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Strategies for Improving the Interoperability of Private Practices' Electronic Health Care Systems

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This is to certify that the doctoral study by

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2023

Abstract

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MS, Southern New Hampshire University, 2019

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Doctoral Study Submitted in Partial Fulfillment

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Doctor of Business Administration

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Abstract

Communication of data exchange is essential for all healthcare service lines to ensure the highest quality of care. For a long time, private practices and small businesses have needed help implementing electronic healthcare systems interoperability. Grounded in the technology acceptance model, the purpose of this qualitative multiple case study was to explore strategies private practices and small businesses use to sustain electronic healthcare systems with interoperability effectively. The participants were six CEOs, managers, and leaders of private practices and small businesses in Detroit, Michigan, with direct healthcare service lines that effectively sustained electronic healthcare systems with interoperability. Data were collected from virtual interviews. Thematic analysis resulted in the identification of three themes: (a) effective communication and successful training, (b) strategic decisions and technical support, and (c) the ease of use of electronic health care systems. A key recommendation is for business leaders to incorporate training and testing in their operations. The implications for positive social change include the potential for private practices and small businesses to maintain productivity, job sufficiency, and cost-effectiveness while delivering patients the highest quality of care.

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Dedication

I want to dedicate this doctoral study to all of my family. To my great grandparents: Phillip Ruffin and Mamie Ruffin, Claude Lumzy and Rosie Lumzy, my grandparents: Seggie Ruffin Sr and Geneva Ruffin, Elsie Thompson, and Albert Thompson; thank you for being a beacon of light paving the way and making this possible.

To my parents., the late Pastor Phillip Ruffin and Lady Mary Ruffin, for caring, praying for me and with me, loving me, supporting me, and most of all, for all the unconditional sacrifices you have made to prepare me for my future and whatever may come.

Thank you, Dad and Mom. I am forever grateful, and I love you both.

To my adoring husband, Lance D. Holden, and our children, Tihira Amira, Nadira, Jabira, Shakira, Nasir, and Khadir, thank you for your love, prayers, and continued support throughout this process. Each one of you is my true inspiration.

To my grandchildren, Leah, Laylah, Amori, Myah, Cayden, and Amir, thank you for all the hugs and kisses; nana loves you, and remember, the sky is the limit. Go for whatever you want to achieve.

To my sister and brother-in-law, Keisha, and Dawayne Nobles, thank you for always lending an ear, support, love, and most valuable prayers during rough times.

To the late Dr. Alex Pickens Jr. and the Late Mrs. Patricia Pickens, thank you both for taking me under your wings. Last but not least, to all my friends, thank you for believing in me, loving me, and supporting me. I am incredibly grateful.

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Section 1: Foundation of the Study

Information and communication technology is making it possible for all health-related information, such as electronic health care records, patient accessibility, and other related patient-generated data sources, to be captured and computerized (Lee et al., 2021). Communication technology has become one of health care organizations' most common universal languages. Health care organizations hold the most appropriate and timely communication forms of electronic health care systems that are most suitable and predominantly supportive to improve the quality of care given to patients (Kushniruk, 2019). Although the allowance of care and demands have traditionally been met, private practices and small businesses still face cost growth, medical errors, and misdiagnoses due to the interoperability challenges that come with the use of electronic health care systems. Interoperability is vital for private practice and small businesses to communicate adequately and produce an operative workflow through health care technology.

In this study, I explored successful strategies that some private practices and small businesses use to effectively sustain electronic health care systems with interoperability. Health care organizations are known for their most valuable resolutions for life-threatening conditions, diagnoses, and patient's overall treatment; therefore, the functioning of the interoperability system is essential for scheduling and maintaining the electric heath care systems' upcoming operations and productivity. Through the findings of this study, health care organizations may have the opportunity to overcome the challenges of interoperability and potentially change the face of information technology (IT), which may also benefit the health care environment across the globe.

Background of the Problem

Electronic health records created a modern upgrade of data communication and improved patient and physician relationships while strategically building financial revenue for all health care organizations. According to Lite et al. (2020), in 2009, the Health Information Technology for Economic and Clinical Health Act organized the promotion of the electronic health care record and the incentive program. The Health Information Technology for Economic and Clinical Health Act contributed to the program by authorizing tens of billions of dollars to encourage private practices, hospitals, and small businesses to buy into the implementation process. The electronic health care system's data communication exchange was implemented and advanced rapidly to meet measures and avoid unwanted penalties. These results concluded with gaps in care, lack of training in vital areas, loss of revenue, and lack of an operative workflow with interoperability.

Many potential barriers can be surmounted by using electronic health care systems and gaining an operative workflow. To overcome potential barriers, Kruk et al. (2018) stated that efforts must be made to ensure high-quality, competency-focused clinical education and ethics training for providers as well as the development of a supportive environment to help them achieve quality goals. I conducted this study to explore gaps and missed opportunities that have been neglected to build a stronger connection between physicians and patients while restructuring a more robust data communication system and financial foundation.

Problem and Purpose

Health care technology investment has reached an all-time-high, with approximately $7 billion spent in 2018 in the United States alone (Shull, 2019). Despite the many improvements made to electronic health care systems, private practice and small business health care clinicians still feel the prognoses of interoperability that remain below expectation with many data exchange errors and other ongoing significant barriers (Sutton et al., 2020). The general business problem was that some private practices and small businesses do not understand how to effectively sustain electronic health care systems with interoperability. The specific business problem was that some private practices and small businesses lacked the strategies to effectively sustain electronic health care systems with interoperability.

According to Tsai et al. (2020), implementing electronic health care records was a positive success; however, health care clinicians still have valid concerns about poor interoperability and integration between systems, and these concerns have ignited a lack of trust in their usage of the systems. The purpose of this qualitative multiple case study was to explore successful strategies that some private practices and small businesses use to effectively sustain electronic health care systems with interoperability. The targeted population comprised three private practices and three small businesses located in the metropolitan area of Detroit, Michigan. The results of this study may provide new developments for effectively sustaining electronic health care systems with interoperability. The results from this study may also contribute to positive social change by increasing the quality of health care that patients receive.

Population and Sampling

The population and sampling of doctoral research are generally based on the chosen research methodology's internal and external validity, and the findings are isolated and sampled based on the exploration's detailed aspects (Andrade, 2018). The data for this doctoral study were collected from multiple participants from the targeted population: three private practices and three small businesses located in the metropolitan area of Detroit, Michigan. Each participant had knowledge of the job specifications that are directly related to electronic health care systems. I collected data from participants through interviews in which I asked them open-ended questions regarding their successful strategies for effectively sustaining electrical health care systems with interoperability.

Nature of the Study

There are three structured research methods for data collection: quantitative, qualitative, and mixed methods (Yin, 2018). I chose to employ the qualitative method to address the specific research problem of this doctoral study. Qualitative research is a method of natural observation that is used to understand people's real-world experiences, performances, and opinions within their purest form (Adane et al., 2019). A quantitative method was inappropriate for this study because the strategies being explored could not be analyzed numerically to test hypotheses. Mixed methods research combines qualitative and quantitative approaches for the broad principles of assortment and complexity of comprehension and corroboration (Schoonenboom & Johnson, 2017). The

mixed-method approach was not suitable for this study because quantitative data were not relevant to the research problem.

I considered several options for the research design of this study, including the phenomenological and narrative designs. The phenomenological design is used to psychologically address the participants' existing experiences and psychological perceptions (Neubauer et al., 2019). The narrative design is the process of collecting data based on the personal stories of the research participants (Aishath et al., 2019). The phenomenological and narrative designs were not suitable for this study since I am not psychologically addressing the participants or exploring a topic through personal stories. I employed a multiple case study design in this study. This approach was appropriate for this study because a qualitative study requires various data, such as observations, text, and interviews, to investigate the specific business problem in real-life, contemporary, bound systems (see Alpi & Evans, 2019).

Research Question

I developed this research question to explicitly focus on exploring the specific business problem: What strategies do private practices and small businesses use to sustain electronic health care records (EHR) systems with interoperability?

Interview Questions

1. What strategies did you use to successfully sustain private practices and small businesses using EHR systems with interoperability?

2. How did you develop and implement these strategies within your private practice and/or small business as an operative workflow solution enjoining interoperability with EHR systems?
3. Was the development strategy method effective and sustainable?
4. How were supporting staff able to adjust to these modifications?
5. How did the strategy development method motivate and encourage supporting staff members?
6. What types of obstacles or challenges did you experience during this process?
7. What strategic role did the IT team play during this development process?
8. Have you identified or developed any strategies to increase productivity and enhance interoperability with EHR systems?
9. What strategies did you incorporate to increase productivity?
10. How did the overall experience impact the quality of care for patients?

Conceptual Framework

The conceptual framework for this multiple case study was the technology acceptance model (TAM). Davis first proposed the TAM in 1989 to increase users' acceptance, skills, ease of use, and future intentions of utilizing IT. This model coincides with health care clinicians' skills that demonstrate their self-efficacy levels (Bandura et al., 1999). The accumulation and levels of proficiency can be defined as one's belief in their skills and competencies to formulate and organize the execution of course actions required within the health care industry (Bandura, 1999). It is necessary to enhance proficiency and cohesively communicate amongst different locations within health care

organizations to establish acceptance and knowledgeable intentions of utlizing EHR systems (Vos et al., 2020). According to Roohi et al. (2020), the existing gap between learned knowledge and inefficient practice within health care organizations causes a significant increase in wasteful spending. Wasteful spending in health care may be a nationwide issue for health care organizations and implementing and adapting to the TAM standards may give private practices and small businesses the ability to capitalize and execute cost-effective processes successfully under the restraint of challenging endeavors.

Use of the TAM allowed me to effectively explore the successful strategies of increasing users' acceptance, skills, ease of use, and future intentions of utilizing IT within private practices and small businesses. These successful strategies can be used to create goals regarding utilizing outsourced means to properly sustain patient care and workflow. Use of the TAM may also allow health care clinicians to manipulate the system to fit the demands of health care organizations and their ability to conduct an operative workflow, enjoining interoperability (Rich et al., 2010).

Operational Definitions

These terms and phrases are most commonly used within the health care environment; therefore, the words are reliable and correlate with academics and business literature.

EHRs: Electronic versions of individuals' medical histories kept by their health care providers throughout their treatment and may include demographic information,

progress notes, medications, vital signs, immunizations, laboratory results, and radiography results (Kruse et al., 2017).

Quality of care: A necessary level of care for achieving high productivity levels within health care organizations. The degree to which the possibility of achieving the expected health outcomes is significantly increased, aligning with updated professional knowledge and skills in health services (Sfantou et al., 2017).

TAM: A model used to increase users' acceptance, skills, ease of use, and future intentions of utilizing IT (Davis, 1989).

Assumptions, Limitations, and Delimitations

Assumptions

An assumption is an expectation or belief that something is true in the absence of proof (Dagan & Somech, 2021). I assumed that the study could explore and construct meaning through multiple realities (see Kivunja & Kuyini, 2017). Another assumption in this study was that EHRs have contributed to the improvement of the health care industry by demonstrating the highest quality of care provided to patients and the success of the implementation of electronic health care systems. I also assumed that I would have the opportunity to explore strategies relevant to further improving electronic health care system usage with interoperability through this study and that the results may be used to develop a more robust financial foundation.

