding is no longer feasible (Guest et al., 2006). Most studies do not recognize that no new themes go together with no new data and no new coding (O'Reilly & Parker, 2012). To be sure, the use of probing questions and creating a state of epoché in a phenomenological study design will assist me in the measure and quest for assessment of data saturation. Data saturation is a point where no new data is required (Seidman, 2013).

To gather adequate information, my plan was to interview participants until data saturation is reached. In qualitative dissertations, the best method to approximate the number of participants is reliant on what the student and committee deem reasonable to develop a convincing argument, independent of statistical testing (Rudestam & Newton, 2015). When a researcher gets excessive or repetitive responses, it is known as data saturation (Yin, 2014). Under qualitative inquiry, the sample size depends on data saturation (Rubin et al. 2014). Data overload is a point where no new information is required (Seidman, 2013). I intended to interview participants until data saturation was reached. If data saturation was not reached, the plan was to include additional participants until data saturation occurs. Data saturation is when data collected appeared sufficient in answering the research questions.

The objective of the in-person interviews is to acquire information to address the central question stemming from the perceptions of primary care physician towards the adoption of EMR in the Atlanta, Georgia area. The sizes of the medical offices vary depending on the number of physicians and size of the facility.

The respondents required for the study were primary care physicians or residents who have daily interactions with electronic patient information or an active role in supporting clinical operations in a health care environment. The selection criteria of the study were predetermined group of participants. Recruitment of participants took place over 30 days, and interviews were planned to occur within 30 days after recruitment. The choice of safe and quiet venue for interview encouraged conversation in a relaxed and secure atmosphere. The interview questions were reviewed by the dissertation committee

to enhance the value of the instrument before interview period. The choice of safe and quiet venue for interview encourages conversation in a relaxed and secure atmosphere. Qualitative interviewing highlights the importance of establishing rapport between the researcher and the participants (Yin, 2014; Galvin & Todres, 2012). The researcher is currently employed at the Grady Health system, and the Grady Clinical Research Department supported the researcher for study approval from Walden IRB. The role of the researcher in this study was different from my role as a Grady employee. There was no conflict of interest. The data collected were confidential, and participation was voluntary.

Ethical Research

The ethical standard in medicine indicates that no human being should undergo a gruesome experience in research; rather, the participants' rights, safety, and well-being must be respected (U.S. Department of Health and Human Services, 2014). In designing a study, researchers should not put participants at risk of harm (Aluwihare-Samaranayake, 2012). Before collection of data, Walden University's IRB reviewed the research plan for ethical compliance. Adherence to ethical standards and principles is required to ensure the integrity of the study (Jacob & Furgerson, 2012).

All prospective study participants must provide informed consent, before participation (Unluer, 2012). The consent also detailed the right to participate or discontinue at any point in the study without any repercussion. An informed consent form includes (a) an account of the study, (b) voluntary withdrawal rights of participants, (c) participants voluntary enrollment, and (d) the confidentiality agreement (Unluer, 2012).

Researchers should respect participants' right of service and participants can withdraw from the study at will. The informed consent was included in the initial e-mail contact to participants. Both during and after the study, the privacy of the subject should be protected through confidentiality (Rowley, 2012). No participants received incentives as an agreement to be involved in the study. The research study is based on voluntary participation (Parrish, 2015; Ross-Kerr, 2003). The participants' names were replaced with codes to protect the participants' right to anonymity (Smit, 2012). The tapes, notes, and transcripts were saved in a locked fire-proof box at the researcher's home for 5 years.

Data Collection

The researcher is considered the main source of data collection in qualitative inquiry (Walden University, 2014; Yin, 2014). To gain an in-depth understanding of participants' belief or perspective of the issue, an interview is considered an integral part of data collection (Bernard, 2013). Semistructured interviews conducted in a conducive and private atmosphere enables the participants to engage actively in the process (Yin, 2014, Behraves, 2010). To avoid validity threats, it's pertinent to provide other sources to support documentation in a study (Al-Yateem, 2012). I requested access to policies and procedures regarding MU compliance to understand the strategy of the organization as a context. The request was part of the participation agreement found in Appendix A. I focused on semistructured interviews as the primary data collection strategy for this study. I sent out invitation letters via e-mail to a list of physicians to recruit study participants (see Appendix A).

I conducted semistructured interviews with open-ended questions, audiotape the interview and transcribe the interview. Open-ended interviews encourage anticipation and may expand the response of the participant (Wheeler & Bell, 2012). The researcher responded to all the participants' questions about the study either before participating or during the process of the interview (Rowley, 2012). The interview questions are found in Appendix C. The focus of the information collected was to understand the perspectives of primary care physicians towards the adoption of EMR in the Atlanta, Georgia area. Asking open-ended questions and documenting participants responses can add to the credibility of the study (Zhang & Creswell, 2013).

Data Collection Technique

This study used the principal method of data collection in a phenomenological study by interviewing participants to understand their experience regarding a phenomenon (Wilkie, 2015; Yin, 2014). The primary source of data in this qualitative study is a semistructured interview. The semistructured interviews lasted an average of 30–45 minutes for each participant. Interviews reveal the subjects' experiences, ideas, perceptions, feelings, and knowledge (Wheeler & Bell, 2012).

Three major ways exist in recording data during a field study; relying simply on memory, taking notes by hand or using a computer, or recording the data electronically (Sturmberg et al., 2014; Fielding, 2012). The interview process for this study included recording and transcribing the interviews, analyzing the transcripts, coding the data, and developing themes.

The Grady Research Committee received an approval of this study after I had gained the Walden University IRB's permission to conduct the study. A research application was submitted for this study at Grady Health System as soon as Walden IRB approved the study (Approval No. 01-30-18-0196886). With the approval received, I sent e-mail invitations and an attached consent form to potential participants. The participants, selected through the purposeful sampling method provided a signed informed consent form electronically before the interview (Sturmberg et al., 2014). The principal method of data collection was face-to-face interviews guided by ten semistructured interview questions. Using face-to-face interviews provided a greater understanding of how the perceptions, experiences, and perspectives of primary care physicians towards EMR adoption in the Atlanta, Georgia area.

The interview questions have been used in a previous study titled, "Adopting the meaningful use criteria in Electronic Medical records" (Marshall et al., 2014; Marshall et al., 2013). The proposed questions for the semistructured interview can be found in Appendix C. The researcher sought for open-ended questions that addressed the perception of primary care physicians towards slow EMR adoption. These questions were carefully hand-picked in consideration of the perception of primary care physicians to EMR and to gather succinct data for the study.

As recommended by Moustakas (1994), participants may need encouragement to expand upon their lived experiences. In the semistructured interview format, researchers ask probing questions that arise during the interview (Wheeler & Bell, 2012). Member checking is a method that ensures the accuracy of the interpretation of the information

obtained from participants (Rowley, 2012). Member checking the data synthesized from participants' response provides the accuracy of the data (Anosike et al., 2012). Member checking occurred at a scheduled time after the initial interview process.

Data Organization Method

To organize the collected data, I used pseudo names or codes to match participants' identities with their responses. I arranged the data in digital folders on an external hard drive by participant and interview date. According to Gibson et al. (2013), organizing the collected data involves the following steps: (a) data checking; (b) maintaining, and reviewing a reflective journal throughout the study; (c) entering raw data into qualitative data analysis software, and (d) examining researcher notes.

Data Analysis

This researcher used Computer-assisted qualitative data analysis software (CAQDAS). NVivo 10 software was used for data management to synthesize and guide analysis of research and interventions through existing theories (NVivo 10 for Windows, 2015). I utilized strategies that assisted with organizing, documenting and tracking data and facilitating the filing process. Raw data were entered in Access and then uploaded into NVivo, and this reduced data-transfer errors. NVivo 10 software detects the frequency of information collected in interviews, reviews content and non-compatible entries (Vaismoradi et al., 2013). This software can correct errors related to data coding and transfer of complex data (Jalongo, 2013). Researchers use discovering patterns and developing themes in synthesizing data in a qualitative study (Bluhm et al., 2011).

I had previous experience with using NVivo from a position I worked as a clinical research specialist in 2012 and two qualitative courses I attended at Walden University. NVivo10 has several key features which enable the researcher to store and manipulate data or show visual relationships using codes through concept mapping (Yin, 2014). NVivo10 software has coding capabilities that improve the data quality (Kasthurirathne et al., 2015).

The process of coding and categorizing interview data derived from participants' statements into clusters of invariant constituents or insights were classified as theme clusters (Stone, 2013). I implored a five-stage data analysis strategy in this study. According to Yin (2014), data analysis consisted of the following steps: (a) gather the data; (b) create the data into similar groupings; (c) structure the data into themes; (d) review the data; and (e) design conclusions.

I transferred the transcribed interview data into NVivo from a Word document for grouping. NVivo ensures data validity and tools for data analysis (Kasthurirathne et al., 2015; Creswell, 2009). I sent each single participant the transcript from the participant's interview. I used a color-coding system to identify themes as a critical part of data preparation as recommended by Wilson (2012). I used data codes to aggregate the text or visual data into smaller categories of information. In the coding process, code categories can be combined during data analysis if it is deemed that less-detailed categories are more desirable (Smith, 2012).

Organizing the codes in series of various colors will identify the type of access expectation (blue), by color will reveal the participants' level of access expectation

(purple), impact training Green), efficiency is system reporting (yellow), and performance improvements (purple). I compared themes that showed up many times to align with the research question, problem, and conceptual framework to increase internal validity (Vaismoradi, Tureen & Bondas, 2013). Other documents such as internal policies and notes can be added to this analytical approach. The combined outcomes included themes that provide an understanding of perspectives of primary care physicians towards EMR adoption in the Atlanta, Georgia area.

Reliability and Validity

Many qualitative researchers are mindful of the importance of reliability and validity of procedures. Reliability is defined as the condition under which a study can be replicated under similar circumstances without failure (Rudestam & Newton, 2015). Validity is defined as the credibility or believability of the research (Rudestam & Newton, 2015). Validity is defined as the credibility or believability of the research (Rudestam & Newton, 2015). The strength and reliability of a phenomenological study maintain that the trustworthiness of a design becomes the standard on which it is likely to be judged (Yin, 2014). Researchers believe that when a procedure or result is reliable, it means we can depend on it (Smit, 2012). The legitimacy and credibility of a study imply that all research carries the responsibility of convincing oneself and one's audience that the findings are based on critical investigations (Yilmaz, 2013). Throughout the study, I solicited feedback from my committee when forming theories from my data. This helped identify and deter biases or skewed logic that could affect the study.

