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Improving the Ethical Use of E-health and EMR

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Walden University

College of Health Sciences

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Josephine Tafie

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Walden University
2020

Abstract

Improving the Ethical Use of E-health and EMR

by

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MS, Walden University

BS, Washington Adventist University

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

August 2020

Abstract

The healthcare industry is experiencing ethical problems with the integration of new technological applications, such as e-health and electronic medical records (EMRs) in service delivery. Thus, the purpose of this capstone project was to conduct a systematic literature review to determine the best practices that are well suited to a large urban hospital, to ensure patients' privacy with the continued use of e-health and EMRs. The aim is to solve a problem related to the breach of privacy and autonomy with the increased use of e-health and EMR. The significance of this project is premised on filling the knowledge gap among stakeholders, increasing professionalism in nursing practice, as well as creating social change. Utilitarian and Deontology theories provided a framework for the capstone project. Sources of evidence included twenty peer-reviewed journal articles published in the past five years between 2014 and 2019 that contained valid and closely related information on the problem under analysis. Key recommendations were formulated by coding, thematic analysis, and qualitative analysis using QDA miner software. These recommendations include having collaborative partnerships whereby multiple stakeholders will be engaged and involving experts in the evaluation of the system and implementation validity. The project has potential to improve patient-oriented care via professional wellbeing of stakeholders, its promotion of positive social change through transformation in behavior and interactions, and its potential to solve the existing challenges in nursing practice. Hence, the project is important in mirroring the mission of Walden University aimed at imparting positive social change. The nurses and other health care providers would benefit from this project by being able to understand the ethical ways of using e-health and EMR, thus solving any form of ethical dilemma.

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Dedication

I would wish to dedicate this project to God the Almighty who has always been my strongest pillar and source of inspiration by providing me with the required knowledge and understanding throughout this work. I also dedicate the work to my family especially my spouse Ebot Obenebangha, my ABC children (Ashley, Britney, Chelsea Ebotoben), and my mom Rose Tafie that has been very supportive and made sure that I give it all to accomplish this project. They walked me through the entire journey by providing assistance and encouragement as I pursued this task.

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Section 1: Introduction

In this capstone project, I identified and examined effective ways and mechanisms of improving adherence to medical ethics in the use of electronic health (e-health) and electronic medical record (EMR). The purpose of this capstone project was to identify the most effective, reliable, and applicable ways of using e-health and EMR from the long list of available options available in the healthcare industry.

Introduction

With increased adoption of the cutting-edge technologies in the healthcare industry to improve efficiency, speed, accuracy, and quality of service delivery, numerous ethical concerns have risen. Adherence to ethical codes in healthcare practice is a bare minimum requirement for patient safety and requires discipline among health practitioners. Therefore, it is necessary to find the right balance between the adoption of new technological applications, including e-health and EMR, and adherence to the existing guidelines and ethical codes. The above issue of the lack of balance between the adoption of technological applications and abiding by the existing guidelines and ethical codes stems from the need to prevent the potential ramifications, such as increased costs. Such issues are associated with the rapid adoption of new technological applications to solve contemporary problems, such as errors in healthcare. They are also linked to improvement of the quality of service delivery in relation to communication, fast interdepartmental coordination, patient engagement in both inpatient and outpatient settings, and data access and management. In this solution-oriented DNP doctoral project, my goal was to improve the ethical use of e-health and EMR in order to overcome or

eliminate limitations in the healthcare industry. In this paper, I will describe the background and context of the project, the collection and analysis of the evidence, the findings and recommendations, and dissemination plan.

Problem Statement

Technology has become one of the most important aspects of public life, including the development of online programs for sharing health information, tracking patient care, and maintaining medical records. Examples of technological gadgets applied in the healthcare industry include Electronic Health (e-health) and Electronic Medical Record (EMR). E-health is the connection of medical informatics, public health, health services, and information delivered or enhanced through the Internet and other related technologies (Eysenbach, 2001). E-health has the capacity to significantly improve the lives and quality of care received by patients (Das, Faxvaag, & Svanaes, 2015; Goncalves & Raimundo, 2017). The use of e-health platforms increases communication between the patients and healthcare practitioners by providing self-management applications. However, these technologies also have a significant risk related to the protection of patients' information (Goncalves & Raimundo, 2017; Sahama, Simpson, & Lane, 2013).

It is evident that in spite of all the benefits and potential applications of e-health and EMR systems, there are serious concerns related to the protection of private information. The risk involves breaching or leaking personal information related to health and medical records of the patients (Sahama, Simpson, & Lane, 2013; Schizas, 2015). According to the Department of Health and Human Services (2016), the Office for Civil Rights has emphasized the transition to EMR to ensure there is privacy and to guarantee

security to personal health information within the healthcare system. Das et al. (2015) pointed out that greater efficiency related to care should be guaranteed and provided whenever e-health measures are used, as such a measure could ensure that there will be no breach of security due to the application of EHR to protect patients' privacy. The data stored are sensitive, and any breaches or damages by hackers, or malicious interference, can lead to different unpredictable consequences (Jahan, Chowdhury, Islam, & Gao, 2018). Providing staff members with the best practices they can employ to maximize the protection of patients' privacy in accordance with current standards should be of great significance as an organization aims to increase the use of e-health applications (Carayon & Gurses, 2008).