Limitations

Limitations are defined as aspects of the study that may potentially be out of the researchers' ability to control and may affect the potential to obtain a successful research

outcome (Theofanidis et al., 2019). The potential limitations of concern in this study included the access I had to participants while adhering to health care facility agreements, privacy rules related to Health Insurance Portability and Accountability Act violations from being granted access to EHR systems, and the ability to recruit potential participants for the interviewing process.

Delimitations

Delimitations describe the author's conscious setting of boundaries through established restrictions so that the aims and objectives of the study remain achievable (Theofanidis et al., 2019). This study was limited to participants who had access to the health care organizations' portal daily. This delimitation was established so I could capture the participants' experiences of how a successful operative flow during the use of electronic health care systems and finances may increase revenue.

Significance of the Study

This study is significant because it provides data regarding successful strategies for using electronic health care systems with interoperability. There has been a fluctuating balance for health care clinicians to work efficiently and effectively within the limitations of health care organizations' strategic workflows. During the past few decades, technologies have transformed health care, producing changes and broad support for health care organizations This study was necessary to add valuable understanding for private practices and small businesses to establish a successful operative workflow with integrated systems.

Contribution to Business Practice

As the implications of data communication increase in development, health care organizations are more inclined to increase growth and compete with a competitive edge (Purcarea, 2019). The consistent contribution and practices for change have become an economic boost for the health care environment (Kruk, et al., 2018). Private practices and small businesses are keeping pace with the modern times and changing to continually implement health care system improvements. There is the opportunity to shift business perspectives to align with a practicable flow and increase revenue through the implementation of the strategies employed from the findings of this study.

Implications for Social Change

Health improvements and the advancements in technology have positively impacted the social changes in modern society, exposing the means to create a better life for patients. The use of the electronic health care system improves the quality of care given, making it beneficial to the promotion of health care services the surrounding community receives. In addition, the study results impact positive social change that benefits the health care industry and allows clinicians to better utilize captured data to improve patient care and patient experience.

A Review of the Professional and Academic Literature

Producing proper patient care is one of health care clinicians' leading concerns. Servicing patients effectively and efficiently in electronic health care systems supports communication with how patients receive treatment and diagnosis. Electronic health care systems are a positive contributing factor to the modifications in health developments

within the business. Introducing electronic health care systems and technology helps build the health care industry and join bureaus worldwide. In this qualitative study, I explored some strategies that private practices and small businesses use to sustain electronic health care systems with interoperability.

In this literature review, I sought to survey the extant data, concepts, records, and evidence that relate to the research topic (see Zuiderwijk et al., 2020). This literature review also contains a discussion of the conceptual framework of the TAM. There are continuous barriers faced by private practices and small businesses with regard to maintaining an operative workflow with interoperability while using EHR systems, so additional research studies are necessary to address these challenges. In this literature review, I attempted to establish and identify the successful implementation of effective and efficient strategies for applying an operative workflow with interoperability during the use of EHR systems. The literature review is comprised of the following segments: (a) the TAM, extended versions of the TAM, and alternatives to the TAM; (b) an overview of electronic health care systems and their functionality; and (c) interoperability, health care barriers, and challenges related to cost.

I used the Walden University Library to find relevant literature for this doctoral study. The databases and search engines used were Google Scholar, Sage Journals, JMLA, PubMed, and NCBI Journals. I used the following keyword search terms to locate literature for this review: *close financial gaps with EHR, interoperability, enhancing coding operability with EHR systems, EHR,* and *inefficiencies with private health practices and small businesses*. My search mainly focused on sources that had been

published in the last 5 years to gain an in-depth wealth of knowledge on the topic. A total of 150 sources were cited in the study, of which 137 were peer-reviewed sources, which accounted for 91% of the references.

Conceptual Framework: The TAM

Davis (1989) first proposed the TAM. The TAM has been one of the most applied models of variations to research health IT's ease of use; intentions to engage with users; and individuals; attitudes, behaviors towards use, and perceived usefulness of IT (Beldad & Hegner, 2018). The approach toward technology adaptation depends on the individuals' acceptance of and attitudes toward the systems employed (Vladova et al., 2022). For example, suppose a health care clinician can function proficiently and effectively through data exchange. They may support and accept technology implementation and incorporate that ability as an operative system. The technology is then perceived as valuable by a health care clinician's belief in applying electronic health care systems. The acceptance of the user may also encourage improvement in their job performance. In unison, perceived ease of use refers to their certainty that electronic health care systems require minimal effort once trained in use (Nguyen et al., 2020). Health care clinicians are subject to working in fast-paced environments within private practices and small businesses, making it possible for many challenges to occur, such as medical errors, excessive spending, misdiagnoses, and interoperability. If electronic health care systems were easier to use, health care clinicians would deem the portal more beneficial for private practices and small businesses.

The benefits and perceived usefulness of an operative workflow are crucial to simplifying specific efficiency goals. In addition, the workflow of private practice and small businesses is essential to maintain an operative flow of patient visits and consistent revenue (Kurk et al.,2018). The benefits of technology and its perceived usefulness to the electronic health care system are critical components of patient visits and operational processes, but, over the years, the implementation of the TAM and its perceived usefulness has demonstrated how improved health care workflow may allow accessible modifications with the necessary improvements to care gaps (Davis, 1989). Nevertheless, the lack of interoperability and the electronic health care system's perceived usefulness approach to the workflow of traditional care has resulted in inappropriate care for patients and misrepresentation of workflow for health care organizations and those who require minor and extensive services (Nyguen et al., 2020).

Further evaluation of users' apprehension about engaging with electronic health care systems is necessary to evaluate employee adaptation and performance (Yulianti & Pusparini, 2021). The TAM is more prominent and recognized for its perceived usefulness and intention of use concepts (Davis, 1989); however, many health care clinicians differ in their attitudes regarding the implementation of new resource technology. Health care clinicians' intention to engage in using electronic health care systems can raise employees levels of apprehension to change.

According to Scholkmann (2020), for the timeframe of technology's existence, people have resisted it. The working environment is currently dominated by two opinion groups, those who believe technology eliminates jobs and those who believe it drives up

costs (Snoswell et al., 2020). Change is inevitable when incorporating the pertinent use of systems within private practices and small businesses. A health care organization's survival may solely depend upon their ability to introduce changes that is successful (Rehman et al., 2021). The elements of unwillingness to change can present a hardship for thriving private practices and small businesses.

Davis (1989) enhanced the TAM by introducing the extended version. Venkatesh and Davis (2000) named this new, extended version of the TAM, TAM2. The TAM2 emphasizes social influence and cognitive processes on perceived usefulness and intended usage (Hoong et al., 2017). The TAM2 provides a clearer understanding of the direct effects of use and intention to use (Venkatesh & Davis, 2000).

According to Kruk et al. (2018), electronic health care systems are primarily judged on their impact on how health care clinicians can contribute to care and their perceived usefulness within health care organizations. Private practices and small businesses heavily rely on the perceived use of the electronic health care systems' job specification intake and performance effectiveness for a productive workflow. The TAM2 was primarily proposed to understand the health care clinicians' use of electronic health care systems within a health care organization (Racero et al., 2020). The perceived significance of the input through the specified job intake by the health care clinician determines the job's relevancy and the system's authenticity. If a system is at a nonworking capacity, health care clinicians will consider the electronic health care system's performance invaluable. For instance, if the electronic health care system was

deemed valuable by perceived usefulness, positive usefulness might increase the level of usage over some time (Momani et al., 2018).

Davis developed the original TAM to provide essential elements with which to explore the decision-making and acceptance process of electronic health care systems by users in a clinical setting (Henshall et al., 2020). The original prototype of the TAM by Davis (1989) and the extended version of the TAM2 by Venkatesh and Davis (2000) offered a considerable amount of in-depth detail on the relationships between perceived usefulness, job specification, resistance, and authenticity relating to electronic health care systems, private practices, and small businesses. Venkatesh and Davis created a third version of the model, the TAM3, to extend further the model.

Regardless of the complexity of the social environments they occur in, such as health care facilities, the determination of health care clinicians' decision-making process has been considered an essential element of the acceptance of, perceived usefulness of, and engagement with technology of the workforce that determines and contributes to a health care organization's efficiency and workflow satisfaction (Ceschi et al., 2017). Private practices and small businesses may have the opportunity to build on the effectiveness of the user's experience with electronic health care systems. Using the frame of the mindset development of each health care clinician that interacts with the electronic health care system generates a different component of a decision-making process regarding how the system is deemed valuable or invaluable. The determination and acceptance of electronic healthcare systems profoundly affects a successful workflow within health care organizations.

I also considered using Smircich and Morgan's (1982) health care leadership theory as the conceptual framework for this study. The demands of leadership and the teaching and training of employees on implementing the electronic health care system for a successful workflow are crucial to maximizing practical administration skills and decreasing costs (Xu, 2017). According to Smircich and Morgan, the health care leadership theory is used to shape and define the opportunity for an organized understanding of formed leadership styles and their behavioral approaches within private practices and small businesses. Utilizing the health care leadership theory, I would have had the opportunity to develop and understand the phenomenon of critical aspects of significant leadership roles. These leadership roles align with health care organizations' structured management guidelines that are needed to give a deeper meaning to organized development of leadership behavioral approaches within private practices and small business organizations and their employees' participation. However, my specific concerns in this doctoral study were more aligned with the TAM (see Davis, 1989). The TAM focuses on the employees' perceived usefulness and behavioral outcomes, which I applied to the use of the electronic health care system that produced an operative workflow to enhance the quality of care for patients and be cost effective.

Electronic Health Care Systems

The electronic health care system produces a digital edition of a patient's paper chart, has forced a cultural shift and transformed the focus of dialect, and is now a standard medical technology (Wolfe et al., 2018). The electronic health care system is a strategic version of real-time, patient-centered records that instantly make information

available to health care clinicians within private practices and small businesses (Ammenwerth et al., 2017). Private practices and small businesses heavily depend on the electronic health care system for the modern changes in increased revenue, clinical data collection, health-related issues, quality of care, and the ability to store (Uslu & Stausberg, 2021). As the electronic health care system evolves within private practices and small businesses, changes should occur. Health care clinicians' challenges with the technology should be considered when using electronic health care systems for the new types of data collected from patients, additional privacy and security policies, ethics, data sharing for user ability, decreases in revenue, and communication (Zayas- Caban et al., 2021).

The transition from traditional to modern technology has resulted in a professional transformation regarding the use of electronic health care systems. The proficiency of physicians' skills allows them to notate in-depth clinical documentation and develop the craft of medicine. According to Honavar (2020), health care records have 4,000 years of development history, and the progression of medicine and health care records has existed in some shape or form since the beginning of medical history.

For many years, traditional paper charts have been an established source of communication within private practices and small businesses; however, this conventional sense of paper-based health record charting systems costs private practices and small businesses precious time and money. The traditional sense of charting also interferes with providing the best care for patients (Mijin et al., 2019). The use of paper charts transitioning into the implementation of electronic health care systems is one of the most

secure ways of handing pertinent information that pertains to patients' private demographics and intimate details of care. In addition, the EHRs provide information in the form of data that was not available with the traditional chart form. For example, using EHRs, health care clinicians can access, manage, and share pertinent health information with other health care facilities authorized privately in a secured, controlled environment (Ruhi et al., 2021).