Reliability

Researchers use reliability in the replication of the study under similar circumstances (Grossoehme, 2014). Reliability pertains to issues such as training interviewers, recording and transcribing data (Yin, 2014). The authenticity of a qualitative study relies on the degree or rate of transferability, dependability, and credibility of the data (Lincoln & Guba, 1985). Data generated from interview questions with participants entail that study participants provide unique perspective. I adhered to an interview protocol that was consistent with reliability of the study and accurate data collection to convey meaningful account of the phenomenon under study (Yin, 2014). Clarity of data collection and coding enhances transferability (Lincoln & Guba, 1985). In brief: (a) I maintained the same interview question for each participant; (b) assessed the accuracy of the transcribed data and; (c) used member checking to conduct an analysis.

Validity

Validity is defined as the credibility or believability of the research (Rudestam & Newton, 2015). The validity of research depends upon the truthfulness, honesty and personal account of the research participants as they share their lived experiences of the phenomenon (Sorsa et al., 2015). Validity is essential in qualitative methodology (Smit, 2012). Member-checking is a known strategy for identifying validity in a qualitative study (Denzin, 2012). Determining the accuracy of the study findings as it pertains to the researcher, participants and audience is a key requirement to mitigate biased interpretations. I triangulated methodological data to provide validity to their findings (Marshall & Rossman, 2014). The components for triangulating data include (a) getting

participants' information, (b) evaluating stored information, and (c) Institutional policy review. Reliability and validity of data are achievable through triangulation processes (Denzin, 2012).

Triangulation involves integrating various evidences to enhance clarity on a theme or perspective (Fielding, 2012). The different sources may include more participants and other methodologies (Grossoehme, 2014). Triangulation strengthens a study by combining methods. A rich variety of methodical combinations can be employed to illuminate an inquiry question (Yin, 2014).

Internal validity refers to the valid interpretations and operational definitions of a study with a research instrument (Yin, 2014). A method of internal validity evaluates the trustworthiness of reports or the extent to which one has confidence in study findings (Rowley, 2012). Lack of standardization in how researchers arrive at specific conclusions question the validity of the review (Marshall & Rossman, 2014). Internal validity involves examining different data types as the researcher such as field documents. The study procedure may undergo processes of adjustment as the study progresses to add to the credibility of the study (Rudestam & Newton, 2015).

Summary and Transition

This chapter included the research methodology and steps necessary for this qualitative study. The purpose of this chapter was to explain the importance of the research instrument and the credibility required for successful research findings. This chapter described the relevance of the method, ethical concerns, population, sample,

reliability, and validity. Each step included information that addressed the design and integrity of the study.

Chapter 4 presents the research findings or outcomes.

Chapter 4: Results

Introduction

The purpose of this phenomenological study was to explore the lived experiences of primary care physicians who practice in the Atlanta, Georgia area regarding their perceptions of, successes in, barriers to, and urgency of adoption of EMR in their healthcare practice. Physicians who practice in two Grady Health System primary care offices, one in East Point in a rural area of Atlanta and the other in Ponce de Leon in the urban area of Atlanta, were recruited for the study. They were chosen for this study because they are at the forefront of all care coordinating roles. Some physicians have argued that the use of EMR has limited their focus on their patients since they spend more time on the technology than their patients (Smith, 2010).

The following research questions were explored in this study:

RQ1: What have been the lived experiences of primary care physicians regarding the adoption of an electronic medical record?

RQ2: What are the perceptions of primary care physicians regarding their successes or barriers regarding adoption of electronic medical records?

RQ3: What are the clinical priorities that have impacted physician adoption of EMR?

In Chapter 4, I will present the results of the study, including participant demographics, and a discussion of procedures used to conduct the study.

Research Setting

No personal or organizational conditions that may have influenced participants or their experience at the time of the study influenced my interpretation of the study results. There were no changes in personnel because I alone conducted the interviews. I did not spend money on participants by offering an incentive for participating. There was no trauma because participants were primary care physicians selected.

The main interviews for this study were conducted at two separate clinics belonging to Grady Hospital: Ponce de Leon and East Point Clinics. The former clinic is located at the urban side of Atlanta, Georgia while the latter one is situated in East Point in a rural part of Atlanta, Georgia. Both clinics have EMR. Upon request, each clinic provided me with a private room to conduct my interviews and thus avoid anything that could influence their participation.

Demographics

Participants' demographics for this research included the facility and gender (see Table 2). All participating primary care physicians were employed doctors at Grady Hospital's Ponce de Leon and East Point Clinics. Table 2 lists the facility and gender of the primary care physicians who took part in the interview at the afore-mentioned Clinics.

Table 2

Facility and Gender of Research Participants

	Participants	Male	Female
Grady Ponce De Leon Clinic	10	4	6
Grady's East Point Clinic	9	3	6
Total	19	7	12

By filling out demographic checklists, participants provided relevant demographic information used in this study, including age, gender, board certification, marital status, participants' ethnic culture, place of residence and practice specialty. Table 3 highlights the key eligibility information of participants recruited in this study. The age of participants ranged between 27 years and 69 years. All participants (100%) resided in the targeted geographic area of this study, Atlanta, Georgia. All the participants reported board certification. After initial eligibility screening and scheduling interviews, I realized that none of the potential study participants had a first name beginning with letter "J". Hence, I selected 12 female participants first names that begin with letter "J" (i.e., Jessica, Jennifer, Jasmine, Joyce, Julia, Juliet, Jocelyn, Josephine, Judith, Jackie, Joan, and Jenice), and 7 male participants first names that begin with letter "J" (Jaakko, Jabari, Jabez, Jabin, Jabril, Jabulani, and Jacek). Based on the analysis from table 3; Nine (50%) of the participants are married, 5 (25%) are single, and 5 (25%) are divorced. The ethnic culture of participants breaks down to White 7 (40%), Indian 5 (27%), Black 4 (21%), Hispanic 1 (6%), and Asian 1 (6%).

Table 3

Eligibility characteristics of Study Participants (N = 19)

Participants	Age	Gender	Board Certification	Marital Status	Ethnic Culture	Place of Residence	Practice Specialty
Jessica	29	F	Certified	M	White	Atlanta	PCP
Jennifer	35	F	Certified	S	Asian	Atlanta	PCP
Jasmine	54	F	Certified	S	White	Atlanta	PCP
Joyce	62	F	Certified	D	Black	Atlanta	PCP
Julia	38	F	Certified	M	White	Atlanta	PCP
Juliet	45	F	Certified	M	Indian	Atlanta	PCP
Jocelyn	69	F	Certified	M	White	Atlanta	PCP
Josephine	36	F	Certified	D	Black	Atlanta	PCP
Judith	50	F	Certified	S	White	Atlanta	PCP
Jackie	67	F	Certified	S	Black	Atlanta	PCP
Joan	45	F	Certified	M	Hispanic	Atlanta	PCP
Jaakko	61	M	Certified	S	Indian	Atlanta	PCP
Jabari	34	M	Certified	D	Indian	Atlanta	PCP
Jabez	41	M	Certified	M	White	Atlanta	PCP
Jabin	64	M	Certified	D	Indian	Atlanta	PCP
Jabril	28	M	Certified	M	Indian	Atlanta	PCP
Jabulani	44	M	Certified	M	Black	Atlanta	PCP
Jacek	55	M	Certified	M	White	Atlanta	PCP
Jenice	46	F	Certified	D	White	Atlanta	PCP

Note. M = Married, S = Single, D = Divorced, F = Female, M = Male

Data Collection

Data Collection participants from whom data were collected were 19 primary care physicians employed at Grady's Ponce de Leon Clinic and Grady's East Point Clinic in Atlanta, Georgia. Ten of the primary care physicians were from Ponce de Leon Clinic while nine of the primary care physicians were from the East Point Clinic. The data were collected through face-to-face interviews using the questions listed in Appendix C. In May 2018, 19 primary care physicians employed at Grady hospital were interviewed over 14 days (May. 6, 2018 - May. 20, 2017), one day for each interviewee. I spent 35 minutes

with each interviewee. With participant permission, I audio-recorded proceedings of the interviews. There were no variations in data collection and there were no unusual circumstances or situations.

The consent form was distributed on the first day of my visit to each clinic. The primary care physicians who participated in the interview came into a private room at various times for an interview. The interviews, which were recorded for each participant, lasted for an average of 35 minutes. In this study, I employed nonprobability purposive sampling in selecting my participants, which was representative of the population (Frankfort-Nachmias & Nachmias, 2008). The interviews were very intensive, and they were digitally recorded. The room that was provided for me at Ponce de Leon Clinic was around the corner of the medical records department of the Clinic, and it was air-conditioned, which was a welcome relief from high temperature of the summer heat. East Point Clinic also provided a private room, not too far away from their summer heat, but it was not air-conditioned. The room had a noisy ceiling fan, and as such, I had to speak a bit louder to ensure that my participants could hear me. During the interview at Ponce de Leon Clinic, one of the primary care physicians who was very interested in the interview spoke to me about EMR and how it would be nice to have it deployed at every government hospital. She promised to talk with me the following day; however, she did not show up for the interview. She left a message for me that she had to take care of her 3-year-old son. In my interviews at East Point Clinic, one of the willing primary care physicians after reading my consent form, simply returned it and told me that he was not

interested. My interview instruments for the primary care physicians are in Appendix A and Appendix B.

After completing the interview process, I immediately transferred all recorded interviews from the recording devices to a single file folder on my computer secured with a strong pass code. I personally transcribed all interview recordings into word documents, stored duplicate copies of the transcribed data in multiple places on my computer and on an external storage device also secured with a strong pass code to avoid data loss in case an unplanned technology failure. In addition, I securely kept field notes and memos in a cabinet with a pass coded locker only accessible to me.