At the project site, which is a large urban hospital in Washington, the United States, with a significant bed capacity of 900, there were multiple factors observed by myself that could directly contribute to potential risk in the use of e-health and EMRs. Such factors include:

- Some healthcare providers do not adhere to the Health Insurance Portability and Accountability Act (HIPPA), as it relates to electronic record keeping due to the lack of proper skills (Schizas, 2015).
- Patients do not fully understand how to access their records and protect their privacy while inside the medical records system from the remote locations (Das et al., 2015).
- According to the director of public health observations, healthcare providers tend to treat e-health programs informally by sharing login information, or

passing tablets among the providers, and within the sight of other patients (Carayon & Gurses, 2008).

The above factors directly contribute to the problem of the ethical use of e-health and EMRs. According to Ozair, Jamshed, Sharma, and Aggarwal (2015), EHRs are currently being increasingly implemented worldwide, but the safety of information remains a paramount concern. Ethical concerns are based on the implementation process, data accuracy, data security, privacy, and confidentiality at every stage of the EHR and e-health records process (Ozair et al., 2015). It is essential to reduce the risks associated with EHR by preparing healthcare providers to be mindful of security issues related to e-health applications. The minimization of the risks related to EHR could be facilitated not only by means of the provision of different educational programs but also by means of the implementation of the best practices aimed at protecting the privacy and security of sensitive personal information in the e-health setting.

Purpose Statement

The purpose of this project was to conduct a systematic literature review in order to determine the best practices that could be well suited to a large urban hospital, to ensure patients' privacy with the continued use of e-health and EMR-keeping. The systematic review of the existing literature in this doctoral project will fill the existing knowledge gap in nursing in relation to the ethical use of E-health and EMR. Many hospitals are increasingly adopting e-health applications and EMR for communication with patients and maintaining patients' data among other uses. Therefore, it is integral that ethical standards related to autonomy, beneficence, justice, fidelity, accountability,

veracity and nonmaleficence should be considered and followed by all healthcare practitioners. The rate of adoption of e-health and EMR has superseded the amount of knowledge nurses have gained through on-the-job and academic training.

Thus, it was my goal for this project to condense the existing findings from credible sources regarding the suitable ethical standards that nurses and other healthcare practitioners in healthcare could apply in practice. For instance, some nurses are not fully aware of how to distribute care fairly through e-health and EMR applications to group patients or refrain from causing harm, as indicated in the Hippocratic Oath, by unintentionally leaking patients' confidential information (Ozair et al., 2015). Moreover, the use of e-health and EMR in the healthcare industry poses a challenge to nurses in maintaining patients' self-determination as their innate right to have their own values, perspectives, opinions, and beliefs. In this case, the two forms of technologies can have a loophole that denies the patients the autonomy that they should enjoy in healthcare delivery (Ozair et al., 2015). This is attributed to fact that EMR gives nurses easy access to patients' confidential information posing difficulties in respecting patients' autonomy.

The above-mentioned problem of lacking a balance between technological advancements and adherence to principles guiding healthcare delivery practices is attributed to a knowledge gap that may lower patient satisfaction whenever their autonomy is undermined by nurses (Ozair et al., 2015). In this project, I attempted to fill this knowledge gap among healthcare practitioners.

The practice-focused question for this doctoral project was: What are the best practices related to proper use of e-Health and electronic medical records that promote data security and privacy of the patients?

My goal for this project was to address the knowledge gap, which is the lack of identification and implementation of ethical ways of handling e-health and EMR in practice, by comparing the findings from different settings in the healthcare industry. The studies that I included in the systematic review were conducted by reputable and well-known researchers using participants drawn from hospitals and clinics across the world. Therefore, my findings have a high degree of content validity that could be generalized to the entire practice. I identified ethical codes and guidelines regarding e-health and EMR that have been successfully implemented in healthcare settings. The information I gathered was relevant and reliable.

Nature of Doctoral Project

The sources of evidence that I gathered included peer-reviewed journal articles that contained valid and closely related information to the subjects of e-health, EMR, and ethical conduct. The databases that I searched included CINAHL, CINAHL Plus, Medline, ProQuest, PubMed, and Ebscohost. Additionally, references from World Health Organization (WHO), Center for Disease Control and Prevention (CDC), and National Institutes of Health (NIH). I focused my search on publications related to nursing and healthcare.

I used the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flowchart for article selection. Once I had selected the research articles, I

utilized a literature review matrix to organize the evidence. I used PRISMA because of its functional ability in reporting wide arrays of meta-analyses and systematic reviews that provides assessment of both benefits and harm in employing a particular intervention in healthcare.

