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Preventable Error Reduction Leadership Strategies of Nurse Managers in a Hospital Setting

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This is to certify that the doctoral study by

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Abstract

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by

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MBA, University of Phoenix, 2006

BSBM, University of Phoenix, 2005

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

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Abstract

Preventable medical errors in the healthcare industry account for hundreds of thousands of patient deaths annually. Nurse managers strive to develop strategies to reduce incidences of preventable medical error and increase patient safety in their organization to improve performance and reduce harm in the healthcare industry. Grounded in the complex adaptive systems theory, the purpose of this qualitative single case study was to explore strategies nurse managers use to reduce the rate of preventable medical errors among employees. The participants comprised 6 nurse managers who successfully used strategies to lower the rate of preventable errors in a healthcare facility in Southern California. Data were collected by using semistructured interviews and by performing document reviews, such as organizational performance reports. Four themes emerged from the analysis: staff empowerment, communication and collaboration, standardized processes, and accountability. A key recommendation includes nurse managers using staff empowerment to effect a personalization of care to reduce preventable medical errors effectively. The implications for positive social change due to the reduction of preventable medical errors include improved quality of care received by patients and increased perception of healthcare safety among the community. With improved perceived safety, the public will be more willing to use the health care facilities.

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Dedication

The completion of this doctoral study was possible only through the love and support of my wife and family. I dedicate this study to my wife Denise Bedolla and my children Gabriela, Katherine, Lauren, Sedrick, and Samantha. They shared in the sacrifice as they payed the price of losing some of my time, attention, and efforts as the enormity of this undertaking was revealed to all of us. My wife gave me support and encouragement and my children provided inspiration. During this journey, I hope I have encouraged my wife and children to pursue knowledge as a lifelong endeavor, and I hope they see anything is possible if they believe in themselves.

I would also like to dedicate this doctoral study to my parents, both from humble backgrounds, who both found success in life and the opportunity to help others through professions in healthcare. To my mother, Marcia Labruyere-Bedolla, who supported me throughout my life, both in what she did and did not do for me, you provided me with love, support, and prayers without which my life would not be possible. Finally, in memory of my father, Richard Bedolla, who always expressed pride in my accomplishments. He shaped the person I am now through many life lessons. He showed me how to be, and how not to be. I have often thought of him during this process, and I know were he here, how proud he would be.

Acknowledgments

I wish to acknowledge GOD as the originator of all good things in my life. I know he has his hand on me and all things are possible through him. I would like to thank my doctoral committee chair, Dr. Craig Martin, who spent many hours on the phone with me, and provided much needed encouragement and feedback. I cannot recall how many times he told me "You can do this", but I would not have finished without him. I would also like to thank my committee member Dr. Edgar Jordan and URR Dr. Gregory Uche for their helpful comments and support. Sometimes the comments hurt, but always made my work better.

I would also like to thank the subject organization for consenting to be the location of and allowing me access to the staff members who volunteered to participate in my study. It is a wonderful organization, and I enjoyed meeting with members of the leadership team. True wonders happen there every day.

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Section 1: Foundation of the Study

Background of the Problem

Human error rates can be as high as 20%, and on average, a human will make an error every four minutes (Koffler, Morgan, Marcopulos, & Greiffenstein, 2015). Harvey (2013) found that on average 23% of all employees are unfamiliar with at least one important function of their job, and large employers lose an estimated $50 million a year because of employee errors. Researchers surveying pharmaceutical companies in the United Kingdom received responses indicating 89% of the companies reported lost productivity because of errors or misunderstandings, and 85% reported an effect to the reputation or profits of the company (Clarke, 2009).

Business leaders often believe little needs to be done in their businesses to improve quality. Construction managers cite the multi-layered inspections performed to ensure quality are sufficient, yet when investigated, errors often go undetected as successive employees rely on the next inspector to catch errors (Naveh, Katz-Navon, & Stern, 2015). Walls, Revie, and Bedford (2017) described the importance of process improvement programs in limiting the human error factors, yet little research is available looking into the competency and skill of business leaders implementing those improvements. Some business leaders lack the skill or knowledge to identify, develop, and implement a quality improvement process that minimizes the potential effects of human error (Walls, Revie, & Bedford, 2017).