Successful accessibility of EHRs during the use of the electronic health care system is essential for an operative workflow. Since the launch of the electronic health care systems process, more than 94% of hospitals across the United States have applied some form of the EHRs system (Khairat et al., 2018). The accessibility afforded by the electronic health care systems exists as an avenue to accommodate a successful operative workflow within private practices and small businesses. The relevancy measurements of a successful operative workflow are supported by the accessibility of the electronic health care system's capacity to input and output demographic and general information, track and dispense medication, verify insurance, and retrieve relevant lab results for patients during an office visit. The electronic health care systems' elements of accessibility are a daily resource for users from private practices and small businesses and contribute to structured functionality. Each state of the electronic health care system has been proven beneficial to the health care industry and is regarded as vital to development, but the ability to support end users is still an ongoing operational development process that has not been met. As a result, the accessibility of the electronic health care system is a critical element that has been unsuccessful in advancing at an increasing rate (Sieck et al., 2020).

Many limitations of electronic health care systems result from implementation process variation. Third-party vendors allow access to applications that extend the capabilities and features of health care organizations' electronic health care systems (Ritchie & Welch, 2020). Due to the widespread use of electronic health care systems and third-party applications, it has become necessary to perform a systematic review and analysis of functions in electronic health care systems application marketplaces (Kawamoto et al., 2019). Konnoth and Scheffler (2020) conducted a systematic review of third-party vendors, analyzing nearly half of the participants in the most recent health care information and technology exchange study. The authors learned that electronic health care systems vendors routinely partake in electronic health care systems blocking. Konnoth and Scheffler also found that 25% of the participants indicated that hospitals and some electronic health care systems routinely do so too. These methods of conduct should be sanctioned and revised with prevention penalties to ensure successful accessibility.

The defined characteristics of electronic healthcare systems allow access to private practices and small businesses. The electronic health care systems were created and designed to fit the population's needs and expanded to improve patients' health. The federal government placed the electronic healthcare system's foundation into operation to improve technology and patients' diagnoses to advance healing further. The background of electronic healthcare systems describes how modifications of the characterized system continues to contribute to medicine, taking the world into the future (Evans, 2016). The defined characteristics and the structured quality are the desired features of an electronic

healthcare system that emphasizes usability or measurement of performance. The accessibility, complexity, effectiveness, ease of use, information and exchanges, utilization, versatility, integration, interaction, dependability, responsiveness, system correctness, system features, and reversal time are distinct elements of the system's capability (Alazaam et al., 2021). The technology of health has bridged a form of communication through the use of electronic health care systems. The use of the system has also created a better relationship between physicians and patients. Private practices and small businesses can summarize their findings to build on the health diagnosis to contribute to the care relationship. With the electronic health care systems, relationships are finding ways to improve daily use.

Electronic health care systems enable care and also administrative support. Electronic health care systems allow private practices and small businesses to help securely transmit patient data and provide high-quality patient care. Private practices and small businesses are also streamlining their focus on patient safety and reducing errors. The implementation of data administration ensures that the most proper patient care is protected and precise transfer of confidential retrieved data (Bates & Singh, 2018). Health care clinicians are steadily responsive to the demand to improve and support the population by reducing errors and increasing the quality of care for patients. Although many versions are ready and available for the electronic health care system, one critical element is inputting and exporting the appropriate data. Implementing the electronic health care systems should come close to managing the needs of the private practice and small businesses' requirements to meet measures of intricate care, cost, and trust and

assist in sustaining an operative workflow. Implementing the appropriate electronic health care system with the proper case definition enables efficient data extraction, improves interaction for clinical decision-making in private practice and small business research, and enhances the quality of health care services (Adane et al., 2019).

One of the primary and targeted goals of electronic healthcare systems is to enhance the relationships of healthcare organizations. The electronic health care system enriches collaboration within multifunctional health care facilities (Vos et al., 2020). Private practices and small business professionals can improve collaboration as an opportunity for health care team members to utilize the electronic health care systems and presume roles to work together cooperatively. These assigned roles may consist of different perspectives and skills for sharing the accountability for solving problems and making critical decisions to formulate and carry out plans to be effective and efficient within the quality of workflow and patient care (Morley & Cashell, 2017).

The defined enhancement of electronic health care systems collaboration within private practices and small businesses is critical for developing aims of meeting goals and objectives. As health care clinicians continue the connection in work performance within private practices and small businesses, it further develops the use of the electronic health care systems and the skillset of the health care clinicians. Deviation from these developments may yield an opportunity for a non-alignment of goals and perceived usefulness of the electronic health care system.

The electronic health care systems globalization and significant data impact the overall health care technology's development. The utilization of electronic health care

systems and the ability to collaborate is a critical endeavor for the United States and globally. Implementing electronic health care systems establishes globalization's perceived usefulness and the need for development and expansion within different countries. The global health electronic system is an avenue for mapping the relationships between various online and offline networking (Hoffman & Cole, 2018). Data sharing across sanctions are still in high demand to collaborate for all health care entities. The health care organizations' advantages of exchanging patients' health information through the electronic health care system globally across providers have been a long-awaited recognition and participation in health information exchange. The cause of these measures based on collaboration has different cultures lagging in implementing electronic health care systems (Mello et al., 2018).

Although there is a tremendous push for the electronic health care system, many challenges still go beyond the scope of technology to involve social and behavioral detriments (Jacob et al., 2020). The electronic health care system's social and behavioral domain is a vital element of private practices and small businesses. The social and behavioral determinants of health care are the cultural environments people are born, work, or have adapted to within the population (Marmot, 2018). These social and behavioral determinants often consist of the development and integration that correspond with the economic systems' societal structures and sanctions responsible for most health discriminations (Chen et al., 2020). These determinants can contribute to and often relate to a way of life from adaptation.

Consequently, these determinants may also become contributing factors that are critical causes of the results of society's unfortunate outcomes and hardships that affect everyone near and beyond those measures (Magnan, 2017). The description of social and behavioral determinants aligning with health and its concentration on technology explains how the electronic health care system can contribute to meeting different levels of meaningful use standards. Meaningful use in the healthcare environment is applied to obtain specific objectives such as the cultural environment, demographics, patient engagement, variations of change, and other life cycles (Nielsn et al., 2020). These objectives allow healthcare organizations to recoup meaningful use of incentive funding and meet quality care measures. Capturing social and behavioral determinants with the electronic health care system is a point of opportunity to identify and enhance different regions and levels of care for patients. Electronic health care systems' social and behavioral determinates reiterate how the incentive program's meaningful use can be accomplished by obtaining measures specific to the culture and needs of the patients. Electronic health care systems improve the needs of the patients and the requirements of private practices and small businesses to meet many measures of care.

The population and support of electronic healthcare systems are effective across the globe. Population health is the science and prevention of the health effects of a group of individuals (Baba et al., 2018). The population of health groups of individuals is classified as the support to improve the most vulnerable population. The population health individuals have primarily focused on private practices and small businesses (Kindig & Magnan, 2019). The electronic health care system is a crucial segment of

population health; health care clinicians can capture and track health issues through this feature. Electronic health care systems have emerged among health care systems as a critical piece for monitoring population health and supporting meaningful use. The federal government launched meaningful use to measure areas for improving the health proficiency of patients and quality care (Bau et al., 2019). It is also a way for private practices and small businesses to gain incentives. These incentives can increase revenue for health care organizations and mend the financial disparity that private practices and small businesses face (Erickson et al., 2020).

Although the electronic health care system has improved by supporting population health and capturing and tracking the population, electronic health care systems still resume with the lacking interoperability, functionality, and many medical errors in other instances (Kruse et al., 2018). In addition to the errors, Kruse et al. (2018) found that most medical errors occur when staff is not adequately trained to use the electronic health care systems. By shaping and forming information technology, complimenting health information technology is changing the face of healthcare.

The positive impact of health care delivery and electronic healthcare systems can be an increase in cost for improvement in private practice and small businesses. Moro Visconti and Morea (2020) stated in 2019, a study was conducted on the financial stability of health care delivery and electronic healthcare systems; the United States projects an increased rate of 5.4 % from 2017 to 2022. Moro Visconti and Morea also stated this would reflect the demanded increase for modifications within technology and lifetime resulting conclusions. Health information technology is an asset that bridges gaps

between hospitals and remote paying participants. It also breaks down the study into categories. The impact of health digitalization helps pinpoint the growth of the aged population. When hospitals consistently meet their measures and follow the rules and regulations, bridging gaps occur.

Private practices and small businesses can be affected by operations and the cost of health care. According to Moro Visconti and Morea (2020), if profits are not taken into account, a two-headed sword will result and can be damaging to private practices and small businesses. Traditionally, private practices and small businesses used traditional methods, but new technology has altered this. Health care operations and costs have been impacted by technology. To maximize value and leverage patient care, health care organizations can utilize a variety of itemized categories. When skills and communication are at the forefront of the clinician's usage, profitability has an opportunity to be maximized.

Electronic health care systems' delivery of ethical conduct plays a vital role within private practice and small businesses. The safety of daily medical information during a workflow process can present a crucial challenge for private practices and small businesses. Private practice and small businesses may encounter busy health care facilities that leave them vulnerable to experiencing ethical issues. Often, health care clinicians face unethical situations during their engagement with electronic health care systems, and these issues cover an extensive assortment of areas within private practice and small businesses (Rasoal et al., 2017). According to Tafie (2020), these vast areas may exist through the service delivery task provided to patients during the daily use of

electronic health care systems. For example, data privacy, security violations, and medical errors. Ethical conduct is a supporting mechanism for the functionality of private practices, small businesses, patients, and health care clinicians. Filling the gap in medical technology is a critical piece.

Analyzing and exploring ways to improve the workflow process during the use of electronic health records may benefit all health care clinicians. By studying its functionality, private practice and small businesses have the opportunity to understand the functionality for a better user experience of the electronic health care system and decrease the vulnerability of ethical issues. The understanding will also have the opportunity to balance the improvement of quality care provided to patients and cost-effective avenues.

Utilization of the electronic healthcare system may have severe effects when improper use occurs, and medical errors can result. Poor use of electronic health care data processing systems is one of the critical indicators for medical errors. Implementation of standardized data management systems assists in the reduction of errors that are associated with data processing and suffering elements (Adane et al., 2019). Electronic health care systems have supported health care clinicians in capturing errors related to the overall clinical process of data entry. According to Harron et al. (2017), EHR are essential to researchers for their potential for successful levels within technology applications.

As many health care organizations across the globe expand from the use of technology, its opposition should have the potential to reduce errors and produce a higher

quality of care for patients. The success of the data that has been collected depends on the research that has been collected. The quality of the information is critical and relies on the collection process. EHR have a disadvantage, just as traditional charts with medical errors. Some links can lead to misdiagnosis and mistakes within the electronic health records platform due to different diagnosis methods for patients. A study was performed to capture these mistakes using data identifiers. Similar data have been investigated to ensure that errors are captured to ensure safety and the highest quality of care for patients. These methods are implemented to ensure that electronic health records remain an essential asset for healthcare organizations. In addition, the errors of studied elements about electronic health records are furnished further to advance technology use within the healthcare environment.

The electronic health care system can secure and track data usage, integration, and communication. Electronic health care systems have been an onset for improving health care through their trust and communication development. However, the intricate details of electronic health care systems' implementation and further interoperability development are still debated. According to Tsai et al. (2020), there is a decrease in communication and the lack of integration of health care clinicians' workflows. The lack of connective communication with other health care organizations in electronic health care systems could increase providers' workload. Communication and trust play critical roles in all health care environmental relationships between private practice and small businesses (Molina- Mula & Gallo - Estrada, 2020). Patients often trust when entering a health care facility that physicians will meet all the patient's health care needs through the

transaction of communication. This sentiment applies to patient and physician relationships and the relationship between the communication workflow of patients, health care clinicians, and the use of electronic healthcare systems. Health care clinicians rely on the data usage of transactions of the electronic health care system and its ability to compile, store, and evaluate extensive amounts of healthcare information data. Collecting and integrating data is one of the most critical aspects of the workflow process, care of patients, and the electronic health care systems (Adjekum et al., 2018). The electronic health care system's strategy progression of communication can only be of prominent detail if integration is adhered to as a valuable substance of resource.