Significance

Stakeholders

Different stakeholders will benefit from the social change created by this project, which focused on the problem of ethical dilemmas and difficulties posed by the integration of e-health and EMR in service delivery in the healthcare industry. These stakeholders include nurses, researchers, nurse leaders, patients, doctors, clinicians, nurse students, as well as information and communication technology (ICT) and records managers. The resultant social change of this project will have a far-reaching impact on stakeholders' professionalism and skill development.

Nursing Practice

This project increases the scope of defining ethics in nursing practice. The current ethical guidelines in nursing practice lack universal standards that govern the use of technological applications, including e-health and EMR. Therefore, the findings from the project will be able to play a pivotal role in introducing and implementing new nursing standards to govern interdepartmental communication and data exchange, nurse-patient communication, data safety and security, as well as data management procedures and authorization. The findings may be used as a new tool for monitoring and evaluation of nursing procedures and protocols in respect to new ethical guidelines, such as routine

random audits on compliance. The findings of this project also provide sufficient data to solve the existing challenges with the maintenance of patients' privacy and confidentiality, as well as data accuracies. According to Ozair et al. (2015), even though controlling patients' information is vital, it is not sufficient in protecting their privacy.

EMR and e-health applications make nursing practice susceptible to inaccurate representation of current treatments and conditions of patients, thereby limiting available choices for clinicians. The breach or loss of data may happen during the integration process of e-health and EMR into care delivery, thus raising concerns about data accuracy used in making care decisions (Ozair et al., 2015). For this project, I reviewed past studies and will present important findings regarding ethical challenges related to e-health and EMR. Due to the content validity of the findings from this project, it is possible to transfer or generalize the findings to similar practice areas in nursing such as nurse leadership.

Potential Implications for Positive Social Change

By implementing the findings of this project, stakeholders can transform nurse-patient and nurse-nurse information interaction via EMR and e-health. The findings from the project may be used to create positive behaviors among nurses, such as integrity, respect, and honesty while using e-health and EMR in conformity with the established ethical standards. The findings may be used by professionals within the nursing profession to cultivate positive behaviors that could improve adherence to beneficence, nonmaleficence, justice, and anonymity.

Summary

The purpose of this systematic review of the existing literature is to fill the existing knowledge gap in nursing in relation to ethical use of e-health and EMR. This is necessary because of the inevitable adoption of technological applications in service delivery in healthcare settings. In this project, I addressed the serious privacy concerns caused by the increased adoption of e-health and EMR systems in the healthcare settings. The project is of significance because of its potential to improve the professional wellbeing of stakeholders, initiate a positive social change through transformation in behavior and interactions, and solve the existing challenges in nursing practice. Section 2 will include more detailed background and context of the project.

Section 2: Background and Context

Introduction

The adoption of e-health and EMR in nursing practice has increased susceptibility of hospitals to breaches of ethical codes due to mishandling of patients' confidential information, thereby undermining the principles of justice, confidentiality, autonomy, accountability, and nonmaleficence. Therefore, it is important to conduct a proper systematic review of the literature in order to answer the questions related to the impact of the adoption of E-health and EMR on ethical standards, the correlation between nursing ethics and technological applications, and to identify the effects of technological advancement on ethical culture in nursing practice. The purpose of the doctoral project was to fill the knowledge gap in nursing practice in relation to proper use of e-health and EMR in uttermost conformity to the existing ethical standards in nursing practice to improve patient satisfaction.

Concepts, Models, and Theories

E-health is one of the recent practices in the healthcare industry based on electronic communication and processes, which can be traced back to 1999 (Rosenmüller, Whitehouse, & Wilson, 2014). The term encompasses a range of systems and services that are at the center of ICT in the healthcare industry. They include EHR, e-Prescribing, telemedicine, tele-rehabilitation, consumer health information, and computerized physician order entry, among others (Rosenmüller et al., 2014). Due to the electronic nature of communication, data storage and data transmission, e-health is vulnerable to leakage or misuse of patients' confidential information. Furthermore, due to

the ease of access to patients' data, there is a high possibility to neglect patients' autonomy and privacy. On the other hand, an EMR is defined as any electronic record of a person's health information that can be created, collected, managed and used by the authorized personnel in any healthcare setting (Rosenmüller et al., 2014). EMRs offer substantial benefits to nurses, healthcare practitioners, and healthcare organizations as they facilitate workflow while improving patient safety and quality of nursing care (Rosenmüller et al., 2014). Just like e-health, EMR can be hacked, thus resulting in the leakage of confidential information or unauthorized data access (Rosenmüller et al., 2014). Therefore, there is the need to mitigate such issues when using the technologies.

Ethics are an important aspect in nursing practice that guide the conduct of nurses. Ethics concern moral dilemmas that arise due to various conflicts in obligations/duties and their consequences (Haddad & Geiger, 2019). Ethics are based on four primary principles, namely beneficence, autonomy, justice, and nonmaleficence (Haddad & Geiger, 2019). Ethical practice is a clear systematic approach that an institution can use to enact an appropriate decision-making process. While the definition of ethical behavior is comprehensible, exceptions often arise in the real-life application of ethical principles in nursing practice. For instance, when a nurse has an obligation to both the society and the patient, it is possible that the need to breach confidentiality may arise (Haddad & Geiger, 2019). The primary principles of informed consent and autonomy may be breached while caring for people who are mentally handicapped, newborns, and patients in a vegetative state. Ideally, the practical application of ethical principles and two theories, including utilitarianism and deontology, can guide the decision-making process.