Data Analysis

Report Process Used

The data collected for this study were analyzed using automatic coding as suggested by Robertson (2014). According to Robertson, automatic coding allows for “broad-brush” coding for large volumes of textual data, which a researcher can later review and refine for further analysis. Automatic coding is also used to predetermine elements of source materials (Edhlung & McDougall, 2012). I merged the responses of the primary care physicians from both locations to draw comparisons in their responses. I identified themes by finding similarities on how the primary care physicians expressed their responses. The table that identifies the frequency of responses to questions can be found immediately after their respective categories. Merriam (2009) stated that researchers can make sense of their data by including the process used to provide answers to their research questions.

The consistency I employed in the process of interviewing study participants (i.e., all participants were asked the same questions) allowed me to auto code most of the transcribed data into NVivo 10. The use of NVivo 10 data analysis technique enabled me to deduce meaning out of the narratives and stories participants shared about their lived experience pertaining to the perspectives of primary care physicians in the adoption of EMR in Atlanta, Georgia. IQs generated consistent responses that addressed all 10 questions that were asked, and I was able to organize and arrange the collected data according to RQs and corresponding IQs.

Evidence of Trustworthiness

To enhance the quality and credibility of qualitative analysis, Patton (1999) stated that a qualitative researcher should apply rigorous techniques to the method of gathering and analyzing qualitative data by paying attention to validity, reliability, triangulation, and credibility. Evidence of trustworthiness of this research will be demonstrated with my discussion on credibility, transferability, dependability, and confirmability.

Credibility

Credibility of a research study can be established by conducting the research in a manner that is believable (Houghton et al., 2013). I established credibility by repeating my questions to be sure that they were clear. I also advised my participants to take their time to answer my questions. Furthermore, I established credibility by assuring participants of their confidentiality since they were with me alone in private rooms to ensure that they could speak their minds without any distractions. By providing them with a copy of the consent form, I advised participants that, should there be any concerns, they could contact

Walden University. The credibility of the interviews was also assured in that I interviewed primary care physicians who could express themselves in the English language. I also improved the quality of this study by the method of triangulation. Triangulation of qualitative data sources entails “crosschecking the consistency of information derived at different times, and by means within qualitative methods” (Patton, 1999, p. 1195). According to Patton (1999), this approach compares observational data with interview data. I thus validated my data by crosschecking my interview with the responses of primary care physicians during and after the interview.

Transferability

Transferability or external validity is predicated on how a study can be applied to other situations (Merriam, 2009). Merriam (2009) stated that “applying generalizations from aggregated data of enormous random samples to individuals is hardly useful” (p. 224). Therefore, my findings in this study cannot necessarily be transferred to another group or setting. However, I presented several quotations from participants to enable transferability. According to Merriam, (2009) rich and thick description is a strategy that is used to enable transferability of a study by presenting a detailed description of findings with adequate evidence in the form of quotations from a participant interview.

Dependability

Trustworthiness of a study can also be increased by the concept of dependability or reliability. Dependability or reliability refers to the stability of research data over a period (Houghton, Casey, Shaw, et al., 2013). Dependability of this research study was achieved by audit trail. Audit trail entails maintaining comprehensive notes and using

software like NVivo to confirm findings (Houghton et al., 2013). Bassett (2009), Bergin (2011), and Silverman (2010) stated that NVivo can be used to “[guide] against excessive emphasis on rare findings that happen to suit the researcher’s preferred argument” (as cited in Houghton et al., 2013, p. 15). Koch (1994), Koch and Harrington (1998), Johnson (1999), Jootun et al. (2009), and Rodgers and Cowles (2013) argued that expression of reflexivity can be demonstrated by maintaining a reflective diary (as cited in Houghton et al., 2013). Houghton et al. (2013) stated that a reflective diary containing 55 thoughts and ideas documented during data collection can enhance dependability. According to these authors, reflexivity can help in the development of themes and subthemes in data analysis. Thus, I kept a reflective journal to assist me in the development of categories and themes in my research study.

Confirmability

According to Tobin and Begley (2004), confirmability, which is also close to dependability, refers to an unbiased presentation of data in a research study (as cited in Houghton et al., 2013). To increase the quality of this research study, I kept a reflective journal to alert me to any biases or strong positions in my views. I further established confirmability of this research by running queries to locate passages and phrases. Houghton et al. (2013) stated that by locating issues described in research findings, it can be ascertained that the perception of one person is also consistent with some other participants in a study.

Study Results

In my first analysis, using NVivo 10, I prepared for structural auto coding. The transcribed data were later categorized. When I finished transcribing my first recorded interview and started analyzing the data, I felt it was crucial to include examples of verbatim sentences to express spoken words exactly as narrated by the study participants during interviews. However, as I progressed with my transcription and analysis, I realized that most participants gave similar responses to interview questions. During the transcription process, I paid detailed attention to sound and tone of participants' voices and focused on capturing all the details relayed during the interview processes.

After thoroughly examining my data, I revised my categories, and I applied thematic coding, which revealed recurring themes and patterns. Responses from each clinic were considered separately. In this study, I sought to present the voices of primary care physicians as they narrated stories of their lived experiences with EMRs in Atlanta, Georgia, using the five themes and 13 subthemes that emerged from analyzing participant responses to interview questions (see Tables 3, 4, and 5). Themes were selected based on the statement, phrase, and word similarities as they emerged during data analysis in NVivo 10.

Research Question 1: Lived Experiences of PCPs in EMR Adoption

The first research question was: What have been the lived experiences of primary care physicians, who practice in the Atlanta, Georgia area regarding the adoption of an electronic medical record? Desiring to generate quality responses, I made sure that all participants enrolled in this study had (a) sought and used electronic medical records as a

work related-requirement, (b) a clear understanding of what EMR implementation means, and (c) had experienced the phenomenon of EMR usage in Atlanta, Georgia. To achieve this goal, I developed four interview questions (IQs) that were answered by study participants:

IQ1. What are your experiences with the implementation of an EMR system within your practice in Atlanta, GA?

IQ3: What is your opinion towards the attitude of physicians towards EMR?

IQ6: How effective is the EMR system in your practice?

IQ8: How has your daily workflow processes changed since transitioning to EMR?

Data analysis showed that all participant responses to RQ1 had a similar meaning. All participants reported having experienced one or more forms of EMR systems and agreed that several factors are driving an increased interest in EMR adoption such as the desire to improve patient safety, reduce medical errors, reduce duplicate services, optimize reimbursement and compete locally and regionally are just a few of the factors driving health care organizations to take steps towards implementing an EMR system. Three themes emerged from participant responses to RQ1: (a) types of EMR interfaces or services, (b) impact of EMR on workflow or productivity (c) transferring patient data between departments, including security issues, operational cost, inability to access specialized services and diagnoses, care quality disparities, patient information access disparities, and waiting time disparities for patients. Table 1 summarizes the themes and subthemes that emerged from participant responses to the three research questions.

Table 4

Emergent Themes and Subthemes for Research Question 1

RQs	Themes	Subthemes
RQ1. What are your experiences with the implementation of EMR system within your practice in Atlanta, Georgia?	A. Types of EMR Interface or services B. Impact of EMR on workflow or productivity C. Transferring Patients' Data Between Departments	<ul style="list-style-type: none"> Operational Cost

Note. RQs, research questions; PCP, primary care physician

Theme 1: Types of EMR Interfaces or Services

Although participants confessed difficulties in accessing most EMRs care services, they at least used more than one EMR system as far as electronic documentation. When asked to tell me the importance of EMR as a cost-reduction tool, all the participants agreed that the use of EMR can reduce costs related to the retrieval and storage of patient medical records. They agreed that EMRs can have significant impact on patient quality, outcomes and safety. Others reported that EMR system has led to high quality documentation, resulting in improved coding practices and subsequently higher reimbursement and decreased billing errors. However, after giving a little explanation of what EMR system entails, all participants were able to report several types of EMR system they had used including, Epic, WebPT, AthenaClinicals, Praxis, TRAKnet, NextGen and TherapyNotes. Jennifer who was once a Chief Information

Officer at Grady Hospital shared the effectiveness of EMR system implementation. She reported:

When I was the CIO at Grady Hospital, I witnessed that Grady Hospital in 2012 estimated that it realized space savings of 2,000 square feet after implementing an EMR, equating to a savings of \$100,000 a year. Much of their savings was due to reductions in storage and retrieval costs. So, before joining Grady years ago, I was at Wellstar and we had an EMR interface that was started in 2009 called Nexjon and they used that till 2013. We were asked to switch to Epic, the Epic people came from Wisconsin to teach us as it was mandatory classes. From there, the use of EMR increased in our facility.

In a similar narration, Julia shared how usage of EMR interfaces has increased convenience and cost-reduction to make things better for patients. Data precision and accuracy are improved when EMR systems incorporate error checking. A clear example of data improvement achieved through IT is the result seen from incorporating medication administration designed to prevent medication error. Julia opined thus:

Well for me, one interesting thing about EMR system is that when patients lose their prescriptions, it is already in the system, so that the patient does not have to come back for it. Besides, the drug information will be at the pharmacy before the patients get there, and this could make things faster, especially for patients.

So, I will say that EMR implementation is about having software that is user-friendly. I want something that looks like writing on a notepad. I would like it to look like I am writing on paper, so that the information can go into the system as

if it has been [entered] directly into the computer. I do write freely as it comes to my mind. I write my questions freely, and if they are stored automatically into the computer, it would be ok with me. User-friendliness of the software could increase the usage of EMR.

Although variations were reported in amount (quantity) of the types of EMR interfaces or services used by individual participants, data analysis indicated that each had used at least one or more types of EMR interfaces or services. For instance, when sharing the effectiveness of EMR for the last two years, Josephine only stated that “I used Epic for the in the past 2 years when I moved to the Ponce de Leon Clinic. The thing about Epic is that it is very simple to use, very user-friendly and one can learn it in a shorter amount of time. On the other hand, Juliet, who has just used Praxis at Wellstar Health systems before transitioning to Grady Hospital weeks ago gave a detailed response when narrating her experience with Praxis interface prior to using Epic at Grady Hospital. In her words, Juliet stated that

I have used Praxis, Cenno, NextGen, and Therapy Notes in the entire 12 years of my career as a primary care physician with specialties in geriatric and pediatric care consequently. I will say that overall the systems are beneficial to improve patient safety and error-reduction in healthcare. Concerning interfaces, Epic is a little bit detailed because the only thing is that when I am responding to a series of prompts, rather than dictating a free-form narrative, I am reminded to include all necessary of the patient record. I am still learning how to use this part.