There are still barriers to utilizing electronic health care systems and telehealth. Telehealth is a technology that has become an outlet of communication for private practices and small businesses to medically treat, diagnose, engage, and interact with their patients through a secured virtual appearance. Health care clinicians can connect with established patients anywhere and anytime permitted through telehealth. Many patients based with private practices and small businesses have found the virtual connection convenient and a more innovative way of communication.

Private practices and small businesses' managed care workflow routines have been shaken by the COVID-19 pandemic. Countless errors related to the implementation of electronic health care records surfaced during the COVID-19 pandemic. For example, most electronic health care systems do not communicate between health systems which causes significant delays in the facility-to-facility prompt application of appropriate precautions (Pryor et al., 2020). The uncertainties of real-time events showed countless

challenges of despair for the access to trade and commerce and the nation's population. As stated for health care facilities, the invention of telehealth was an opening channel of supply to continued practice. During the COVID-19 pandemic, there was a significant decline in recouped revenue and cost within private practices and small business physician visits. As a result, many private practices and small businesses were compelled to close their business doors and utilize the virtual connection of telehealth. Through the use of electronic health care systems, telehealth has contributed to health care delivery modalities (Androga et al., 2022). Although COVID- 19 was able to show private practices and small businesses how interoperability is still a challenge by describing unwanted medical issues, increased revenue, and redundant costs.

The economic rates of insurance and day-to-day preventive practices continue to rise. Private practices and small businesses feel the added pressure of insufficient electronic healthcare standards. Private practices and small businesses have similar experiences with clinical data transactions that all have substantiation costs that align with interoperability challenges (Lite et al., 2020). Thomas et al. (2022) conducted a study on COVID- 19 pandemic. Thomas et al. found that since the COVID-19 pandemic, there has been a rapid increase in global telehealth utilization within the United Kingdom, with a 1,000 % increase in Scotland for 2 weeks in March. Thomas et al. also stated that a similar event occurred in Australia, with an increased percentage of 0.2 % in February 2020 to 35 %. As a result of these events, the Centers for Medicare and Medicaid Services (CMS) have expanded the access for patients to utilize telehealth services to decrease Medicare beneficiaries and the need to seek care at private practices and small

businesses (Rubin, 2020). Although telehealth visits align with convenience and improve the quality of patient care, there are still excessive barriers to electronic health care systems' levels of communication. Despite this, heavy regulatory laws and an insufficient payment structure hinder the widespread implementation of telehealth (Kichloo et al., 2020). As a result, within some private practices and small businesses, a challenge remains in obtaining updated patient signatures and demographics before approving insurance authorizations for telehealth visits. The rapid occurrences of increased telehealth visits elevated the urgency for local and broader information exchanges to become available nationwide.

Interoperability

Interoperability is yet an unrefined component of technology that plays a significant role in data exchange throughout health care networking. Private practices and small businesses dedicate themselves to transforming the global health care industry. Utilizing electronic health care systems and incorporating interoperability is underlining this process. Interoperability can assist in using electronic health care systems at their total capacity of interchanging data. To extend the highest quality of care to patients, private practices and small businesses depend on a cohesive version of the technology in the form of modern communication.

This doctoral study aims to demonstrate why interoperability is most important to the healthcare industry by exploring some private practices and small businesses that lack the strategies to effectively sustain an operative workflow with interoperability during the use of electronic healthcare systems. The foundational access and interoperability

exchange have four stages generally classified and designed into four primary levels: *base*, *sematic*, *organization,* and the *structure* of health information technology exchange (Shah et al., 2016). The foundation of interoperability is when data are produced and exchanged from one computer system to another (Golzarpoor et al., 2018). According to Bombard et al. (2018), patient engagement and data exchange are critical components of healthcare delivery. For example, to encourage patient interaction with the development of data exchange, patients can manually enter patient demographics on a secured patient portal. The document is then uploaded. Depending on the document's location resource, the assistance of third-party vendors would exchange this data with private practices and small businesses.

In addition to data exchange, patient surveys after a doctor's appointment are complete and serve as an example of patient interaction. Patients are once more encouraged to interact with the development of exchanging data. The patients are invited by private practices and small businesses to give their opinion about the quality of their experiences. The basis of the format is participated by manually uploading their feedback from the experiences. This information is an intimate exchange between the user, third-party vendors, private practices, and small businesses. Having patients interact with the system allows patients to share the responsibility of actively accessing and exchanging data; without interoperability, patients are held accountable for remembering to share their own experiences in a traditional sense of pen and paper method. *Organizational interoperability* is the description. *Semantic interoperability* is a direct data exchange that

enables shared computer knowledge and data sharing among organizations or systems (De Mello et al., 2022).

De Mello et al. (2022) stated that semantic interoperability ensures that the data exchange is understood and interprets the data regardless of who participates, using medical terminologies and vocabularies. (Lehne et al., 2019). Lehne et al. also stated by combining foundational and structural process concepts, the semantic interoperability exchange is recognized as one of the most critical stages of interpreting the highest quality of patient care. Semantic interoperability's ability to exchange is heavily relied on to communicate and transfer procedural information by private practices and small businesses for its functionality. According to Seyed- Nezhad et al. (2021), through a referral system, health care clinicians ensure the efficiency of close relationships within healthcare on all levels. Based on Seyed-Nezhad et al.'s findings, 1,245 relevant studies were included in the first stages, and 63 studies were affected by referral system performance. Health care clinicians utilize the referral processing system within private practices and small businesses to outsource patients who need additional or special care. Outsourcing patients for specialist care allows health care clinicians to meet and align with quality measures while diagnosing and treating a patient on different methods. To monitor and track a diagnosis, physicians rely on exchanging information from one system to another. Another example of semantic interoperability would be workflow process management; healthcare clinicians routinely work with physicians to ensure that the patient flow is smooth and continuous. Communication to generate labs, referrals, and the ability to maximize open access to available exam rooms after triaging patients.

Communication that promotes semantic interoperability promotes an effective working relationship. Sutton et al. (2020) found that reorganizing the clinical workflow process is beneficial and crucial for reducing costs and improving the turnaround time of clinical evaluations. Without the systematic interoperability of exchange, health care clinicians would have continuous communication barriers.

The structure of semantic interoperability has many barriers that can disrupt and interfere with the use of the electronic healthcare system. The exchanging of data from one system to another has barriers to private practices and small businesses' eprescribing. For instance, once a patient has completed an office visit, the physician generates the prescriptions. The electronic health care system must be able to communicate and exchange prescribed medication with pharmaceutical systems. For example, Lehne et al. (2019) discussed how the volume of pharmaceutical requests could increase from revised medicine to newly diagnosed medication requests. Private practices and small businesses rely on the electronic health care system to produce multitudes of data to exchange these medication requests. Interoperability is relevant for proper treatment; an inaccurate exchange may cause a lapse in time and treatment for patients to receive adequate care.

Third-party vendors play a critical role with interoperability barriers. Third-party vendors allow the electronic health care system to develop and expand with continued unified use (Kawamoto et al., 2019). These intricate details are most valuable for a continued seamless office visit workflow process, such as being able to schedule appointments, checking in and checking out patients, self-check-in, patient survey

feedback, verification of insurance, ordering labs, and electronic prescribing of medication.

Many private practices and small businesses have invested in implementing electronic healthcare records systems. Savage and Savage (2020) conducted a study and found in 2015, 96 % of hospitals and 78 % of private practices and small businesses successfully implemented some electronic health care system. Interoperability within health care assists is essential in restoring the disparities in the deliverance of health and increasing the purpose of modern technology. The lack of interoperability is a continuous phase in this doctoral study to drive the crucial elements of patient care, decreasing the shortage of data exchange and the opportunity to increase revenue within private practices and small businesses. Each level of development is a nuance of description vital to building on health improvement within the metropolitan areas of Detroit, Michigan communities and across the globe.

Consistency with electronic healthcare systems will allow private practices and small businesses to benefit with improved net value. According to Pine (2019), with the inclusion of workflow services, the electronic health care system's standardized productivity to provide interoperability offer a net value of $77.8 billion per year. An increased net worth and improved interoperability offers private practices and small businesses appropriate real-time diagnosis of patients yielding a higher quality of care. Furthermore, private practices and small businesses will also have the opportunity to fully extend the expansion of clinical services and increase the perceived usefulness of the electronic health care system with improved net value.

To deliver organized medical treatment for health care, private practices, and small businesses have developed consistently high ratings and trusted relationships with large and prestigious hospitals. These established relationships are vital for supporting services that provide a mutual reference for a progressively working flowed treatment for minor and critical conditions. Although private practices and small businesses have long-standing clinical health work relationships with hospitals, small businesses and private practices are at a much higher rate to experience interoperability. Pendergrass and Chandrasekaran (2019) found that in 2014, 76 % of hospitals were able to conduct successful data information exchange. Only 42% of private practice and small businesses could engage in any kind of information, and only 26% were able to exchange. Several years following Holmgren et al. (2017), Pendergrass and Chandrasekaran's findings discovered some minor improvements in data exchange within hospital settings were at a growing rate of 29.7% in 2015. With the advancement of interoperability, health care organizations can improve more than just patient care in one central location; improvements to patient care can be made across the nation. For example, suppose a patient decides to visit another state. If that patient becomes ill and has to seek medical care, that patient is at risk for improper medical treatment if needed. Because interoperability is not available nationwide to adequately exchange patient information from one system to another, patients with inaccurate diagnoses may not receive the proper medical treatment they require. The deficiency of interoperability is a critical distraction to the appropriate patient care and makes it impossible for adequate diagnosis, resulting in higher demand and costs.

In some cases, the improved rate of technology has significantly increased the growing demands of health care services leaving private practices and small businesses under pressure to meet their and patients' needs. Subsequently, barriers resulting from improper diagnosis may also be an attributed factor to private practices and small businesses that cannot afford to consistently modify their electronic health care systems to meet the integration demand. Although many health care organizations have transitioned into the modern version of the electronic health care system, the traditional IT systems and technology still exist in many health care organizations, causing interoperability to be practically impossible (Javaid et al., 2022). Per the Centers for Medicare & Medicaid (2022), severe penalties might be imposed on those participants not adhering to the newly reformed obligation for participants of federally governed health plans called the Promoting Interoperability Program. The Promoting Interoperability (PI) Program, formerly recognized as the Medicare & Medicaid Incentive Program, rewards participants for employing certified health information technology and the certification of the electronic health care system (Pylpchuk et al., 2021). These particular programs are intensely involved in promoting interoperability and ensuring that electronic health care systems are utilized to demonstrate the meeting of quality measures. Patients are also aggressively engaged in restructuring and promoting the reformed program. According to Pylpchuk et al. (2021), enhancing health care technology management was based on three stages. Such as setting the basis for capturing data from the electronic health care systems, expanding and improving electronic health care systems, and improving patient access. Pylpchuk et al. found that the functionality

involved surrounds these particular stages. The Centers for Medicare & Medicaid created rules and regulations to promote interoperability. With the nuance of expanding incentives and the laws and guidelines to encourage prompt interoperability, many new studies were conducted to measure and address the alignment of the attempted restructuring of quality measurements

Hoong et al. (2017) conducted a study involving data exchange nationally within U.S. hospitals. Hoong et al. developed four areas to measure interoperability in the surveys from 2014-2018. Hoong et al. found that the Technology for economic and clinical health act of 2009 treated their focuses on increasing incentives. Still, data sharing with the use of the electronic healthcare systems results from one quarter were fewer than expected throughout the hospital survey for 4 years. Hoong et al. also stated that the decreased experience of rating involving data exchange may not be a success until sometime in the year 2027.