Utilitarianism is defined as a consequentialist ethical theory in which the demarcation of the right and the wrong is based on the outcomes (Mandal et al., 2016). Utilitarianism was first discussed by Jeremy Bentham (Mandal et al., 2016). It holds that the best ethical choice one can make generates the greatest good or maximizes an individual's well-being and happiness; hence, the morality of a particular intervention is determined by the outcome. Following this approach can cause harm to some people even though the net outcome in the end is maximum benefit (Mandal et al., 2016). The utilitarian approach to nursing care is always guided by carefully calculated harms or benefits contained in every intervention by relying on evidence (Mandal et al., 2016). Two examples of this approach in nursing practice in hospitals is a case of *gestational age* such as resuscitating premature newborns and *degree of injury* such as providing treatment to burn patients on the basis of availability of resources and time.

There are two variants to this utilitarianism: act utilitarianism and rule utilitarianism. Act utilitarianism is about decisions undertaken for every case where harms and benefits are analyzed to promote overall consequences (Mandal et al., 2016). In this case, every decision and action taken for a patient includes the balance between benefits and harm without examining the evidence or experience (Mandal et al., 2016). Therefore, it can be deduced that act utilitarianism leads to enormous resource wastage in making and implementing decisions prone to bias.

In rule utilitarianism, no calculation or prediction of harm or benefits is made, leaving decisions to be guided by the existing evidence-based rules, which results in better guidance act utilitarianism in the decision-making process (Mandal et al., 2016).

Hence, rule utilitarianism states that morally right action is congruent with existing rules/moral codes, thereby resulting in better consequences, especially when applied in healthcare (Mandal et al., 2016). Moral dilemmas arise when dealing with incompetent patients, such as ones in a permanent vegetative state.

Deontology is the theory that holds that morality depends on the nature action, rather than the outcome of the action. A deontological view concerning ethics holds that harm to the patient is unacceptable regardless of its consequences (Mandal et al., 2016). The theory was developed by Immanuel Kant (Mandal et al., 2016). The decisions that may be suitable for a certain person may not be worthwhile outcomes for the society.

The nurse-patient relationship or interaction is deontological by nature because the practice of medical teaching always inculcates the tradition that the breach of deontological practice results in medical negligence (Mandal et al., 2016). This tradition encourages nurses to do good to their patients, thereby strengthening nurse-patient bonds.

The increased use of e-health and EMR creates situations in healthcare where nurses must choose between a utilitarian approach and a deontological approach to cases. E-health and EMR enable fast and easy access to patients' information through tablets and smartphones. Even though this measure is beneficial in fast service delivery to improve patient outcomes, it creates room for disregard for autonomy and privacy. Hence, it can be inferred that for ethical use of e-health and EMR, nurses must apply a deontological approach because the proper use of technologies requires strict adherence to the existing rules and standards. Technological applications should not extend legal

boundaries but should be applied within the confines of the existing rules and regulations in nursing practice.

The terms that I used in this project have universal meanings but it is necessary to clarify a few. Technological applications in this context are e-health and EMR, which are the independent variables. Patients are clients in both the inpatient and outpatient settings in the healthcare organizations that provide confidential health information to be stored and managed using e-health systems and EMR.

Relevance to Nursing Practice

In nursing practice, ethics are upheld to foster patients' safety and quality of care. The beginning of nursing ethics was in the 19th century (Haddad & Geiger, 2019). Ethics were perceived to involve fundamental virtues, such as high moral character, loyalty, and obedience that were all associated to Kantian ethics (Haddad & Geiger, 2019). Over the years, the profession of nursing has evolved. The first formal ethical code to guide the nursing profession was created in the 1950s by the American Nurses Association (ANA) for the purpose of offering guidance to nurses in their day-to-day practice and setting primacy values and goals in the profession (Haddad & Geiger, 2019). Ethics offer non-negotiable standards and acts as an expression to the standards of commitment to the entire society (Haddad & Geiger, 2019). The existing version of ethical codes represents societal changes to and technological advancements in key areas of nursing practices, including education, research, administration, and maintenance of a healthy environment of work (Haddad & Geiger, 2019). Thus, new technologies can only be applied in conformity to the existing ethical codes.

Technologies have been shown to underscore the value or ethics in nursing. According to McBride et al. (2018), EMR results in unintended consequences for patients' safety. In response, nurses have to confront many usability challenges, such as the knowledge to use the interface that may cause numerous ethical issues to arise. This requires the application of ethical decision-making models to support nurses in taking appropriate actions to foster effective clinical care. Previously, in an attempt to address the ethical dilemma in integration of e-health and EMR into healthcare delivery, the only strategy employed in addressing the knowledge gap in practice was the revision of ethical codes (McBride et al., 2018). Different healthcare organizations have developed guidelines regarding the use of e-health applications and EMR. Furthermore, nurses have endeavored to address the gaps in practice with feasible solutions.