Theme 2: Impact of EMR on workflow or productivity

After asking questions that elicited study participants to share the types of EMR interfaces or services they had used in the past 2 years, I was interested in knowing their lived experiences in understanding the impact of EMR on workflow process and productivity. The rationale was that participants' perception of what EMR workflows were informed their views about the ease of EMR in improving productivity and access to care. Although they used varied statements, phrases, and words in their explanations, all participants seemed knowledgeable in their perspectives that patient safety is affected by inadequate information, illegal entries and misinterpretations of doctors' notes. When asked the effect of EMR system on her practice in Atlanta, Georgia, Juliet responded negatively to the effect of paper-based record on their daily workflow. Juliet stated:

Well, with using paper-based medical record, I generally see about 10 patients in a day, and by the end of the day, I am a bit tired. If it has been an EMR, I think I would have seen at least 15 patients with little or no stress, and yet still have more time to counsel my patients. At least, I would have been able to spend more time with them. Paper-based here slows the pace of my work. When patients come to the hospital, they must go and get their cards from medical records department. For example, if a patient leaves out-patient department, for say, ophthalmology department, and when he/she came back, his/her case notes could remain in that department [ophthalmology], and eventually, the case notes could be lost. Thereafter, there will be duplication of records, which could lead to some form of

disjointed treatment, and this has impacted my daily workflow and productivity.

However, EMR is accessible at any time and at any place where patient care is needed.

In spite of the fact that it seemed like a struggle for her to respond to the question in her words, Joan appeared to have a clear grasp of what EMR productivity and workflow processes were:

okay to me EMR system is accurate, complete, timely, and consistent. I think, to me, it improves workflow processes because sometimes the patients don't understand most things. Just like today a patient who had hypothyroid was given radiation and he thought he had cancer. But I made it clear why we were looking in the EMR, that it was hypothyroid and not cancer. So, the EMR made it clear for the patient.

When asked the effect of EMR system on her practice in Atlanta, Georgia, Jaakko responded negatively to the effect of paper-based record on their daily workflow. Jaakko said:

Paper-based here slows the pace of my work. When patients come to the hospital, they have to go and get their cards from medical records department. For example, if a patient leaves out-patient department, for say, ophthalmology department, and when he/she came back, his/her case notes could remain in that department [ophthalmology], and eventually, the case notes could be lost. Thereafter, there will be duplication of records, which could lead to some form of disjointed treatment, and this has impacted my daily workflow and productivity.

I mean, that's how I can explain it to you.

Compared to other participants, such as Joan, Jessica responded with much confidence in her precise response, giving an impression that she knew that EMR workflow processes can positively affect provider and support staff satisfaction. She responded: “As a physician, I have successfully implemented an EMR system in my practice and have reported that it has improved the quality of documentation, improved efficiency, and had a positive impact on my job satisfaction and stress level.”

Responses from other study participants, including Jennifer, Jasmine, Jabari, Jackie, Joyce, Josephine, and Judith were very similar. They all confirmed that EMR may not save an individual physician time in documenting patient information, yet that information may be more complete and therefore may reduce unnecessary tests or improve the coordination of care, and thus the process may save time and money in the long run. In contrast, Julia, Jabez and Jocelyn explained their understanding of EMR workflow processes in an unconventional manner. When asked the effect of EMR on their daily workflow and productivity, Jennifer and Jocelyn seemed to have no clear words to use to respond to the question directly; hence, they replied by stating that EMR access disparities do exist – equal access to health care services is yet to be attained. Jennifer reported:

Oh my God, yeah . . . to me I have seen patients or minorities who were declined access to EMR due to lack of insurance or capital . . . well let me just say that an environment where all patients, all people who need care are treated the same way, in that situation there is no disparity—an environment where there is no

discrimination, all patients are given the same quality of care, whether you are Black or White, rich or poor, or whether you are dressed well or bad, then such a hospital is free from disparities. For example, receptionists need to treat all people who go to the hospital the same, not greeting me with a smile because I am a doctor and Black or because I have free insurance and greet a White person behind me well with a smile and even let them see the doctor before me is disparities. Yeah, to me yes, productivity or workflow processes are impacted when there are disparities, when all patients are not treated equally, and this makes people feel bad as a patient.

Similar to Jennifer's response, Jocelyn reported:

I cannot deny the fact that health disparities exist everywhere depending on the EMR services needed. So, in my opinion, when we talk of productivity, health disparity can affect it, a physician who has an expensive EMR system in a private clinic in the city may be reluctant to use telemedicine for specialty care for medically underserved communities because of inadequate reimbursement for the increased work, and lead to an increase in liability, security, and patient private concerns. So, to have hospitals where me and you, or any other person whether an immigrant or a native-born American, poor or rich, Black or White have equal access to quality health care, is what we need. Yes, I mean that kind of care without inequalities in all aspects. I know the government is trying to address the issue of health care disparities, but I think it will take a lot to ensure that all people are treated equally. Well, for me I pray that one day all Black woman from

Africa will be treated without prejudice and have access to the same respect and care White patients receive in hospitals. I hope I have answered your question?

Yes, to me most patients in remote areas do not have access to EMR because the local hospital facility there may not afford the implementation and maintenance of a standard EMR system. So, there should be no discrimination and unfair treatment, so we can all receive the same care and services when we go to hospitals. Otherwise, disparities will not end.

Concerning productivity, Jacek took a different response. Jacek reported:

Initially, there were problems with our EMR system. But there was a stakeholder meeting where everybody told the hospital administration about the difficulty and the challenges that we were facing. Our IT engineers were also around. So during that meeting, when we tabled down our problems, they came back to do more work on the software to make it more friendly and make it easier. When you worked on a patient that you have earlier referred to another medical clinic, you can see the patient's information or records that were entered at that department. In the past, when you entered some information into the system, other departments that you referred the patients to would not see that information. They (IT) worked on it, and eventually other departments can see the records of patients that you sent to them on our EMR. In spite of the fact that the technology has made things a bit easier, it has also has reduced the number of patients that I see 70 because I still need more training. The system has affected my productivity in comparison with paper.

Theme 3: Transferring Patients' Data Between Departments

Statements, phrases, and words supporting that recent African immigrant mothers experienced unequal access to MCH care services compared to other care seekers emerged from most participants. More than 90% (17/19) of the total study participants reported that they experienced one or more types of disparities.

More than 90% (17/19) of primary care physician participants complained about missing case notes when patients carried their records between departments. Jabulani stated that:

When patients lose their case notes, valuable information is gone. For example, if my recommendation will depend on records from another department, and the information is not available, I would not be able to do my work, and the patient may have to start all over again for that visit. This can be frustrating for patients and doctors.

Jabril stated that “transferring of information through EMR has improved to some degree. But there is a lapse because some departments with EMR are not using them”.

Judith stated this:

You know like I said, this hospital was one of the pioneers to ask for EMR mentor. Not all the departments have been linked, even up till today. However, most have been linked. Some departments like the one that takes care of HIV, physiotherapy, and dental are not linked, and this has affected transferring data to the departments.

On a similar view to Jabril's perspective, Jabulani stated:

One of the main barriers is that we have quite a few EMR, and so there is a way they can all be consolidated that will benefit the patient than having certain chunks as patient information. So, when you have all this patient information at your fingertip and you skipped writing some of them, it begins to affect your doctor-patient relationship.

Joanna associated the slow adoption and barriers facing EMR system to the use of complex EMR system. Joanna responded:

The worst experience with EMR I have used is called CPRS because it's not user-friendly, it is black and white, and I am not able to go into more than one patients at the same time, you have to multitask by opening and closing a patient's chart. It does not have advanced and convenient features like Epic.

Operational Cost

All my respondents stated that the operational cost of the hospital is the responsibility of their respective hospitals' administration department. Joyce stated that, "I was not involved in any operational cost. This is the responsibility of the management" Jene echoed Joyce statement by saying that, "administration is responsible for any operational cost in our hospital." The participant went further that the administration department of Grady Hospital will be able to provide better information on that. Joanna, Jasmine and Jaakko also echoed similar statement that their administrative department is responsible for any operational cost.

More than 90% (17/19) of the participants reported incidents in which they believed that the operational cost of the EMR system is the responsibility of the hospital

administration. More than half (10/19) of the total study participants reported that EMR stimulus payments should be made available by the government on continuous basis under either the Medicare incentives for EMR or the Medicaid incentive program to enable hospitals maintain their EMR systems. In addition, five participants (about 27%) believed that physician offices will benefit greatly from EMRs and the federal grants for EMR associated with their implementation than the hospitals since incentives are paid per provider.

Research Question 2: Perceptions of primary care physicians regarding their barriers in the adoption of electronic medical records

Research question 2 (RQ2) focused on eliciting participants to share their views on the issues or barriers they experienced in the adoption of EMR system. All participants reported having experienced one or more forms of EMR barriers or difficulties in the process of discharging patient care services. To elicit the responses needed to address RQ2, I asked all participants the following three interview questions (IQs).

IQ2. What were your major barriers to implementing an EMR system?

IQ4. How did you address the major barriers as you implemented the EMR system?

IQ5. What effect has the EMR system had on your practice?

Analysis of responses to RQ2 shed light on what participants perceived to be the barriers and challenges they experienced in the process of adopting and implementing the EMR

system. Table 4 summarizes the themes and subthemes that emerged from participant responses to the three IQs that addressed RQ2.

Table 5

Emergent Themes and Subthemes for Research Question 2

RQs	Themes	Subthemes
RQ2. What are the perception of primary care physicians regarding the barriers in the implementation of EMR?	A. Types of barriers associated with the implementation of EMR system	<ul style="list-style-type: none"> • Lack of proper training • lack of system interoperability • poor funding of EMR systems • Consistency

Note. RQs, research questions; PCP, primary care physician.