Strategies dealing with interoperability, rules, regulations, errors, and elevated costs may encourage different workflow operations of training structures. There are many barriers related to interoperability and electronic healthcare systems. Using electronic healthcare systems to their fullest capacity continues to be challenging within private practice and small businesses. As a result, the success of the implementation process of electronic health care systems also remains an ongoing barrier related to the usage and training of staff members. Training staff members often generates multiple ways of coping mechanisms. Earlier, the study expounded on the TAM by Davis (1989). The TAM was examined with variations of ease of use and apprehension. Incorporating a

development of training methods may have an opportunity to offset the adverse effects on a user's ability.

Developing strategic and standardized methods of dealing with operational problems is essential for private practices and small businesses. According to Carayon et al. (2019), a critical synthesis of understanding system barriers emphasizes how workers experience job specifications and handle them. For example, the development of resilience, electronic health care systems adaptation, workflow problem-solving, and the potential to create workarounds.

According to Henshall et al. (2020), resilience is the ability to cope and be successful despite adverse circumstances. For instance, interoperability barriers may arise for health care clinicians confronted with one or multiple providers. Coping with interoperability during the high demands and added pressure of an operative workflow may designate the behavior of a health care clinician being overwhelmed with numerous obligations. The development of resilience may assist a user in planning and organizing their workflow when utilizing the electronic health care system and interoperability. Health care clinicians' prioritization skills allow for the unexpected of any disturbance to be rectified promptly with unified resolution.

Private practices and small businesses are rapidly changing with the refinement of modifications of the electronic health care systems; health care clinicians must adapt and handle these sudden changes (Kristensen et al., 2020). The electronic health care systems' variations of change took on their shape and form during the implementation process of electronic health care systems. Health care clinicians' apprehension about these

modifications became accustomed to the transition from traditional charting to the transformation of electronic health care systems. For example, health care clinicians rely on resilience skills to pull through unexpected disturbances and, over time, adapt to the changes that take place with similar occurrences. From the adaptation and organization of the transition and coping with interoperability during the use of the electronic health care systems, health care clinicians can seek to find stability to complete many tasks.

Several segments comprise the workflow of private practice and small business responsibilities while using electronic health care systems and functioning with interoperability barriers. An effective and efficient workflow depends on health care clinicians carrying out their duties, yet everyone works together for one common goal. However, many workflow problems often arise that are caused by deviation from an adapted workflow. A health care clinician could identify the problem and make necessary changes through proper training. Alluring, adequate training to healthcare clinicians may have the opportunity to ease use and unwanted tension.

Davison et al. (2021) stated that the post adoption setting of electronic healthcare systems may have several consequences with workarounds. Workarounds may contribute to the limitation and the ability of health care clinicians to fully access the electronic health care system and interoperability. Although workarounds can be a temporary fix to a problem, they often leave health care clinicians in the direction of deviating from the accomplished goal of having a seamless and effective workflow during the use of electronic health care systems and interoperability. The ability to communicate from

system to system is vital and is a very useful feature and cost efficient for private practices and small businesses.

Golzapoor et al. (2018) stated that there is a compelling need to move beyond the scope and limitations of integrated systems to leverage cloud-based information systems to enable communication and collaborative relationships between distributed stakeholders and enable the electronic health care system. The value of exchanging data from one system to another is the foundational basis of interoperability (Rajkumar et al., 2022). Interoperability opens up a direct line of communication on all levels of care that is critical within private practices and small businesses. Private practices and small businesses are most effective when all productivity measures can be exceedingly met during an office visit or outsourced specialty care. The ability to conduct the highest quality of care is the driving force of all actions throughout health care organizations. Increasing the effectiveness and efficiency of an operative workflow was also a goal of interoperability.

Conclusion

This review represents the professional and academic literature on the consistent barrier to interoperability during the use of electronic health care systems. The literature review has also exhibited that not all strategic angles of interoperability have been explored and addressed. Since transitioning from the traditional charting of records to the current EHR specification, private practices and small businesses rely heavily on utilizing a successful and continuous workflow.

According to Dutton & Koehler (2020), the majority of revenues in the U.S. health care industry is from fee-for-service and billing to patient insurance companies, 80% –90% or from the patients themselves, 10%–20% and growing. In a rapidly changing environment, the collaboration between enterprises is becoming increasingly diverse. It has been emphasized that interoperability is essential for the success of private practices and small businesses (Jwan & Hakan, 2020). With the evolutionary development and ability of the electronic health care system, healthcare revenue has a chance to continue to increase with a successful operative workflow incorporating interoperability. Interoperability is the basis of health care's ability to build a seamless way for private practices and small businesses to meet and succeed in quality care measurements for patient care. Without interoperability, private practices and small businesses will continue to experience fragmented attempts to communicate and connect with additional costs through modern technology.

The gap in the literature defining interoperability provided the means to analyze current events evolving in the study. The support of the TAM framework by Davis (1989) and its researched content offered a more profound and saturated understanding to assist with resolving disparities with interoperability for future reference. These resolving issues with the lack of interoperability can bring short and long-term benefits from utilizing the TAM.

Transition

This transition statement aims to explore successful strategies that some private practices and small businesses use to effectively sustain an operative workflow with interoperability during the use of electronic health care systems.

Section 1 established a foundation and exhibited details exploring the problem of the lack of the ability to sustain an operative workflow during the use of electronic health care systems. These details were also presented within the problem statement, the nature of the study, the conceptual framework, and the significance of the study. Within Section 1, the problem was a driven force to produce the research question and combined literature review.

In Section 2, I discussed the methodologic component of the study. It also describes information about the role of the researcher and the specific guidelines for the data collection and analysis. The research method and justification of the qualitative multiple case studies is discussed within this study. Throughout this process, I maintained the study's rules, regulations, and ethical standards.

Section 3 addressed the study's research and presentation findings by submitting a professional review. In conclusion, the researcher reflected on the studied results and made the necessary recommendations to follow suit regarding the topic of the inquiry.

Section 2: The Project

Section 2 begins with an explanation of the study's purpose. In Section 2, I also the methodological steps taken in this multiple qualitative case study of strategies to effectively sustain an operative workflow with interoperability during the use of electronic health care systems. This study's success depended on applying the advanced process development aspects, and each stage of development was critical.

Purpose Statement

According to Tsai et al. (2020), implementing EHRs was a positive success; however, health care clinicians still have valid concerns about poor interoperability and integration between electronic health care systems, and these concerns have ignited a lack of trust in the usage of the system. The purpose of this qualitative multiple case study was to explore the successful strategies of some private practices and small businesses to effectively sustain electronic health care systems with interoperability. The targeted population comprised three private practices and three small businesses located in the metropolitan area of Detroit, Michigan. The results of this study may provide new developments regarding effectively sustaining EHR systems with interoperability. The results from this study may also contribute to positive social change by increasing the quality of health care that patients receive.

Role of the Researcher

The qualitative multiple case study design allows for the researcher to explore and dive deeper into complex, real-world issues (Alase, 2017). From my days in the clinical setting as a medical assistant to the present as a practice manager (in administration), I

have gained vast knowledge of electronic health care systems. My background has provided me with specific training and insight into the nuances that private practices and small businesses experience daily regarding the use of electronic health care systems. Having witnessed the transition from paper charts to EHRs, I have always been fascinated by the process of electronic health care systems and being a part of the operational team that provides quality patient care.

The researcher is responsible for attempting to collect data relevant to the study. In this study, I collected data through participant interviews. *The Belmont Report* summarized the ethical principles that the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979) identified during its deliberations relating to human research. To be aligned with *The Belmont Report* guidelines, I needed to be receptive and transparent in gathering pertinent information and selecting participants in Detroit's metropolitan area who had experience with successfully sustaining electronic health care systems with interoperability. The data collected from the targeted participants provided the opportunity to better understand and develop strategies for private practices and small businesses to use to improve the interoperability of their electronic health care systems.

Participants

Qualitative research is the most robust way of understanding what the participants think about an innovation (Hamilton & Finley, 2019). The critical concepts distilled from the target population's experiences and perspectives of real-time events are what the researcher uses to answer the research question(s) in a qualitative study (Collins &

Stockton., 2018). In qualitative research, information is collected through interviews from participants experiencing the phenomenon concerning what is occurring and why (Bradshaw et al., 2017). I chose the participants of this qualitative multiple case study based on the categorized relationship that is directly aligned with the healthcare service line of EHR systems. Adhering to ethical principles must be a prominent factor when establishing strategies for gaining access and sustaining workable relationships with participants in qualitative research (Vuban & Eta, 2019). The first step to gaining access to participants is a researcher requesting access to the targeted population. I had to obtain written consent from the human resources departments, CEOs, managers, and/or leaders of the participants who had worked in the three private practices and three small businesses located in the metropolitan area of Detroit, Michigan that were the target population in this study. After receiving approval from the human resources departments, CEOs, managers, and/or leaders, I had to develop a level of rapport with the participants to maintain a balance of trust, privacy, and professionalism during the research process.

Research Method and Design

Researchers use three approaches to comprehensively understand their research: quantitative, qualitative, and mixed methods (Dawadi et al., 2021). In this study, I used a qualitative approach. The multiple case study research design was most appropriate because it strategically aligned with the goals of the study and allowed for the collection of data from the targeted population of qualified participants. In qualitative studies, various data, such as observations, texts, and visual interviews, are gathered to investigate

the specific business problem justified in real-life, contemporary, confined, and structured events (Dejonckheere & Vaughn, 2019).

Research Method

The purpose of this multiple case qualitative study was to explore a more profound interpretation of the participants' natural experiences and perspectives of a phenomenon while enhancing the qualitative comprehension of utilizing electronic health care systems (see Daher et al., 2017). While exploring the participants' natural and holistic experiences, the researcher must focus on the context perspectives that arose from the participants' authentic responses (Alase, 2017). I aimed to provide real-time, saturated data comprising in-depth descriptions of successful strategies used to effectively sustain electronic health care systems with interoperability.

According to Noyes et al. (2019), a quantitative approach is insufficient to address health systems-related questions; however, the quantitative method remains essential to the most recognized algorithm-based research approaches (Zellner et al., 2021). Because the quantitative method relies on anticipating what needs to be measured to achieve accuracy, it was unsuitable for this study.

According to Regnault et al. (2018), a mixed-method approach integrates both qualitative and quantitative methods. Although a mixed-method approach would have been a robust way to research health systems, it was not appropriate for this study because quantitative data were not relevant to answering the research question.

Research Design

I employed a multiple case study design in this study. By using a case study research design, the investigator was able to collect and analyze evidence that enabled them to answer the specific business problem question (Priya, 2021). Phenomenological questions concern a phenomenon that is not well known and requires an investigation within the environment in which it occurs, and this requires a case study approach (Tobi & Kampen, 2018). Utilizing a case study has many benefits. Case studies are frequently used to conduct research because the interest is focused explicitly on the complexity of a single or multiple cases (Rashid et al., 2019).