I will address the knowledge gap related to e-health and EMR in this project by condensing the findings from many studies conducted in several healthcare organizations across the world. By synchronizing the views of different nursing researchers, I have identified the most appropriate strategies for the ethical use of e-health and EMR. This approach will provide credible and reliable findings that could be implemented in the entire nursing profession.

Local Background and Context

The use of e-health and EMR calls for a high level of ethical sensitivity and awareness among nurses. Ethical sensitivity is widely considered a fundamental precursor to moral agency (Milliken & Grace, 2017). Ideally, this is because the recognition of the ethical content-related practice is imperative to healthcare providers in

their attempt to deliver quality care to patients (Milliken & Grace, 2017). According to Sulmasy, López, and Horwitch (2017), EMR offers an array of benefits to patients and medical practitioners, but their use also raises numerous ethical questions. It is challenging to properly navigate provision of care in this digital age, thereby requiring proper assessment of the impact of technologies, including EMR on nursing care, as well as patient-nurse relationship (Sulmasy et al., 2017). According to Nagel (2017), the use of technology requires that nurses be able to correctly capture, retrieve, and organize patients' data within the virtual environment. This is how of how e-health and EMR have contributed to the evolution in roles of nurses.

As Nagel (2017) indicated, nurses often incorporate digital data with other sources of data in the process of providing care using tele-health technologies and research. Moreover, Wolf et al. (2016) found that using such technologies in the emergency departments (ED) often leads to moral distress. Additionally, while assessing the experience of nurses with meaningful use of EMR, McBride et al. (2017) indicated that the age of a nurse and maturity of the existing clinical information systems in the healthcare organizations have an impact on nurse satisfaction. Thus, the above evidence justifies the relevance of the aforementioned research problem and research questions.

The institutional context applicable to this problem addressed in this doctoral project is healthcare organizations. These institutions prioritize patients' safety and consistently experience dilemmas while using e-health systems and EMR. The project will fill the knowledge gap for these institutions to overcome the above-mentioned challenges. The common terms used in this project include e-health, EMR, and nurses. In

this context, nurses are referred to as a group of professionals who use e-health systems and EMR to provide quality care to their patients. The definitions of E-health and EMR are provided above. They pose ethical dilemmas for nurses in patient care.

This doctoral project will contribute to the federal ethical codes and guidelines regarding nursing practice in the State of Washington. A systematic review of the existing and past studies on the subject in the State of Washington and other parts of the USA will identify loopholes in the guidelines. Thus, the findings of the project will be capable of improving nursing practice in the State of Washington in the long run.

Role of the DNP Student

I will be directly involved in every aspect of the completion of this capstone project. As a doctor of nursing practice student, I have a strong mastery of the evidence-based practices in nursing research that are of great significance in the completion of this project. As a nurse and a student, I have access to past studies available through credible libraries. Moreover, through guidance of my tutor in the university and collaboration with other students, I will be committed to this task. I have received inspiration to pursue this topic after having experienced the instances of ethical dilemmas in my nursing practice in the healthcare organizations. Thus, I am motivated to actively contribute to finding the right solutions to the problem identified. However, due to my love for technological applications, such as e-health and EMR, I may be biased on focusing on the findings that could promote their use. To address this bias, I will collaborate with other experts in data collection, compilation, and analysis.

Summary

E-health and EMR are recent technologies that have a significant impact on ethics, which have been a long-standing branch of philosophy. The dilemmas caused by the integration of e-health and EMR in nursing practice is best understood through the theory of utilitarianism and deontology. The topic focuses on a contemporary problem at the heart of nursing practice and over years, many researchers have published reliable findings on the same. For this project, I will be directly involved as I am motivated by the need to provide effective solutions to the identified problem in nursing practice. Section 3 details collection and analysis of evidence and will present important steps undertaken to answer the project question.

Section 3: Collection and Analysis of Evidence

Introduction

The use of e-health and EMR technologies in healthcare settings raises numerous ethical concerns in nursing practice. My goal for this project was to identify credible findings to fill the existing knowledge gap in nursing practice. I used utilitarian and deontological theories as a framework for understanding the project problem, which is a product of confluence of a long-standing philosophy in nursing practice and contemporary trends whose impact on nursing practice is inevitable. The problem being addressed is linked to the ethical dilemma and difficulties in integrating e-health and EMR into healthcare service delivery in a large urban hospital.

The project site was the surgical-neurological unit in an urban hospital in Washington. The project site has roughly 900 beds, including inpatient and outpatient surgical services, emergency care, and inpatient admittance for other care-related needs (Sahama, Simpson, and Lane, 2013). The hospital serves a high percentage of older persons, in the urban, political, community. As such, concern for privacy is high since the hospital serves a large population (Terrasse, Gorin, and Sisti, 2019). The patients at the clinic are diverse, though most are adults. Their information, once it has been documented in the EMR, becomes accessible effortlessly when needed despite their geographical location. The feasibility of this project was supported within the project site by the nursing director/manager in the surgical neuro department. Therefore, it was essential to detail the practice-focused question, sources of evidence, and analysis of the synthesis of the collected data.