Theme 4: Barriers in the Implementation of EMR

Several subthemes emerged out of participant responses to RQ2, lack of proper EMR training, lack of system interoperability, consistency of most physicians in using illegible and funding sources. But for better analysis and presentation of results, I grouped all subthemes under one theme: Barriers in the implementation of EMR. Over 90% (17/19) of the total study participants attributed EMR challenges they experience to at least one cause. One participant who said she had no barriers to EMR implementation had nothing to report. One participant who felt that her paper records should be used at the same time with EMR in case of system damages or power failure, whereas the other participant maintained that no barriers existed.

Lack of system interoperability: A majority of the participants perceived lack of system interoperability as the primary cause of slow adoption rate of EMR they reported.

Phrases and words reflecting lack of system transfer or interoperability were the most referenced in participant responses to IQ4. About 73% (14/19) of the total participants attributed the major barriers affecting EMR system implementation as lack of interoperability of systems. In this regard, Josephine stated:

I think physician attitudes are very dependent upon the type of EMR they use. The overwhelming consensus is tending towards Epic as the best EMR so far and everyone agrees. How did you address the major barriers as you implemented the EMR system? Like I said, not all EMRs have the same barriers. It's very EMR-dependent. CPRS has its own downfall; CENA has its own downfall. What is important is getting an EMR that serves general purpose. Unified EMR will help to create interoperability for easier coordinated patient care.

Like Josephine views, Jacek opined:

There are several kinds of EMR systems. The problem is centralizing or generalizing what kind of EMR program is in use just because like in Grady it's a different EMR system than in Emory. So unfortunately, it's not a lot of flow of transferring information, so you still have to go with paper to request for EMR information to be sent or faxed over to the hospital you are working with. So with the EMR, we still have variance and that is a lingering issue.

Jabril and Jenice provided some instances of unintended consequences of EMR implementation to stop the interoperability barrier. Jabril stated that:

I will still say that due to the interoperability issue of EMR, doctors should still have some paperwork to use in case of information transfer issues, damage, or so that, when the system crashes we would not lose information.

Jessica pointed out that “During the time of treatment and if the system crashes, I could lose all the information that I have already written about my patients. We found there were some problems with the technology that we were using, and the government wanted to introduce a new type of software that will be user-friendly. I believe that the new one will be an improvement on what we were given. It should decrease the waiting time for our patients who have been in the hospital around 6:00 AM in the morning. It will improve the accuracy of our diagnosis. It will improve the rate at which patients’ data are retrieved. It will decrease the waiting time in various departments that they have been to. It will make the government hospitals more patient-friendly”.

Like Josephine views, Joy opined:

EMR is somehow complex in the US healthcare delivery system. This is not like a simple bank transaction; it can be difficult to structure because there is no simple standard operating procedure the provider can turn to for diagnosing, treating, and managing an individual patient care.

Lack of proper EMR training: In a similar response, Judith attributed the challenges facing EMR implementation as the lack of proper training in the use of EMR.

She responded:

I will say that lack of adequate training is on a specific EMR system is another reason why some physicians shy away from it. It will be better to probably either have some in service tutorial to kind of give you a background of how to run things or how to look up information. I think that will be helpful. Having someone has knowledge of EMR as an expert come in to show us how to find things or how to implement EMR as end-users in the clinical setting.

Also, Jasmine associated the slow adoption and barriers facing EMR system to inadequate training of end-users. She responded:

I think it was more trial and error, when they computer started, the people teaching EMR were not much help. The more you use, you try to learn more features. I had to admit that I don't know the shortcuts like doing the short phrasing and the dot phrasing but with trial and error, I learned. We are still at the baby stage of the whole problem. With adequate training, it will help to enhance our quality of care. To retrieve some records of patients in a system that you know how to operate very well, all you need to do is click a button and get information of patients, including those who have been coming to our hospital for a long time.

Funding for the implementation and maintenance of EMR system: Considering the fund needed to implement EMR, Jose attributed that the maintenance part would be very expensive. Jose reported:

Although the EMRs have the potential to improve quality of care, reduce medical errors, and lower administrative costs, incorporating them into clinical practice will require large investments in technology, in addition to changes in existing

systems and processes. The government provided some level of financial incentives to assist medical facilities with the implementation of EMR, but I think that is not enough because the EMR system has to be maintained by vendors and doing so falls in the hospital's pocket.

Also, Jaakko associated the slow adoption and barriers facing EMR system to inadequate funding. Jaakko responded:

I believe that EMR system implementation in Healthcare information technology is expensive, and currently it is the health care provider or provider organization that bears the brunt of the cost for acquiring, maintaining, and supporting these systems. I think it has been very difficult to make a business case for the adoption of electronic medical records in small physician practices, where the bulk of health care is delivered.

Summary of Results for Research Question 2

RQ2 was designed to explore perceptions of primary care physicians regarding their successes or barriers in the adoption of EMRs. All participants reported having experienced one or more forms of EMR barriers or difficulties in the process of discharging patient care services. The aim was to elicit participants to share their views on the factors that resulted in the successes of EMR they reported in their responses to RQ2. Of the participants' responses, 17 out of 19 referred to one or more barriers to EMR implementation. Only one participant who felt that her paper records should be used at the same time with EMR in case of system damages or power failure whereas the other participant maintained that no barriers existed. While many subthemes emerged from

analysis of participant responses to RQ2, including lack of proper training, lack of system interoperability, and poor funding of EMR systems causes barriers to EMR system implementation.

Most participants perceived lack of system interoperability as the major cause of barrier to EMR system implementation they reported. Phrases and words reflecting lack of system interoperability were the most referenced in participant responses to IQ2. About 73% (14/19) of the total participants attributed the challenges to EMR system implementation they reported to lack of system interoperability. Whereas some of the participants mentioned system interoperation, others shared the same view by calling it lack of EMR system transfer of information. In addition to lack of system interoperability, several participants believed that the type of training received has much to do with the performance of a doctor in using a EMR system.

Data analysis also showed that nearly all study participants felt that there is a need to unify EMR or generate a single EMR that fits all databases to enable physicians to pull up patients' information in the understanding of the perspectives of primary care physicians towards adoption of EMR in Atlanta, Georgia. Some participants reported that sometimes it felt as though paper records are better when EMRs may go down occasionally and participants must switch to paper record and that prolongs a job that would have been done in 10 mins to take one hour. Participants suggested an approach where every hospital strives to get a user-friendly EMR. For instance, due to lack of interoperability, consolidation of all EMR databases is important to prevent errors such as skipping some patients' information that may affect the doctor-patient relationship.

Finally, the process of analyzing responses to RQ2 revealed that it was some participant's perception that poor training of EMR usage contributed to complications in the use of EMR system. The poor training of participants arose from several factors, including type of EMR interface implemented and the ability of the medical facility to cover the cost of training. More than half of the primary care physician participants (11/19 or about 55%) mentioned that they would like to have mandatory classes due their ignorance or limited experience on how to access all the features of the EMR system. Analysis of responses to RQ2 showed that the Lack of proper training, lack of system interoperability and poor funding of EMR systems that emerged from participant responses were not exclusive. For instance, lack of proper training, lack of system interoperability and poor funding of EMR system affect physician-patient relationship and lead to increase in errors in patient safety which in turn affects the quality of care in the United States healthcare delivery system.

Research Question 3: Effects of clinical priorities that have impacted physicians' adoption of EMR

Research question 3 aimed at exploring on how effects of clinical priorities have impacted participants overall experience in the adoption of EMR system.

To generate participant responses needed to address RQ3, I asked participants the following interview questions (IQs):

IQ7. What incentives were the most effective for obtaining your use of the EMR system on the local level?

IQ9. What is the comparison of time spent with patients before and after EMR?

IQ10. What business processes did you eliminate or create when you implemented the EMR system?

Analysis of responses to RQ3 revealed that primary care physicians who participated in this study felt that overall clinical priorities that have impacted physicians' adoption of EMR had a negative effect on their experience of seeking EMR system implementation. All participants shared at least one negative aspect in which clinical priorities affected their adoption of the EMR system. Table 5 summarizes the themes and subthemes that emerged from participant responses to the three research questions.

Table 6

Emergent Themes and Subthemes for Research Question 3

RQs	Themes	Subthemes
RQ3. What are the clinical priorities that have impacted physicians' adoption of EMR?	A. Effects of clinical priorities	<ul style="list-style-type: none"> • Care complexities • Staff perception • Competing initiatives • Training and Proficiency Support

Note: RQs, research questions; PCP, primary care physician.

Theme 5: Effects of Clinical Priorities

Four subthemes (i.e., care complexities, staff perception, competing initiatives, and training and proficiency support) emerged as participant responses to RQ3. For better analysis and presentation of results, I grouped the four subthemes under one major theme--effects of clinical priorities on the adoption of EMR system.

Care Complexity: Participants viewed planning and readiness due to unintended consequences as important factors that effects clinical priorities on the adoption of EMR system. In their responses to RQ3, four participants referenced that the care complexities dealing with assessing, diagnosing and evaluating patients for optimum care creates minimum or no time for EMR implementation consideration.

Notably, Jene responded:

Health care providers are interested in how EMR can improve the safety of health care, and at the same time ensure that the unintended consequences, usability, and interoperability issues of EMR system implementation are addressed. However, care complexities, and patient safety or performance issues are the problems and responsibilities of the provider to solve. Besides, the facilities have pre-existing safety improvement infrastructure and adverse event reporting in place prior to EMR advancement. Thus, this delays consideration for EMR system implementation.

Like Jene's view, Jabulani reported:

Well, I would like to say that attention to patients by doctors can take much time depending on the complications of the patient's medical condition, disease, procedure or treatment. The care complications can affect the physicians' attention towards EMR usage especially, were the older physicians are concerned because they majority of older physicians are not comfortable with EMR. Patient encounter takes a little bit longer in the outpatient encounter as you have to stream so many things together to care for the patient.

Staff Perception: Other participants reported that many health care organizations face similar struggles in their initial adoption and implementation of EMR system. When asked to share her overall experience with the challenges facing the impact of staff perception on EMR adoption, Juliet became emotional. She responded:

The process of selecting and implementing an EMR, training users, and managing workflow changes often pose significant challenges. I believe that other physicians, staff members and myself tend to view EMR implementation as a solution and found it challenging to identify new safety risks being introduced.

This issue was true for ambulatory practices more than for hospitals.