For this study, I chose a multiple case study design to concentrate on the contemporary phenomenon and explore it through various lenses, extracting data from sources to achieve triangulation (Ebneyamini & Sadeghi Moghadam, 2018). To conduct the study, I needed to request access to the health care organizations' employees for participant interviews. These participant interviews focused on the successful strategies that the private practices and small businesses have used to effectively sustain electronic health care systems with interoperability. I selected multiple participants from the targeted population of three private practices and three small businesses located in the metropolitan area of Detroit, Michigan. The recruited participants partake in the interviewing process specifically focused on the research questions. The data collected from the participant interviews included itemized logs and notes I took during the interviews to assist with data analysis. Other data types included articles related to the study and government resources from the U.S. Department of Health and Human

Services, Office for Civil Rights, and CMS. The collected data and interview responses allowed me to address the study's problem and purpose.

Population and Sampling

Qualitative sampling comprises the use of various interviews conducted during multiple case studies to ensure that the findings provided rich and saturated data (Korstjens & Moser, 2018). I used purposive sampling in this qualitative study to ensure a sufficiently saturated sample size. In purposive sampling, participants are selected according to their purpose in relation to the case study and characterized by the characteristics that enhance an understanding of real-life experiences (Andrade, 2021). My objective was to interview and collect data from the qualified participants of the targeted population of three private practices and three small businesses located in the metropolitan area of Detroit who had direct knowledge of and experience with the EHR systems. The data collected in this study answered the research question and provided real-time information that may contribute to the health care environment.

Ethical Research

The multiple case study design allows researchers to gain experienced information from participants' knowledge in specific fields of business. Each aspect of ethical research defines the magnitude of the participant's lives, well-being, dignity, and respect for privacy (Sng et al., 2016). Therefore, gaining pertinent information from an outside source should be protected at all costs. In addition, researchers must adhere to the moral elements of a research study. By following the principles outlined in *The Belmont*

Report, the researcher ensures that they uphold and implement ethical research and analysis processes (Sng et al., 2016).

After being granted approval under IRB approval number 09-09-22-1016775 to conduct the study by following the guidelines of ethical research conduct put forth by Walden University's Institutional Review Board (IRB), I began the data collection process by obtaining consent from the qualified participants. To obtain informed consent, pertinent information about the study must be disclosed to the participant, the consenter must have the capacity to consent, and the decision must be voluntary (O' Sullivan et al., 2021). I either emailed or hand delivered a written consent form to the potential participants (i.e., CEOs, managers, and/or leaders of the three private practices and three small businesses located in the metropolitan area of Detroit). I informed the participants that no pressure would be applied to coerce them into participating; therefore, the consent form included a clause stating that they could withdraw from the study at any point and could do so without penalty. The consent form also included a clause informing participants that no incentives would be provided for their volunteered participation.

Research ethics stress the importance of confidentiality and requires researchers to ensure that they respect the dignity and autonomy of human subjects when using or sharing information about them and to ensure their interests are not violated (Bos, 2020). To follow Walden University IRB guidelines, I am storing the collected data from the participants in a secure and safe location for a period of 5 years. The collected data is stored in a locked cabinet with a combination that only I have access to. Securing the

collected data in a locked cabinet and safe location ensures that the participants' rights to confidentiality are not violated.

Data Collection Instruments

Within health care systems, a research document study is a standard method used to collect data (Busetto et al., 2020). Collecting accurate data from participants is critical for conducting a qualitative multiple case study. These participants worked in various organizations across Detroit's metropolitan area and had pertinent insights into successful strategies that some private practices and small businesses use to effectively sustain electronic health care systems with interoperability.

Balancing the advantages and disadvantages of formulating a doctoral study is essential. One advantage of this doctoral study was that it provided the opportunity to collect saturated data from the targeted participants to produce a successful strategic conclusion. The strategic conclusion can be used by other private practices and small businesses. The disadvantages of collecting data in this manner included the amount of access to participants afforded by health care facility agreements, privacy rules related to HIPPA violations complicating being granted access to EHR systems, and the ability to recruit qualified potential participants.

After receiving IRB approval, I moved forward with data collection. The data collection involved contacting three private practices and three small businesses. The organizational data technique of this study was based on multiple data collected from the instruments of the targeted participants' interviews. During the data collection process, I used a cell phone to record all the collected data from the targeted participants. All data I

was able to obtain within this doctoral study is being stored and accessible for future reference with recorded information.

Additionally, I kept track of pertinent information gathered using research logs. I employed color- coding to examine the collected data. By color-coding, I had the opportunity to analyze qualitative text data by taking them apart in order to uncover value before putting them together again (Elliott, 2018). All data collected and utilized within this process from the targeted participants will be stored for approximately 5 years after the completion of the study.

Data Collection Technique

The purpose of this qualitative multiple case study was to explore the successful strategies of some private practices and small businesses to effectively sustain electronic health care systems with interoperability. According to Busetto et al. (2020) the value of research involves analyzing the nature of a phenomenon, often by using semi structured interviews. Busetto et al. also stated in order to perform an analysis of the data collected from semi structured interviews transcripts and protocols must be created. To explore these strategies, I followed a guided interview protocol (See Appendix B) that consisted of 10 interview questions while conducting virtual Teams and or Zoom interviews. The potential participants had knowledge of the job specification that were directly related to EHR systems were contacted by phone and email. The participants received a copy of the consent form and were made aware the interview process would be recorded and strictly confidential. Teams and Zoom interviews with a cellphone for every recording of the interview session, enabled me to record the duration of the interview and accurately

transcript the participant's statements. Each interview was expected to last approximately 30-60 minutes to allow for questions, follow up responses and notations. The interviews were scheduled around the convenience of both the participant and myself. Follow up phone calls and emails were conducted to validate the information obtained. Utilizing the interview protocol allowed me to obtain accurate data that is essential for gaining a detailed understanding of lived experience and to integrate a systematic approach.

Data Analysis

Multiple case studies are qualitative research methodologies used to analyze various data sources in order to gain a better understanding of a problem. By visualizing the case study through multiple lenses, multiple facets of the phenomenon can be revealed (Rashid et al., 2019). Erlingsson and Brysiewicz (2017) stated that an analysis of multiple qualitative case studies primarily focuses on describing the results of vast amounts of data collected clearly and concisely. The data analysis for this doctoral study addressed each research question pertaining to the doctoral study. I prepared the analysis by utilizing NVivo. NVivo l assisted in allowing me to facilitate and identify principal themes for my doctoral study. Utilizing the color-coding analysis enabled me to differentiate between each response of the participants and to cross-analyze each case within the doctoral study.

Reliability and Validity

Reliability

The credibility of an adequately formed researched study should always stand on the consistency that the authentication of the research conducted can be validated within its findings of the research method. The researcher can demonstrate the difference between a successful or failed research development through the reliability process. The researcher would need to maintain an open account of reliable research practices, analysis, and conclusions while remaining cognizant of the partiality of the information presented (Cypress, 2017). Ultimately, the study's dependability must be shown and proven by the researcher as a source of credibility and is essentially a trustworthy element. A qualitative research study that follows the suggested format, style, and research techniques can turn into a valuable piece of evidence that validates the study's intent (Forero et al., 2018).

Validity

Validity can be viewed as the quality of being grounded in facts, relevant, meaningful, logical, and confirming to accept principles and being sound, just, and consistent (Cypress, 2017). The goal for this doctoral study is to explore the data collected from an array of instruments of the targeted participants' including interviews, questionnaires, and document reviews. In addition to exploring the collected data, I checked for accuracy within the researched findings to establish the study as a reliable source.

As a component of the study's intentions to determine reliability and validity, a researcher would verify the study's objectives by utilizing the credibility, transferability, and confirmability process. The concept of credibility refers to the degree of confidence in the validity of the data and its interpretation (Renjith et al., 2021). I incorporated the triangulation method of multiple in-depth approaches to enhance the value of credibility strategically and address the research question (Korstjens & Moser, 2017). The transferability is a characteristic of relevancy and the dynamic interaction of conditional criteria in the research process's primary and target context, which must adhere to the transfer process (Schloemer & Schröder-Bäck, 2018). By providing audit trails, revisions, and decisions on the choices, the researcher can increase transferability by communicating the generalizability analysis of the research assumptions (Nowell et al., 2017). The ability for researchers to confirm their findings plays a crucial role in qualitative research. Confirmability establishes that data and interpretations are not fabricated from the inquirer's imagination but based on empirical research (Korstjens & Moser, 2017). To ensure confirmability, the researcher must make sure that they maintain effective communication and keep accurate records of the data collected to avoid miscommunication and accusations of bias (Dejonckheere & Vaughn, 2019). Qualitative research uses data saturation as a criterion to determine when to stop collecting and/ or analyze data. Failure to achieve data saturation would significantly impact the research conducted (Saunders et al., 2018). In many cases, research findings cannot be replicated because of errors in experimental design and statistical analysis (Prager et al., 2019). The researcher must then demonstrate transparency and document the failed attempts.

Transition and Summary

This qualitative case study aims to explore successful strategies that have successfully sustained small businesses and private practices to sustain electronic healthcare systems with interoperability. Section 1 of this study describes the conceptual framework based on the literature review analysis. The conceptual framework of this study utilized the TAM by Davis (1989) in focusing on the specific research problem and interview questions galvanizing the real-time information from the targeted participants of the metropolitan area of Detroit, Michigan. Detailed information about the study's methodology is presented in Section 2. In Section 3, I recapitulate the study's methodology and discuss the findings in descriptive detail.

Section 3: Application to Professional Practice and Implications for Change

Introduction

In this qualitative multiple case study, I explored strategies used to successfully sustain electronic health care systems with interoperability. The targeted population of this study included a total of three private practices and three small businesses located in the metropolitan area of Detroit, Michigan. I applied the conceptual framework of the TAM guided this study data analysis. As part of the data collection process, I collected data from participants via virtual interviews using Microsoft Teams and a cellphone that enabled me to audio record and import the participant responses into the QSR NVivo R1 software for data analysis. QSR NVivo R1 software also assisted me in developing itemized logs of data, notations, color-coding accuracy, and themes. Three key themes emerged from my cross-analysis of the data: (a) effective communication and successful training, (b) strategic decisions and technical support, and (c) electronic health care systems' ease of use.

In this section, I provide a comprehensive summary of the research findings and the qualified participants' experiences directly related to electronic health care systems with interoperability. An in-depth analysis of the research findings is also presented in a manner that applies the TAM.

Presentation of the Findings

This study was guided by the following research question: What strategies do private practices and small businesses use to sustain EHR systems with interoperability? Participants from three private practices and three small businesses in Detroit, Michigan

were interviewed for data collection. The participants were six CEOs, managers, and/or leaders of private practices and small businesses that sustained an operative workflow with interoperability. Participants were informed through the consent process that all information obtained would be kept confidential, and their identities would not be disclosed. Participant numbers (i.e., Participant 1, 2, 3, 4, 5, and 6) were substituted for their original names. I conducted data analysis in QSR NVivo R1, which assisted with the color-coded analysis and differentiating between each response of the participants.