Practice-focused Question

Nurses face an ethical dilemma in their quest to provide quality care using e-health and EMR and maintain the utmost respect for patients' autonomy, privacy, confidentiality, and justice. The dilemma is due to improper integration of e-health and EMR into healthcare delivery services at the hospital. The practice-focused question in this project was: What are the best practices related to proper use of e-Health and electronic medical records that promote data security and privacy of the patients?

Sources of Evidence

The DNP manual outlines a step-by-step approach for project development and execution (Sahama et al., 2013). To conduct this literature review, I used multiple sources of evidence, including twenty-six peer-reviewed journal articles that contain valid and closely related information on the problem under analysis. The selection criteria included those on nursing and health and had to be published in the past five years between 2014 and 2019. The databases used included CINAHL, CINAHL Plus, Medline, ProQuest, PubMed, and Ebscohost. Additionally, references from the World Health Organization (WHO), the Center for Disease Control and Prevention (CDC), and the National Institute of Health (NIH) were included since they are deemed to provide sufficient and updated information in healthcare setting (Department of Health and Human Services, 2016). Search terms were identified and used, which were directly related to patient privacy, as well as e-health and EHR.

I collected and analyzed evidence to identify valid and reliable data for the created evidence-based approach to the ethical use of e-health and EMR. The relationship

between the evidence and purpose of the study, which was to find ethical ways of using e-health and EMR was premised on need for qualitative research. The project was focused on evidences provided by other researchers on the subject in efforts to identify the most effective strategies of the ones listed. During collection, I focused on recent studies on ethics published in the last 5 years between 2014 and 2019 and conducted in inpatient care settings. I also used both qualitative and quantitative approaches that enabled me to identify and rank the most common ethical strategy for maintaining privacy, thereby addressing the practice-focused question. Data on ethical use of technological applications are highly relevant to contemporary nursing practice because it enables achievement of quality outcomes by promoting patient safety and professionalism.

I only focused on credible authors with a strong background in research and publications on different issues in nursing. Only research articles were used from the list of literatures found and not news and opinions pieces. Additionally, to make the search exhaustive and comprehensive, as already mentioned, the project involved several databases, increase search terms, and used related studies on ethics that did not focus on e-health and EMR directly but analyzed an issue in technology.

I followed the procedural steps outlined by the Walden University Manual for Systematic Literature Reviews. First, a review question was established, to identify the primary goal of the project just as affirmed by Sahama, Simpson, and Lane (2013). Consequently, the study indicated the best practices related to proper use of documentation systems, and increased awareness of potential security breaches. It also

outlined critically the way evidence-based research enables healthcare providers to promote increased data security and privacy in the documentation process and use of EHRs and e-health systems, which is affirmation from Ozair et al. (2015). The question was used to develop the scope of the project, as defined above, in the source of research. The scope should include both the list of key terms, and the databases that will be searched (Gonçalves, and Raimundo, 2017). The inclusion and exclusion criteria were clearly defined for all studies to determine which should be further included for analysis. Then, a comprehensive search will be executed, across the listed databases, to find all related relevant studies.

Articles were selected utilizing the Preferred Reporting Items for Systematic Reviews and meta-Analysis (PRISMA) flowchart. Once the research articles get selected, a literature review matrix will be utilized to organize the evidence. Synthesizing the literature and finding the best practices that are determined within those studies will include proper analysis by a researcher (Carayon and Gurses, 2008). The analysis process did not only focus on findings of the literature, but also the strength of their evidence, limitations of the study or project, and other related factors, which was something stressed by Sahama, Simpson, and Lane (2013). The researcher followed the Melnyk levels of evidence. Methodological quality, validity, and applicability as outlined by Melnyk levels of evidence will be used to assess the strength of the data obtained. The Melnyk levels of evidence led to an interpretation of the coded theme in those articles and the determination of their applicability in the current doctoral setting, just as affirmed by Das, Faxvaag, and Svanæs (2015). The best practice recommendations were presented

to the hospital executives and nurse managers after completion of the project in hopes that they would establish protocols that will be implemented.

This project did not involve human subjects so no ethical issues are anticipated. It encompassed a systematic literature review and only involved the collection of evidence to produce best practices for future implementation. Approval from the Walden IRB and the project site IRB was obtained prior to starting the project.

Analysis and Synthesis

The project team focused on the findings of all studies under review. The findings were collected as transcripts and then analyzed by focusing on key themes. The DNP scholar only made emphasis on the studies published between 2014 and 2019 to increase the degree of content reliability and validity. The data was first categorized using tables to identify patterns and trends in the findings of the researchers. The resultant information was then analyzed using qualitative data analysis (QDA) miner software. To assure the integrity of the evidence, the data was stored electronically with restricted access. Moreover, a supplementary search was conducted to manage outliers and any missing information.