Like Juliet's views, Jacek opined:

It is something I am proud of that integrating EMR system into clinical workflows properly helps ensure the timely and effective use of patient-centered care. To be honest, priorities, and recommendations included in the EMR address issues such as ease of system use as well as overriding alerts and similar system workarounds but sometimes it is impossible because you may express some frustrations towards achieving EMR because it may be new features that are needed to document information and the doctor is not familiar with it and can't document properly, so it kind of affect the doctor patient relationship. (JAC)

Competing initiatives: Some study participants felt that there are competing factors related to risk management, quality improvement and decision support that served as preference for projects that would help medical facilities achieve "MU" objectives under the Medicare and/or Medicaid EMR Incentive Programs. In her response, Joyce

admitted that she had seen various recommendations and different expectations about health care delivery in the United States. Joyce reported:

The reluctance of most hospitals in the implementation of EMR is due to the technical safeguards, infrastructures, risk-based provisions and clinical decisions measures they have in place prior to the emergence of EMR that serve relatively similar function as the EMR in error reduction standards despite the fact that providers and health care organizations are more informed about emerging EMR system and its safety to patient care.

Jacek like Joyce's views, Jabez opined:

I will say that resources created by risk management or mitigation projects competed for time with clinical and practice-management responsibilities. Then again, a lot of safety issues have been identified at all phases in the adoption and use of EMR system. That is why a lot of safety goals and priorities have been taken seriously by providers and healthcare institutions prior to EMR implementation and also considering the type of EMR to be implemented. In fact, there are a lot of adjustments and regulations to be taken seriously prior to implementing EMR. For instance, at the national level, the IOM and the Department of HHS have set ambitious goals and priorities for improving the safety and safe use of EMR. Doing so will require goals and priorities for providers to improve safety first. (JAB)

Training and Proficiency Support: In considering the effects of clinical priorities in the adoption of EMR, some study participants felt that another useful factor

will be training and proficiency support. In his response, Jabari admitted that proper training of physicians is required. Jabari opined:

Most of the times, I will say that most providers or organizations utilize wrong strategy towards training of physicians or other end-users on EMR system.

Emmh, other issues could be though right strategy may be implemented but the information technology application, infrastructure, investments and initiatives needed to draw out the entire plan is wrong. Then when the wrong investments falters, then the information system need to be reorganized otherwise the physicians will receive wrong training. So, looking at this in its entirety, its proficient planning and training is required.

Like Jabari's views, Jessica reported:

Implementation of EMR involves the execution of a training plan that includes practicing specific goals and needs. Proficiency support acknowledges that transitioning from paper records to an EMR of any type into the user's workflow, is an ongoing learning process. Emmh, having said that, I will add that providing recurring and ongoing learning opportunities or retraining support users in achieving true proficiency with the EMR adoption, so they can more fully and efficiently use the system and resolve questions that arise after initial use of new systems is very crucial. (JES)

Summary of Results for Research Question 3

RQ3 addressed the effects of the clinical priorities that have impacted physicians' adoption of EMR by primary care physicians in Atlanta, Georgia. In response to RQ3,

participants shared their perceptions about the effects clinical priorities had on their experience in the adoption of EMR. Overall, recent primary care physicians who participated in this study felt that clinical priorities had a negative effect on their experience of implementing the EMR system. Four subthemes (care complexities, staff perception, competing initiatives, and training and proficiency support) emerged out participant responses to RQ3. For better analysis and presentation of results, I grouped the four subthemes under one major theme – effects of clinical priorities on EMR system implementation

All participants who reported challenges that pose as clinical priorities to EMR implementation viewed them as factors that affect the move to optimum care and error-reduction in patient safety. In their responses to RQ3, eight participants referenced that the clinical priorities they experienced delayed or slowed the EMR implementation process. To echo this negative perception, other participants reported the clinical priorities affected the quality of care they provided to patients and influenced doctor-patient relationship.

In a similar view, some study participants felt that the major effects that clinical priorities had on their experience in the adoption of EMR is that the organizations may be in different stages of adoption. Without proper clinical governance and technical oversight, EMR adoption stages may be delayed by the medical facility for not meeting consistent and standards-based data definitions. Other participants believed that EMR clinical documentation do not naturally emerge, even within the same clinical information system. Two study participants referenced in their responses that the decision

to switch EMR vendors was painful because they understand very well the benefits of having a stable relationship with vendors, but they had to anyway. Although it is not what they wanted to happen, most providers who changed vendors believed that it was in their best interest to implement a standard EMR system.

Comparing Participants

Since I had participant demographic data available, I conducted further analyses using this data. First, I compared the primary care physicians from Ponce de Leon Clinic (9), which is in an urban part of Atlanta with the group of participants from East Point Clinic (10) located in a rural part of Atlanta, Georgia. I explored the data to determine if there was a difference between the two groups when it came to the EMR system.

However, what I found was that all the participants in both groups had primarily similar positive and negative views towards EMR. Some of the positive views include the amount of time it saves, the reduction of errors, and they believed it had the ability to quickly transfer patient data from one department to another when needed. Additionally, all participants believed that there are space saving benefits due to the system remaining in a digital environment and not physical. Finally, other positive views included the reduction in operational costs and advanced e-prescribing and clinical documentation capabilities.

Similar negative views from participants at both clinics include the incompatibility or lack of interoperability of the EMR interface with other hospitals in the area, physicians lack of training for the system, which can cause a substantial learning curve when implementing the system. Further, negative views included discussions

regarding the high startup costs to implement the system and provide training and support to run the EMR system. The participants also reported that there is a lack of standardized terminology which can make the system difficult to use. Finally, all the participants noted that the system architecture is not what they would like it to be, which can also cause more difficulties in using the system.

Although the views were similar from both clinics, there were some slight, very specific differences in positive and negative views that are shown in Table 7.

Table 7

Participants Difference in Views

	Positive View Differences	Negative View Differences
East Point Clinic	Telehealth capabilities	Lack of patient privacy and security
Point de Leon Clinic	Enhances patient privacy and security	Lack of telehealth capabilities

Next, the participants varied in ages from 28–69. Further, there were 12 woman and 7 men in the study. I used this data to compare the participants based on age and gender to determine if there was a difference in views towards EMR. However, what I found here was that there were no differences among the views when comparing based on these two variables. Thus, all 19 participants had both positive and negative views towards EMR regardless of age, gender, or what clinic they worked at. The only exception to this was a few slight differences in specific positive and negative views towards EMR, which were shown in the table above.

After analyzing the data based on the available demographic information, it is concluded that the differences in the specific opinions are due to variances in the systems implemented at each clinic. For example, the East Point Clinic has telehealth capabilities whereas the Ponce de Leon Clinic does not have this ability. Further, the East Point Clinic reports negative views and experiences with patient confidentiality and security issues. However, the Ponce de Leon clinic has positive views towards each of these specific factors. These differences can only be attributed to the various aspects of the program each clinic has or does not have; thus, if each clinic had the same system available to them, there would likely be no differences in views.

Summary

The purpose of this chapter was to present an analysis of the perspectives of primary care physicians towards the adoption of EMR in Atlanta, Georgia. The lived experiences of primary care physicians in relation to the phenomenon of EMR adoption were narrated in response to research questions that guided this study. To gain a deeper understanding of the study phenomenon (i.e. perspective of primary care physicians towards adoption of EMR), I designed three research questions that guided this study. I recruited 19 study participants from two medical clinics belonging to Grady Hospital who met all aspects of the eligibility criteria listed in Appendix B. The 19 participants provided responses that formed all the data used in this study. Table 6 summarizes subthemes, themes, and key findings that emerged from analysis of participant responses to research questions.

RQ1 was designed to elicit detailed participant responses about perspectives of primary care physicians towards adoption of EMR in Atlanta, Georgia. All participants enrolled in this study had (a) sought and used EMRs as a work related-requirement, (b) a clear understanding of what EMR implementation means, and (c) had experienced the phenomenon of EMR usage in Atlanta, Georgia. Also, all participants understand what EMR implementation means. Themes that emerged from participant responses to RQ1 were as follows: (a) Types of EMR Interface or services, (b) Impact of EMR on workflow or productivity, and (c) Transferring Patients' Data Between Departments, operational cost, lack of proper training, lack of system interoperability and poor funding of EMR systems. All primary care physicians who participated in this study reported having experienced the use of at least one type of EMR Interface or more in the process of EMR adoption. Although interviews were conducted one-on-one in the medical office setting, analysis of participant responses to this RQ1 showed that several participants reported having experienced similar EMR systems.

RQ2 was designed to focus on eliciting participants to share their views on the issues or barriers they experienced in the adoption of EMR system. All participants reported having experienced one or more forms of EMR barriers or difficulties in the process of discharging patient care services. Analysis of responses to RQ2 shed light on what participants perceived to be the barriers and challenges they experienced in the process of adopting and implementing the EMR system. Over 90% (17/19) of the total study participants attributed EMR challenges they experience to at least one cause. One participant who said she had no barriers to EMR implementation had nothing to report.

One participant felt that her paper records should be used at the same time with EMR in case of system damages or power failure whereas the other participant maintained that no barriers existed.

RQ3 was designed to aim at exploring on how effects of clinical priorities have impacted participants overall experience in the adoption of EMR system. Analysis of responses to RQ3 revealed that primary care physicians who participated in this study felt that overall clinical priorities that have impacted physicians' adoption of EMR had a negative effect on their experience of seeking EMR system implementation. All participants shared at least one negative aspect in which clinical priorities affected their adoption of the EMR system. Four subthemes (i.e., care complexities, staff perception, competing initiatives, and training and proficiency support) emerged as participant responses to RQ3. For better analysis and presentation of results, I grouped the four subthemes under one major theme--effects of clinical priorities on the adoption of EMR system.