Three main themes emerged from the cross-analyzed data: (a) effective communication and successful training, (b) strategic decisions and technical support, and (c) electronic healthcare systems' ease of use. The first theme of effective communication emerged from implementing updated technology and consistent staff training. An employee's ability to navigate and use the electronic health care system efficiently and effectively is critical for processing and developing essential data entry and workflow clinical operational skills (Aguirre, 2019). The second theme was strategic decisions and technical support, primarily driven by an employee's need for assistance. Employees must have a sound support system to make effective decisions that will enhance their ability to perform successfully. The third theme is the EHR system's ease of use. In the TAM, Davis (1989) stated that the ease of use of a system directly influences an employee's willingness to accept the electronic health care system. Inadequate training, errors, misunderstandings, and other problems can result from the rejection of the electronic health care system, which may negatively impact not only the utilization of the system but also the profitability of private practices and small businesses.

The TAM by Davis (1989) served as the conceptual framework for this study. The TAM focuses on factors determining an individual's behavior intentions to use new technologies from the perspective of the end-user (Kalayou et al., 2020). Using the TAM in this study generated an opportunity for the findings to be further enhanced with a significant level of understanding of how the electronic health care system would be perceived as useful, easy to use, and be accepted by the user. Besides being able to describe a technology's perceived usefulness and acceptance by its users, use of the TAM helped to identify the dominant challenges faced by private practices and small businesses due to ongoing barriers resulting from a lack of strategies for maintaining an effective operative workflow and interoperability while using an electronic health care system. According to Pereira et al. (2022), multiple factors can affect the acceptance and use of successful strategies, including behavior, clinical care, and operating workflow system structure levels. As a result, use of the TAM was a valuable method of determining a system's success by examining behaviors, ease of use, and acceptance. In this multiple qualitative case study, I gained valuable insight into how interoperability can be used to create effective workflows in an operational setting and the distinct characteristics of electronic health care systems.

Theme 1: Effective Communication and Successful Training

Based on the results of this study, effective communication and successful training are directly correlated with TAM. Change management and technology modifications are necessary for organizations implementing electronic health care systems. From the finding of this study, I also learned that modified changes often require

employees to adjust overtly or convertly, but employees' ability to adapt is paramount. According to Anthony and Petersen (2021), in the TAM, users' inclination to use or not use an application depends on the degree to which they believe it will improve their job performance. Additionally, in the TAM, Davis (1989) stated that building self-confidence is integral to effective communication and successful training.

Effective communication and successful training were identified as a theme that all participants agreed are crucial elements in ensuring that the knowledge acquired by private practices and small businesses is further nourished and maintained for the deliverance of effective, efficient, quality care to patients. The quality of care that health care private practices and small businesses provide to patients can be enhanced by developing the employees' communication skills and sharpening their abilities through essential training (Mata et al., 2021). In a health care environment, communication and essential training are inextricably linked. The importance of communication and training for employees ensures that private practices and small businesses are building trust with their employees and helps establish a solid foundation for learning and productive work environments. In addition, some participants commented and added value of improved efficiency from the integration of (Davis's, 1989; see also Tsai, 2020) TAM regarding the perceived ease of use of the electronic health care system when communication and training were implemented.

A lack of communication between health care organizations and patients can cause several errors. Training deficiencies may lead to resistance from employees to change and the acceptance of electronic health care systems. In correspondence to the

literature review, errors may also be caused by the lack of training users have with the electronic health care system; nevertheless, through training and communication, that can be minimized to ensure that electronic health care systems are usable (Henshall et al., 2020). Participant 1 stated, the "electronic health care system is changing every day. So the first strategy is to keep on educating; training, training, training is key for new information anywhere." Participant 2 also noted two things crucial to sustainability: training and testing. Using electronic healthcare systems to capture and use clinical information and knowledge is vital for a quality, safe, sustainable health care system (Fennelly et al., 2020). Participant 3 learned new staff did not have much knowledge of technology; teaching them was challenging due to language barriers, but the organization's vision encouraged a successful implementation. According to Al Shamsi et al. (2020), a language barrier has been shown to contribute to miscommunications that may negatively affect patient care, and health care organizations have used online translation tools to meet these challenges. Participant 4 acknowledged that after their organization recruited individuals to train employees, their employees were eager to learn newly implemented electronic health care systems strategies. Participant 6 reported that employees willing to learn would learn the basics of operating the electronic health care systems if given 1 week of training.

According to the participants, employees must remain engaged with electronic health care systems and undergo training to stay up to date with developments and improve patient care continuously. Concise communication and proper training will ensure the development of the employees and the health care organizations.

Theme 2: Strategic Decisions and Technical Support

The concepts surrounding Theme 2 combine strategic decisions with technical support and the TAM for employees' ease of use of the electronic health care system. In order for the electronic health care system to be effective, employees must feel capable of making strategic decisions and know that technical support is nearby. The second theme, strategic decisions and technical support, is also related to the importance of communication and proper training. While ensuring adequate communication and training, some participants felt that a support system was necessary and helpful to ensure the systems were properly utilized and implemented in private practices and small businesses. Participant 1 stated, "We sustain support with IT third-party support partnership that has helped with communication and training. Working as a team with the third party partnership, it has become very, very successful." Participant 2 reported that they were able to implement what their organization called subject matter experts. These experts were a part of the organization and were referred to as super users. Through the support of their colleagues, super users assist staff members and give them the confidence they need. With the assistance of the super users, staff support is an ongoing process implemented within the organization after the vendors have completed it. To ensure the process is operating smoothly, the staffing support would consist of daily and multiple meetings to provide proper support and correct errors as needed. Those who support that practice represent the backbone of the organization. As a result of this process, all staff will contribute to the organization's sustainability.

Supporting employees in making strategic decisions and reducing costs is essential. Proper staffing support will enable health care organizations to minimize errors. According to Moloney et al. (2020), a healthy, high-performing, committed workforce promotes sustainability and organizational effectiveness. Participant 3 found that staff quickly understood new measures due to IT. Participant 4 described the electronic health care system's implementation as a case of a trial-and-error process. IT supports the organization's desire to be sustainable, but the implementation of electronic health care system can be challenging without IT support. In addition, Participant 4 noted that the electronic health care system was initially not sustainable, even with IT and its expertise. The prognoses of the implementation process within the health care organization may take up to a year to complete the sustainability method. As part of the strategy to ensure compliance, Participant 4's health care organization implemented a pilot program with other companies to ensure the electronic health care system works appropriately.

Theme 3: Electronic Health Care Systems' Ease of Use

The ease of use of an electronic health care system is essential to maintaining an operative workflow. Operational workflow is fundamental to the clinical process to minimize errors (Hess, 2018). According to Zheng (2020), the electronic health care system has been a challenging transition over the past decade, impairing frontline clinicians' ability to provide safe, efficient, and effective care. Employee ease of use during operative flow is critically important for not only minimizing errors but for maintaining safe patient care for patients. Employees should be able to use the electronic health care system seamlessly.

The third theme of the electronic health care system's ease of use affects the ability of private practices and small businesses to deliver quality care to patients effectively. An employee's ability to navigate the electronic health care system is essential to private practices and small businesses' success utilizing the system. A product's usability refers to whether it performs its intended function when used as intended. All participants agreed that the system's ease of use contributed to the quality of patient care.

According to Participant 1, "It was challenging for the organization to go viral since the employees were uncomfortably changing. However, as the health care organization progresses, integrating electronic healthcare systems with interoperability has become easier for patients and employees to integrate." Participant 3 stated that "implementing new features made the electronic health care system very user friendly." Participant 4 stated that,

> electronic healthcare systems are needed. It is necessary at our facility, and we are diligently pursuing it. As our company has 239 facilities, we implement more and more of the electronic health care system daily. Our goal is to make it stick. We are still working on it.

Participant 5 reported having an improved experience of using electronic health care systems, saying, "Access to charts and work made it easier for me to see care plans and additional information." According to Participant 6, "the electronic health care system is easy to navigate." Participant 6 also noted,

through navigation that everything moves quickly; when a button is pressed to give the electronic health care system a command, everything moves even faster. The system moves fast; you can press a button, and everything moves even more quickly. Each patient can be in and out of the office in less than an hour.

Some participants expressed change as a resistance barrier for many employees. According to Davis (1989), and the TAM, change can impact behavior and become influential to an employee's intentions of use with the electronic health care system. Consequently, this will affect the overall learning process associated with the electronic health care system. However, as exhibited with positive reinforcement, change is possible. Table 1 illustrates the word frequency query derived from the data analysis assisted by the QSR NVivo R1 software.

Table 1

Frequency of Words in Participants' Responses Characterizing Strategies for Electronic Health Care Systems' Interoperability

Word	Frequency of occurrence
Communication	13
Successful	17
Training	17
Strategic	11
Decisions	17
Technical	17
Support	12
Electronic health care system	34
Ease	10

Applications to Professional Practice

In this multiple case study, I explored strategies that private practices and small businesses used to successfully sustain workflow operations with electronic health care

systems' interoperability. To minimize barriers to acceptance of change in private practices and small businesses, Mallon (2019) suggested that electronic health care systems and strategic planning for quality improvement should be a consistent focus for integrating interoperability into an operational workflow. Sharing data amongst all health care facilities is a need to expand the care provided to patients. Electronic health care systems with interoperability have the capability to accomplish this, and private practices and small businesses should seize the opportunity to increase the quality of care given to patients and decrease the cost of the business acquired.

Throughout this study, the conceptual framework consistently aligned directly with the findings of this study. The TAM by Davis (1989) was implemented as the conceptual framework. Davis's TAM represents change through behavior and acceptance. Backhouse & Ogunlayi (2020) estimated that about 80% of health care improvement occurs through human interaction, while 20% occurs through technical means. In addition, Backhouse & Ogunlayi argued that quality improvement can help improve individual patient care and transform complex health care systems by empowering employees and patients to lead and achieve change. Throughout the literature review, the concept of change is emphasized as a positive reinforcement of health improvement.

The findings of this study and the data collected from the participants were interpreted and analyzed, which derived from three prominent themes (a) effective communication and successful training, (b) strategic decisions and technical support, and (c) ease of use of the electronic healthcare system. In bridging the gaps within private practice and small businesses, effective communication and training are essential. In

addition, employees will be able to work more efficiently and provide relevant information to patients more quickly. Clinical communication is also crucial to patients' well-being. Being able to trust that the information given is key to the provided quality of care that the patient will receive. As a result of employee communication and training, errors are reduced, and valuable information is learned. Based on the response of all participants in this study, effective communication and technical support were strategic tactics for seamless operational workflows. Strategic decisions and technical support are also critical elements for employees. Employees must feel empowered to embrace change so that strategic decisions can be created with substantial support. Employee confidence is built with substantial support, which reinforces different avenues of meeting challenges and achieving goals. Participant responses indicated that having support allowed them to embrace change and utilize the electronic health care system, so they were more inclined to accept it. As previously mentioned, with the expansion of the electronic healthcare system, productivity and quality of care will increase as well as data sharing across jurisdictions will be enhanced. Private practices and small businesses can improve service lines based on these findings. Additionally, the findings of this study may contribute to the body of existing knowledge that suggests strategies for improving an operative workflow through the interoperability of electronic healthcare systems. This study will not only provide further insight into the existing barriers, but it will also have the potential to facilitate growth and a positive impact of change for private practices and small businesses.

Implications for Social Change

Health care organizations within their communities play a significant role in servicing and healing the districts daily. In an era where health care is increasing and demand is rising, finding ways to improve access to quality care has never been more critical (Hartzler, 2018). Health care organizations must keep up with technological changes when providing community services. According to Alotaibi and Federico (2017), many opportunities exist to improve and transform health care through the use of health information technology, including reducing human errors, improving clinical outcomes, facilitating care coordination, improving practice efficiency, and tracking data over time. The rise of contemporary technology and the modern era have rapidly enabled health care organizations to adapt to the current health and social environment. A direct link exists between the changes and the use of electronic health care systems. As a result, health care organizations have been able to transform and achieve new ways of life that enhance the wellness of patients due to the direct impact and rapid changes in health care.