Summary

The DNP project scholar utilized a systematic review of evidence as the design to collect the qualitative data. The data collected were organized using tables and subjected to thematic analysis and software analysis using QDA miner to identify patterns in the findings analyzed. The data collected was safely stored awaiting presentation. The findings of the review are detailed in Section 4, as well as recommendations.

Section 4: Findings and Recommendations

Introduction

The purpose of this project was to find relevant ways to improve the ethical use of e-health and EMR. I conducted a systematic literature review to determine the best practices applicable and well-suited in a large urban hospital setting in regard to ethical integration and usage of e-health and EMR. The goal of the project was to enhance patients' security with progressive utilization of technologies, e-health, and EMR. My goal was to fill the existing knowledge gap in the healthcare industry regarding the ethical application of e-health and EMR. The review helped achieve several findings. The rationale on which the project results were based on was that many hospitals are adopting e-health applications and EMR for receiving, relaying, and recording patients' details among other purposes. Stakeholders must embrace the ethical standards associated with the autonomy, beneficence, justice, fidelity, veracity, accountability, and nonmaleficence. The project findings came from credible sources on the suitable ethical principles to be followed by healthcare providers in their various settings.

The sources of evidence used to condense the findings came from peer-reviewed journal articles that consisted of valid and essential information regarding the ethical issues and standards on the use of e-health and EMR. The databases consulted for this exercise included CINAHL, CINAHL Plus, Ebscohost, Medline, ProQuest, and PubMed. The references were obtained from the WHO, the CDC, and the NIH. The DNP project scholar focused on libraries that have their publications related to nursing and healthcare. Article selection was through the use of the PRISMA method. Once the articles were

selected a literature review matrix was applied to structure and organize the facts. I chose PRISMA selection because it reports a wide selection of meta-analyses and systematic reviews. Moreover, it was possible to enhance evaluations of benefits and detriments in using a specific intervention in healthcare settings. I also used the QDA Miner software in coding, annotating, retrieving, as well as analyzing the documents collected during the analysis.

Findings and Implications

A total of twenty-six articles were reviewed for this exercise. Some of the terms that I used for the selection of the articles included e-health, EMR, ethics, nursing, and technology. EMR and e-health provide several benefits to patients, physicians, and other clinical teams. However, the two technological advancements tend to raise ethical questions that ought to be addressed before there are adverse impacts, such as errors or breach of patient's information privacy. Providing care in the digital era requires an evaluation of the effects of such technologies have on patient care, as well as patient-physician relationship (Amarasingham et al., 2016). The application of disruptive technologies, such as EMR and e-health in a hospital setting can result in both opportunities and risks, such as the difficulties in handling the ethical dilemmas. EMR has been reported to simultaneously facilitate and complicate the healthcare delivery (Amarasingham et al., 2016). The search for evidence about information systems by McBride et al. (2018) revealed that EMR and e-health technologies should facilitate patient care, support physician ethical mandates, and enhance proper relationships of stakeholders. It is evident that the design and application of EMRs can enhance patient

education during visits. However, they can be a greater distraction than the paper records, thus diverting the attention of the physician from the patient (McBride et al., 2018).

Technologies should add value to the experiences of the patient. In this regard, one can deduce that the issue of insufficient time with patients has not started with EMRs and e-health but is something that has grown for many years.

The review also helped me to find out that information retrieval, exchange, and remote access could help improve care delivery. However, it can also create unwanted risk of unauthorized disclosure and the use of the safeguarded health details. The risk of such undertakings arises from the unauthorized access and disclosure of private patient details, thus raising confidentiality concerns (Savulescu, Mann, & Sahakian, 2016). The unauthorized access to information would have adverse implications for patient family members in case there is the involvement of genetic details (Savulescu et al., 2016). The respect for patient autonomy demands that the encounters and information associated with their diagnosis and treatment are maintained as confidential as possible so that they foster trust and enhance communication (Entzeridou, Markopoulou, & Mollaki, 2018). Ethics in terms of patient data use should always be observed by all healthcare professionals.

A digital divide exists with the use of EMRs and e-health. In this regard, patient access to electronic information poses opportunities to meld the digital culture with individual responsibility for health. However, the patients who could benefit from the aspect of digital access may be the least likely to get it (Evans, 2016). In this case, EMRs and e-health technologies may exacerbate a digital gap between the people with and

without internet access, thus leading to health inequalities. As a consequence, those people who lack internet access have lower socioeconomic status, training levels, and health literacy (Porsdam Mann, Savulescu, & Sahakian, 2016). EMRs and e-health have the potential to lead to more troubles in case they are not ethically utilized to achieve the intended objectives of increased efficiency and effectiveness.