Chapter 4 presented an analysis of participant responses to the three research questions that guided this study and a summary of study results pertaining to the perspectives of primary care physicians towards adoption of EMR in Atlanta, Georgia. Also, this chapter provided an overview of data collection and data analysis procedures and explanation about evidence of quality in this research. Chapter 5 will involve a brief overview of the study purpose, an interpretation of the study results, limitations of the study, recommendations, and implications for social change.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

In this research study, I conducted in-depth interviews with 19 primary care physicians in two different Grady Hospital clinics: Ponce de Leon Clinic and East Point Clinic in Atlanta, Georgia. The purpose of this research was to explore, by qualitative means, the perspectives of primary care physicians about adopting EMR. Earlier studies on EMR adoption focused on the MU requirement, the relationship between fragmentation of the United States healthcare delivery system and EMR, and the use of clinical information systems. This left the health needs and challenges of EMR adoption from the perspectives of primary care physicians less known (Jang et al., 2014; Masters, 2014). Thus, the information generated in this study fills a gap in the literature on EMR adoption by primary care physicians.

Findings from this study could lead to increased understanding of the of associated outcomes that might devalue goals for developing EMR as one tool to reform health care delivery and improve health outcomes (Healthy People 2020; Belue et al., 2012). Such understanding may, in turn, lead to design and development of evidence-based policy interventions tailored to the needs of physicians. Findings from this study could lead to improved health services and patient safety outcomes. EMR implementation has affected the time doctors spend with their patients and the physician's attitude toward EMR implementation.

I selected phenomenological methodology to seek answers to the research questions. Study findings emerged from analyzing participant responses I generated

through conducting in-depth, face-to-face interviews with 19 primary care physicians who voluntarily accepted to participate in this study. I used semistructured phenomenological questions (Appendix C) designed to elicit detailed responses from participants to answer the three research questions that guided this study. I compare results to findings in the literature I reviewed in Chapter 2 to establish whether this study added new knowledge on the phenomenon of perspectives of primary care physicians' adoption of EMR in Atlanta, Georgia or not.

The main findings that emerged from analysis of all participant responses were that participants felt there is a need for more training to appreciate the benefits of implementing EMR. The participants noted that EMR has decreased processing time at registration, however, the issue of system incompatibility of EMR systems has made doctors spend more time in understanding EMR rather than devoting the saved time to patient-care.

Interpretation of Findings

This section presents an interpretation of study findings on the topic of perspectives of primary care physicians in the adoption of EMR in Atlanta, Georgia. When I reviewed the literature, it was clear that earlier studies of EMR adoption focused on the relationship between fragmentation of the United States healthcare delivery system and EMR, and the Use of Clinical Information Systems, which left challenges of EMR adoption from the perspectives of primary care physicians less known (Jang et al., 2014; Masters, 2014). Findings from this study potentially filled a gap in the literature on primary care physicians' perspective on EMR implementation in Atlanta, Georgia. The

three RQs that guided this entire study were: What have been the lived experiences of primary care physicians regarding the adoption of an electronic medical record? What are the perceptions of primary care physicians regarding their successes or barriers regarding adoption of electronic medical records? What are the clinical priorities that have impacted physician adoption of EMR? Given that majority of participants provided similar responses to the three RQs, I interpreted results according to themes that emerged from each RQ in the lens of Lewin's model of change and the context of relevant literature reviewed in Chapter 2.

The fit is to match the capabilities of technology with the requirements of the task by measuring the degree to which the technology would assist an individual in performing a task (Robles-Flores & Antonio, 2012). Primary care physicians at both Ponce de Leon and East Point Clinics embraced EMR as a technology device that can assist them in performing their individual task. They felt that the system deployed at their hospital was not properly integrated and that this has affected their performance and quality of work. Jacek, one of the participants had this to say about their EMR: You know like I said, this hospital was one of the pioneers to ask for EMR mentor. Not all the departments have been linked, even up till today. However, most have been linked. Some departments like the one that takes care of HIV, physiotherapy, and dental are not linked and this has limited transferring data to the departments. (personal communication, May 15, 2018). Kurt Lewin's model of change theory argues that information system uses, and performance benefits must be aligned with the task for which it is intended (Aday & Andersen, 1974).

According to Kaminski (2011), users will embrace technology that will allow them to complete their tasks with maximum benefits. Fourteen of the participants from both Ponce de Leon and East Point Clinics agreed with the Kurt Lewin's model of change theory in that after the deployment of EMR at their hospital, they have seen some improvement in their performance. For example, Jennifer, one of the participants stated, "Our performance has improved. We can get to patient's information faster. We can diagnose cases faster than in the past. Moreover, we have been able to see more patients per day (personal communication, May 17, 2018).

Interpretation of the Findings

The research findings in this study were consistent with similar findings in peer reviewed literature that deployment of technology such as EMR, if well aligned to the task, can influence utilization and performance (Kuo & Lee, 2011). For example, 17 of the physician participants stated that EMR has improved their performance. These 17 participants had reported that "[their] performance has improved. We can get to patient's information faster. We can diagnose cases faster than in the past. Moreover, we have been able to see more patients per day" (personal communication, May 14, 2018). Clinical Information System was designed to ease the retrieval and management of all hospitals administrative information in order to improve the quality of health care (Xierali, Philip & Paul, 2013). Participant Judith has not seen any improvement in the quality of healthcare at Grady Hospital Atlanta, Georgia. However, this Judith noticed the ease of retrieval of patients' data. Participant Jabari had this to say:

EMR has not really changed the diagnosis. It has not changed the diagnosis that I have made for anyone, whether I used EMR or not. Even the paper I have is well kept. I can always go back through the file of the patient and find information about my patients. I know it is faster to get patients information on EMR when searching records, rather than leafing through a paper. But EMR has not really changed how I diagnose diseases in this hospital (Personal communication, May 13, 2014).

For EMR to have any added value, Xierali, Philip and Paul (2013) argued that it must have a user-friendly interface that should provide a faster response time that is adaptable to clinicians' daily practice. Participant Joy agreed with Xierali, Philip and Paul that EMR must be user-friendly. Joy stated that the EMR system at both Ponce de Leon and East Point Clinics were user-friendly but still needs some improvement. The participant opined that a user-friendly system would allow for faster retrieval of data and would likely decrease the waiting for patients. Xierali, Philip and Paul stated that a long-term objective of health care is the provision of EMRs in the form of texts, waves, and images that could be kept for a long time. According to Xierali, Philip and Paul, these provisions are not obtainable in a manual entry system (2013). Chen and Frank (2011) agreed that paper-based medical record is not ideal for long-term storage because the document could be damaged after a long period of storage. Participant Julia also agreed with Xierali, Philip and Paul (2013) that EMR is useful for maintaining patients' record for a long time. This participant had this to say:

With EMR, you would have more space to keep information than the paper medical record. The space on EMR could be unlimited, and this could allow for keeping records of patients for a very long time. The second benefit with EMR is that primary care physician could access the record of the patients, even if the patients had been in another general hospital that is electronically integrated with us. EMR is good for easy retrieval of patients' information (Personal communication, May 16, 2018).

Some physicians such as Calder (as cited in Smith, 2011) stated that the use of EMR has saved him from going through endless paper charts, which has allowed him to spend more time with his patients. According to Smith, Calder felt that by spending more time with his patients, he has been able to provide better care for them. Brewin (2006) disagreed with Calder. Brewer argued that EMR has not saved time and that this could have been responsible for the low rate of adoption. One of the participants, Jose, who just started using EMR one year ago, agreed with Calder that the use of EMR would allow him to spend more time with patients and be able to see more patients per day. Joanna, one of the participants echoed Brewin's thought. This participant considered the use of EMR as a relief to primary care physicians. However, he stated that EMR has decreased the time that they spent with their patients. He attributed this decrease to incessant power failure and technical problems with their software. Joanna stated that the increase in the time that she spent with patients was not devoted to patient's care. She bemoaned the double work that she had to do with writing case notes of patients on paper and reentering this information into their EMR as well. Judith, who is used to using paper medical

records, stated that time spent with patients is predicated by the individual's ailment. Judith stated that EMR has not affected the actual time that she spent with her patients. Judith stated that she spent more time trying to understand how to use EMR than interacting with patients. Judith agreed that he would have been able to improve the quality of healthcare if he had spent more time with his patients. This participant had this to say:

EMR has reduced patient/doctor interaction time, because I spent more time, trying to understand how to use EMR than interacting with my patients. If I had spent more time with my patients, it would bring out a lot of interaction between us. EMR has taken away the relationship between doctors and patients. By spending more time with patients, they would have opened up. There are patients that I spent 45 minutes with, and the intention is to bring out psychogenic problem, take for instance, compared with someone that has malaria symptoms, where I may spend 10 minutes. You would be able to explore patients' issues if you had spent more time with them. By spending more, your patients will have more confidence in you (Personal communication, May 16, 2018).

Primary care physicians at both Ponce de Leon and East Point Clinics reported their concerns on a possible loss of data when the system faces lack of interoperability or when system crashes. Harrington et al. (2011) argued that a loss of data during system crashes, a loss of connectivity, and keypad entry error can result in unintended consequences. Participant Jabril commented that his productivity had been negatively

affected when system crashes or during downtime. Participant Jabril reported the following:

One of the main barriers is that we have quite a few EMR, and so there is a way they can all be consolidated that will benefit the patient than having certain chunks as patient information. Lack of connectivity, and keypad entry error and system breakdown are very common. So, when you have all this patient information at your fingertip and you skipped writing some of them, it begins to affect your doctor-patient relationship (Personal communication, May 17, 2014).

This research was conducted at two different Clinics in which both deploys EMR to manage their patients' medical records. The goal was to see if slow adoption of EMR by primary care physicians has enabled doctors to spend more time with their patients, and if so, whether any time saved has been used to improve the quality of healthcare in their community. I believe that the results of this research have contributed to reduce the gap in the literature regarding physician adoption of EMR. I interviewed primary care physicians who support that the adoption of EMR has enabled primary care physicians to spend more time with their patients, but the barriers and challenges such as a lack of interoperability, lack of training, and system crashes, has fostered a feeling of disinterestedness towards EMR adoption. Those physicians who reported an increase in time spent with a patient attributed it to lack of training and unexpected system downtime. This is also consistent with Boonstra and Broekhus (2010), who argued that clinicians' lack of technical knowledge to deal with EMR may have been responsible for their resistance to embracing the technology. Boonstra and Broekhus stated that some

physicians argued that EMR is unnecessarily too complicated and too limited in its capability, when compared to paper-based manual entry system. Some participants agreed. For example, participant Juliet stated that she found it easier to document her work on paper. According to this participant, she spent more time on trying to figure out how to use eHealth, rather than spending the time with his patients.