The objective of the multiple case study was to improve the workflow of private practices and small businesses' electronic health care systems with the use of interoperability. The implications of social change from this study may have the ability to assist private practices and small businesses ability to increase productivity, and job sufficiency, while utilizing the electronic health care system and also improve the quality of care given to patients. This study may potentially be used as a road map to enhance patient care goals and be cost effective.

Recommendations for Action

The findings of this qualitative multiple case study have been presented as recommendations for action in accordance with the participant's responses and the themes identified from the data analysis. Additionally, this study's results may help develop and implement an operative workflow based on interoperability barriers in electronic health systems. Patients' health and well-being can be improved by continuously improving health care services offered by private practices and small businesses. In order to improve the efficiency of electronic health care systems, I recommend the following actions: (a) Private practices and small businesses should think about eliminating paper within the operational workflow to contribute to promoting Davis's (1989) the TAM's ease of use with electronic health care systems. If the employees utilize the electronic health care system continuously, it gives them an opportunity to become accustomed to the use of the system. (b) Through the data collection process of this study, I have learned that most private practices and small businesses have not transitioned from paper to the electronic health care system. Private practices and small businesses not being able to transition from paper to electronic is another barrier. Studies conducted by Shachar et al. (2020) have found that clinicians generally support using electronic health care systems; however, the service would be difficult to provide without adequate funding. An affordable electronic health care system should be available for private practices and small businesses that cannot afford to convert from paper to electronic health care. The state should consider sponsoring an electronic health care system platform with specified rules and regulations to comply with patient care requirements for private practices and

small businesses. (c) The implementation of continuous support and communication, along with additional training, should be carried out on a monthly basis for minor updates and on an annual basis for significant updates. (d) To ensure uninterrupted patient care, electronic health care systems should be mandated to be shared data with private practices, small businesses, and hospitals nationwide. (e) With the addition of uninterrupted patient care with the use of electronic health care systems and shared data nationwide, data security should be updated to comply with HIPPA and eliminate violations of errors. (f) The electronic health care infrastructure should be supported and updated by all private practices and small businesses with an information and technology department to keep up with changes. To improve the efficiency of health care, it is recommended that these recommendations be considered to assist and further advance the improvement and interoperability of electronic care systems in small businesses and private practices.

Recommendations for Further Research

As electronic healthcare systems have gradually replaced paper records over the past decade, clinicians have faced significant challenges supporting clinical workflow, hindering safe, efficient, and effective care (Zheng et al., 2020). This study aimed to identify and explore strategies for a successful operational workflow with the use of electronic healthcare system interoperability. Three prominent themes were identified from the findings of this study and the data collected from the participants. (a) effective communication and successful training, (b) strategic decisions and technical support, and (c) ease of use of the electronic healthcare system. My study had some limitations; for

example, conducting in-person interviews with participants was difficult due to access restrictions, COVID-19 restrictions, and precise timing due to the job specifications in a healthcare setting. The recruitment process for interviewing prospective participants related explicitly to the doctoral study was also a limitation. In accordance with COVID-19 and restrictions, nonpatients were not allowed on the premises if the health care organization did not serve them. Therefore, recruiting participants was challenging due to COVID-19's limitations. The alternative of using Teams and or Zoom enabled me to overcome this limitation.

Healthcare is continuously changing as a result of technological advancement and improving the quality of care for patients. Further research would be recommended to broaden the knowledge base of health care not only for Detroit, Michigan but nationwide, in light of participants' responses and the explored strategies for preventing obstructed care through shared data and excessive errors. A national exploration of the findings of this study will allow for a more thorough and robust understanding of the limitations of operative procedures with electronic health care systems interoperability, which will further contribute to reducing the cost of access for private practices and small businesses.

Reflections

I have gained a substantial amount of health understanding throughout my clinical background, from my experience as a medical assistant to now practice manager (administration), earning well over 20 years of experience within the health care environment. The concept of electronic health care systems piqued my interest. I became

fascinated by the transition from paper charts to electronic health records, further strengthening my desire to contribute to patient care as an operational team member. Obtaining IRB approval and beginning data collection were challenging segments; after acquiring IRB approval, I gained a deeper understanding of the data collection process. My next challenge was getting participants, but I was able to achieve it after struggling to search and making numerous unsuccessful attempts. My experience in the health care field made it challenging for me to avoid becoming biased when using electronic health care systems. As I engaged the participants in the discussion on electronic health care systems, I avoided adverse effects that could potentially impact the study and kept an open mind, allowing the participants to give their lived experiences.

While I faced many obstacles during the writing process of this doctoral study, one of the most significant setbacks was losing my dad to COVID-19. I have also been infected with COVID-19 twice and experienced many other personal and work-related issues during the last couple of years. The hardships reminded me of a conversation with my dad about how proud he was of my decision to pursue a doctorate. My journey was not easy, but I kept going. This doctoral study provided me with valuable knowledge and an in-depth understanding of the electronic healthcare system, which has broadened my perception and perspective. In addition, these findings could also benefit private practices and small businesses as a result of the research conducted in this study.

Conclusion

Health care workers use an electronic health information system to provide healthcare services to individuals and exchange data between them (Khubone et al.,

2020). Poor interoperability has the opportunity to lead to inadequate performance of information technology in private practices and small businesses, leading to medical errors and obstructing data exchange. This qualitative study aimed to explore private practices and small businesses lack of strategies to effectively sustain electronic healthcare systems with interoperability. Three themes emerged from the findings of this study (a) effective communication and successful training, (b) strategic decisions and technical support, and (c) ease of use of the electronic healthcare system. Increasing productivity by supporting the front line and reducing costs are necessary strategies for private practices and small businesses to continue to operate in the healthcare sector by maintaining an effective workflow with the interoperability of electronic healthcare systems. Additionally, it is essential for patients to receive quality care. The study's findings revealed a number of valuable benefits and liabilities associated with the electronic healthcare system with interoperability. Davis's (1989) the TAM was utilized throughout this study to describe how real-time experiences of perceived usefulness, ease of use, and overall behavior of resistance to change influence private practices and small businesses. Nevertheless, through its researched content, the TAM (Davis, 1989) may also have the opportunity to provide a deeper and more comprehensive understanding to address gaps in interoperability for future applications.

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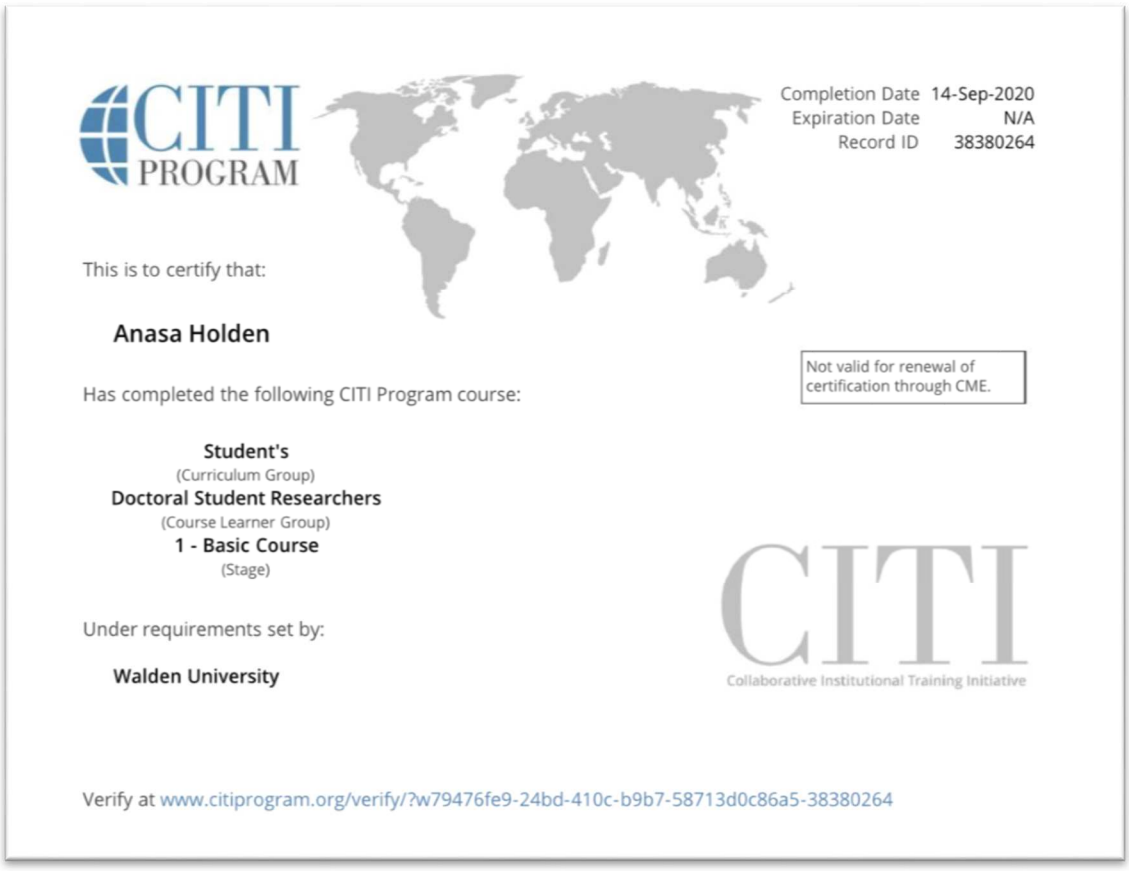
Appendix A: CITI Program Certificate



CITI PROGRAM

Completion Date 14-Sep-2020
Expiration Date N/A
Record ID 38380264

This is to certify that:

Anasa Holden

Not valid for renewal of certification through CME.

Has completed the following CITI Program course:

Student's
(Curriculum Group)
Doctoral Student Researchers
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Walden University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w79476fe9-24bd-410c-b9b7-58713d0c86a5-38380264

Appendix B: Interview Protocol

Research Question:

What strategies do private practices and small businesses use to sustain EHR systems with interoperability?

Volunteer Requirements:

- Must be over the age of 18
- Must have knowledge of the job specifications that are directly related to electronic healthcare systems.
- Must be a doctor, manager, director, coordinator, or business leader within the healthcare field located in the metropolitan area of Detroit, Michigan.

Face-to-Face –Virtual Interviews - Teams Or Zoom

Allotted Time: 30–60-minute

- Team
- Zoom

Recruitment

- Participants were contacted by phone and email.
- Participants received a copy of the consent form: Business Leader Interview Consent Form for DBA Case Study
- A list of participants was generated to obtain and contact them.
- Participants were contacted via phone and email for follow-up.
- Participants that agreed to participate were instructed to confirm their participation by replying by email, I consent.

Interview:

- Notated the date and time the interview process would begin
- I introduced myself to the participant
- I provided an additional copy of the consent form given before the interview
- Reminded the participants the interview is strictly confidential
- Request permission to record the interview
- Informed participant, the recording and interview have begun
- Used unidentified names to document the participant
- Started the interview with question #1, completing the interview questions to #10 for each participant
- Discusses member checking with the participants and asked for permission to follow up with participants
- Thanked the participants for their interview participation
- Ended the recording of the interview