Recommendations

Several suggestions can enhance ethical application of EMRs and e-health technologies. I recommend collaborative partnerships in which multiple stakeholders will be engaged. Patients have a significant stake primarily since their records are stored within the model. Moreover, the patients' communities have a significant role to play as they guide decision-making taken by the patients themselves (Wilburn, 2018). There are also other key stakeholders, including care providers, financing and governmental agencies, EMRs developers, and technical support entities. These players have different levels of comprehension of the systems being actualized and diverse interests in their implementation. Collaborative partnership results in stakeholders operating as a team before, during, and after the actualization of the model to assist in maximizing the value of the system and realizing the shortcomings (Nagel, 2017). In some cases, the major decision concerning whether and how to implement EMRs and e-health is reached in the absence of input by all relevant stakeholders. Thus, through collaborative partnership, hospital management and all stakeholders will have the input on who will offer or deny permit for the implementation process. In the same way, this integration will enhance a clear understanding of cultural differences, as well as sensitiveness in the utilization of

such technologies. Therefore, collaborative partnerships will ensure that the EMRs and e-health tools are implemented in ways that cater for every aspect to avoid unethical practices and applications.

I also recommend the involvement of experts in the evaluation of the system and implementation validity. In this case, the system should be implemented in a way that deters any form of unethical manipulation that may breach the confidentiality and privacy of clients' records. The technologies ought to be assessed to identify their suitability in the intended implementation structure and settings (Evans, 2016). EMRs can be deemed invalid in case they are considered to stifle comprehensive care for a person. For instance, it is evident that different systems in current application in developing nations are only able to capture details for specific illnesses with minimal flexibility to accommodate other clinical information. While such models tend to work well in reporting on certain situations of diseases, they can only serve clients poorly because they omit important information that could help in a patient's comprehensive care (Evans, 2016). Through proper evaluation by experts, it is possible to detect any form of invalidity of the systems since some are sophisticated or impractical for the structures where they have been implemented.

Proper oversight of EMRs and e-health technologies ought to be conducted regularly by hospital management to make sure that they are used efficiently and effectively for the intended purposes. Thus, a sense of ownership is required for certain functions of the implementation process and operation. Furthermore, strict monitoring ought to be enhanced to make sure that the process runs on smoothly (Gonçalves &

Raimundo, 2017). In this supervisory procedure, certain aspects should be considered, including the responsibility of those people or parties assigned important tasks to deal with the EMRs and e-health technologies. An independent body should play a key role in overseeing the system and assessing the appropriateness of its implementation. All the potential conflicts of interest ought to be detected and addressed within the system (Gonçalves & Raimundo, 2017). The conflicts of interest that have been addressed should be recorded for reference for future issues resolution.

Strengths and Limitations

I relied upon scientific journals and databases to obtain relevant information. Moreover, the validity of the sources and analysis process were proven through the QDA Miner software. However, I had the drawback of focusing only on a large healthcare organization without considering the effectiveness of the technological advancement on small and medium healthcare entities.

Section 5: Dissemination Plan

The recommendations generated from this project will be disseminated to a large urban hospital in Washington that has been experiencing the challenge of unethical usage of EMRs and e-health technologies. The discussion will be presented in a well-formatted report as formulated above with different subheadings depicting the detailed project findings. I will present a hand copy to the executives of the hospital for reference. An email detailing the relevant points in the form of a cover letter with a full copy attachment of this report to the CEO of the organization will be sent in advance by the DNP scholar. The email will accompany an approval and consent form that will provide a date for the physical presentation. It is expected that a specific date will be chosen to present this report before the board of the hospital upon approval by the executives. All the healthcare providers, including doctors, nurses, and other practitioners who would be deemed to have contact with patient records would be required to read the report. They will also be provided with the opportunity to ask questions during the meeting, which would have to be addressed immediately. The project will be presented in the form of a report to be relayed in a conference and later to be published in a journal.

Analysis of Self

The capstone project has been quite informative and insightful. It has opened my mind toward critical thinking regarding the issues that encompass the healthcare sector. I have affirmed my understanding about the dynamic nature of the globalized healthcare system. With technological advancements in the current care and treatment environment, much has been left to the stakeholders to enhance the effectiveness and efficiency of the

systems. EMR and e-health technologies were introduced with very good motives and intentions, which were to enhance effectiveness and improve efficiency of healthcare operations. They have significant impact on the patients' information. Moreover, they enhance easy recording and retrieval of patient information. I consider that all the stakeholders, including the patients, nurses, doctors, communities, caregivers, and other practitioners, should be involved in the formulation of the implementation approach. Furthermore, I have realized the need for continuous monitoring of such technologies, especially by an independent body that will assist in deducing any form of unethical practices. Any loopholes should be eliminated to avoid deterioration of the situations. The experience that I had with conducting this review was the challenge of sorting out the most relevant information since the search resulted in a lot of information that could not all be incorporated into this report.

Summary

This review provides clear insights into the ethical application of EMR and e-health technologies to avoid unethical practices. It is widely reported that individuals and organizations have been unethically using such technologies, thus compromising the confidentiality and privacy of patients' records. I analyzed important aspects of the issue and formulated various recommendations that are worth implementation for the ethical use of EMR and e-health technologies. Hence, the project is important in mirroring the mission of Walden University aimed at imparting positive social change. The nurses and other health care providers would benefit from this project by being able to understand the ethical ways of using e-health and EMR, thus solving any form of ethical dilemma.

Policymakers and administrative bodies would save on costs that may be incurred due to unethical use of the technologies.

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