Limitations of the Study

Study design, time, resources, and personal bias were the major limitations of this phenomenological study. Responses from the 19 study participants, purposively selected to participate in this study, may not represent the global experience perspectives of primary care physicians towards adoption of EMR in the United States. As any other qualitative study, this phenomenological study generated varied forms of unstructured, voluminous data, which made the process of managing, organizing, storing, analyzing, interpreting, and presenting final study findings a time-consuming exercise.

I was knowledgeable about the different EMR challenges my study population faced when using the system. I used reflexivity to step back and critically examine to ensure that my assumptions, perceptions, preexisting understanding, and the new understanding of the phenomenon of the study did not influence the overall research process and findings. I conducted this study single handily; I was responsible for collecting, analyzing, interpreting, and reporting findings. Critics may argue that this study is a product of a single researcher's lenses.

The limitation of this study was that the research findings cannot be generalized to the general population because “applying generalizations from aggregated data of

enormous random samples to individuals is hardly useful” (Merriam, 2009, p. 224). I conducted this study using nonprobability purposive sampling, which does not guarantee that every unit of the population will have some chance of being included in the sample (Frankfort-Nachmias & Nachmias, 2008). I opted for a nonprobability purposive sampling method because it would be impractical to select a sample that is large enough to be a probability sample.

Another limitation of this study was the limited timeframe to collect data, and the time of engagement of participants was not long enough. This elimination could also impact the quality of the data. The adoption of EMR by primary care physicians to improve the quality of healthcare cannot be ascertained in that most of complaints at a hospital that deployed the technology were with consistent challenges. As a result, the perspectives of primary care physicians towards adoption of EMR at Ponce de Leon Clinic and East Point Clinic could not fully realize the full benefits of their EMR.

Recommendations

I considered a phenomenological study as the most appropriate method for this study because it involved two clinics that use EMR in the same city though, not as a comparison. Qualitative research allows more freedom than other approaches in that it allows the researcher to adjust the process as his or her project develops (Moses & Knudsen, 2007). For example, the initial plan for research is difficult to prescribe, and the process can be changed or modified because it “points beyond the object immediately at hand” (Moses & Knudsen, 2007, p. 139). In this research study, I explored the perspectives of primary care physicians towards the adoption of EMR in Atlanta,

Georgia. This showed how the use of EMR has impacted the time that physicians spent with their patients in two clinics that uses EMR.

Previous research methodologies employed in previous Kurt Lewin model of change theory had mostly used qualitative approach (Gu & Wang, 2013). I recommend further research in qualitative studies to triangulate the research findings in this multiple case studies. I recommend that a study of this nature be carried out for at least 4 weeks because I had to interview 19 participants over a period of 2 weeks. The time limit was imposed by the leadership of the clinics.

In my study, I noted that all participants embraced the deployment of technology. Consistent EMR system downtime, lack of interoperability of systems, and lack of training contributed to the refusal of the primary care physician participants to totally use EMR. I recommend that the government ensures a standard EMR system that is compatible with all systems to improve the transfer of patient data. Incessant incompatibility of EMR systems can lead to data loss. Harrington et al. (2011) argued that a loss of data during system crashes or downtime can result in unintended consequences.

The leadership of the hospital must ensure that eHealth or any EMR system that they will be using at any hospitals be fully integrated with other departments in those hospitals. According to Melendez (2012), the EMR that he adopted with his team was processing some wrong data for patients when the system that they adopted at Brigham and Women's hospital and Massachusetts General Hospital in 2008 was not fully integrated. Melendez and his team were able to recognize this quickly and corrected it

before any damage was done. Harrington, Kennerly, and Snyder (2011) recommended that healthcare leaders should understand the complexity of his technology and as such should use vendors that comply with sound design, development, and usage. Most of the primary care physicians interviewed stated that their state government would be replacing their eHealth with another EMR system that is easier to use than their current system. They stated that eHealth was too complicated for them to use.

Despite my participants' desire to embrace changes, they mentioned that they were not properly trained in the use of their EMR system. This is consistent with Boonstra and Broekhuis (2010), who argued that a certain level of computer skills is required to master the complexity of hardware and software of EMR system. Higgins et al. (2012) echoed the difficulty of using EMR, stating that, after initial installation, it could take up to 1 year to reach a stable utilization of the system. Of the three legislations (use of evidence-based learning, training, and change management support) stipulated by HITECH Act, training was cited as very difficult for clinicians because of the complexity of adopting EMR (Fickenscher & Bakerman, 2011). Fickenscher and Bakerman (2011) argued that a scenario in which busy clinicians are being trained for several hours with a system that is unrelated to their practices could be challenging. I therefore recommend that clinicians be provided with training continuously and that it should not be a 1-day training session. I also recommend that Georgia State University should complement EMR training at their location with online training.

Implications

Positive Social Change

Walden University defines positive social change as an application of strategies, ideas, and actions that could enhance the development of society (Walden, n.d.). The positive social change in this study was how the perspectives of primary care physicians towards the adoption of EMR could improve the quality of healthcare in Atlanta, Georgia. A goal is to publish the results of the study and make available to the study population, to health officials, providers, health training institution, community leaders, advocacy groups, and the public that they can be aware of the perspectives of primary care physicians towards the adoption of EMR in Atlanta, Georgia. To further awareness of the findings of this study, I will avail to discuss or interpret the significant results of this study in academic and research forums (i.e. workshops, symposiums, and conferences) at local, national, and international levels.

Also, I am willing to work with academia, research, and private or public organizations committed to addressing barriers affecting EMR adoption by primary care physicians. Hopefully, the findings of this study will be used by policymakers to design, develop, and implement tailored, evidence-based policy and program interventions to address the challenges of EMR adoption. In turn, these policy and program interventions will result in improved patient care outcomes and quality healthcare in Atlanta, Georgia.

Participants recognized the benefit of EMR and they were willing to embrace it. They complained that they needed more training. With improvement in quality of care at hospitals where primary care physicians have adopted EMR, the government could be

encouraged to provide more training for primary care physicians and other clinicians in the country, which would likely contribute to further improvement in quality of healthcare in the US healthcare delivery system.

Conclusions

This study focused on investigating the perspectives of primary care physicians towards the adoption of EMR in Atlanta, Georgia, its findings went deeper to allow participants to share their opinions about the root causes of EMR deployment and their effect on the overall experience of rendering care to patients. I also observed that time primary care physicians spent with their patients, influenced the quality of healthcare in two Grady Health System Clinics. While some participants admitted that EMR has allowed them to spend more time with their patients, a few of them stated that the length of time was due to technical problems and constant interoperability issues. The findings of this study contributed to the gap in knowledge of the EMR adoption. Results of this study indicated that Primary care physicians at Ponce de Leon and East Point Clinics disproportionately, were not too happy about the challenges they face in the transfer of patients' data and the consistent loss of case notes. Despite their frustrations, they noted that overall EMR is more convenient than the paper medical record. Primary care physicians saw a decrease in work-flow processing time and acknowledged that the use of EMR has decreased the waiting time for registration.

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Appendix A: Letter of Cooperation from the Research Partner (Organization)

Date

Christopher Okoro

Dear Mr. Okoro,

LETTER OF COOPERATION FROM THE RESEARCH PARTNER
(Grady Health System)

Based on the review of your proposed research study, Grady Health Systems has decided to grant permission to conduct the study entitled Perspectives of a Primary care Physician towards Slow Adoption of Electronic Medical Record at The Grady Health Ponce de Leon Clinics and Grady East Point Clinic, all in Atlanta, GA.

You are authorized to conduct the interviews to collect data from primary care physicians, with the participation of the individual on a voluntary basis. Grady will permit physicians who practice with the electronic medical record to participate in the qualitative research study. The participants will answer questions from their experience and perspective. Access to the physician e-mails, to permit access to recruit participants will be granted to the student.

The researcher has access to internal policies and procedures regarding strategies to meet Meaningful-Use Requirements.

Grady Health Systems reserves the right to withdraw from the study at any time and understands that the data collected will remain confidential except the student's supervising faculty/staff.

Signed: Name of person and title and date

Appendix B: Introductory E-mail to the Research Organization Center

Date

Dear (Participant Name),

Christopher Okoro

[Address redact]

January 29, 2017

Dear Sir/Madam:

I am a Ph.D. candidate at Walden University. I would like to invite you to participate in a research study I am conducting to explore the perspectives of primary care physicians towards the adoption of the electronic medical record in rural Atlanta communities consistent with the meaningful-use requirements. I am inviting you to participate in this study as a member of the Grady Health System staff at the Grady Walk-in Clinics and Grady International Clinics. The data collected will be confidential, and your participation is voluntary.

The interview is expected to last approximately 45 minutes and with questions focused primarily on your perspectives and experiences in the implementation of the electronic medical record. The interview will be recorded for accuracy, and you will have an opportunity to review the transcribed data analysis before inclusion in the study. If you agree to participate in this study, please review and sign the consent form found on the hyperlink within this e-mail. Thank you for taking part in this study.

Appendix C: Interview Questions

The following interview protocol contains the questions used to explore the central research questions in this study. These questions have been modified by using the extracts from (Richardson, 2016) and (Parrish, 2015).

1. What are your experiences with the implementation of an EMR system within your practice in Atlanta, GA?
2. What were your major barriers to implementing an EMR system?
3. What is your opinion towards the attitude of physicians towards EMR?
4. How did you address the major barriers as you implemented the EMR system?
5. What effect has the EMR system had on your practice?
6. How effective is the EMR system in your practice?
7. What incentives were the most effective for obtaining your use of the EMR system on the local level?
8. How has your daily workflow processes changed since transitioning to EMR?
9. What is the comparison of time spent with patients before and after EMR?
10. What business processes did you eliminate or create when you implemented the EMR system?

Demographic Information

1. What gender do you identify with? Male; Female; Other, please specify
2. How many years have you practiced medicine? Less than 1 year; 1-5 years; 6-10 years; 11-15 years; 16-20 years; 21-25 years; 26 years or greater.
3. What is your practice specialty?
4. Are you board certified? If so, what specialty?

5. What race/ethnic culture do you identify with?
6. What age group are you? 20-29; 30-39; 40-49; 50-59; 60-69; 70 and greater.