Problem Statement

Preventable medical errors in the healthcare industry account for hundreds of thousands of patient deaths annually (Zikhani, 2016). Preventable medical errors by healthcare employees occurred at a rate of 700,000 in the United States (US) in 2013 (Agency for Healthcare Research and Quality, 2016). The general business problem was that preventable medical errors are negatively affecting the quality of patient services and organizational profitability. The specific business problem was some nurse managers lack strategies to reduce the rates of preventable medical errors among their employees.

Purpose Statement

The purpose of this qualitative, single case study was to explore what strategies nurse managers use to reduce the rates of preventable medical errors among their employees. The geographical location of the research took place in a hospital located in Southern California, U.S. This hospital is one of 337 out of 4,579 hospitals in the nation surveyed that received a five star rating from the Centers for Medicare and Medicaid Services (CMS) for quality of care based on 57 different quality measures (Smith, Reichert, Ameling, & Meddings, 2017). I interviewed six nursing managers and performed a review of related hospital documents to gather the data required to satisfy the proposed research (Yin, 2017). The contribution to social change is the identification of strategies nurse managers can implement to reduce the number of preventable medical errors and contribute to the perceived quality of care received by patients.

Nature of the Study

A qualitative methodology was used to further understand human behavior observed within the phenomenon of a study (Eisner, 2017). The justification for the use of the qualitative methodology was the need to explore, gain understanding, and describe the strategies nurse managers use to successfully reduce the rates of preventable medical errors. The use of the qualitative method allows me to explore human behavior in ways the quantitative method does not (Yin, 2017). The quantitative methodology allows a researcher to examine possible correlations or regressions (Denzin & Lincoln, 2018). Quantitative studies also allow a researcher to examine comparitive or descriptive studies (Denzin & Lincoln, 2018). The researcher may reach a more complete understanding of the research question with a mixed-method study, using both qualitative and quantitative methodologies (Molina-Azorin, 2016); however, the mixed method study takes more time and is more expensive to conduct (Shannon-Baker, 2015).

The case study design was used for this study. The case study design is appropriate as the datum generated came from an exploration of real-world medical error rates and the strategies managers used to reduce these error rates in a single organization. I chose the case study design as opposed to ethnography. Researchers use the ethnography research design to describe and explore the cultural phenomenon of people or groups (Cuik, Koning, & Kostera, 2018). I did not explore people or group culture. Another research design considered but not chosen was phenomenology. Researchers use a phenomenology research design to understand the meanings of lived experiences of the population studied (Sanders, 1982). My research was confined to a single event or

phenomenon or exploring the uniqueness of events leading to reduced medical errors

(Yin, 2016).

Research Question

What strategies do nurse managers use to reduce the rates of preventable medical errors among their employees?

Interview Questions

1. What strategies do you use to prevent medical errors?

2. How did you identify the strategies you currently use?

3. How do you know the strategies you use are effective at reducing preventable medical errors?

4. What strategies do you use when the patient is cared for by multiple departments and staff?

5. How are strategies modified when staff interact with personnel from other departments?

6. How do you adjust your strategies to account for multiple department personnel and processes?

7. How have you modified your strategies due to increasing preventable medical error rates?

8. What other information or thoughts do you have that could provide greater insight aiding in the reduction of the rates of preventable medical errors?

Conceptual Framework

I based the conceptual framework for this research on the complex systems theory, which was first described by Stephan Wolfram in 1985. Wolfram (1985) described that the world around us is a vast and infinitely complex system, but when broken down to its basic components, the individual components can be quite simple. The complex systems theory is useful for examining the basic functions of a system (Wolfram, 1985) and the interrelatedness and influence of the organization's system (Al-Hakim, Wu, Koronios & Shou, 2016). Using the complex systems theory allowed me to examine basic functions of the healthcare environment and gain an understanding of how each element may contribute to preventing medical errors. Further, the complex systems theory allowed me to explore the interrelatedness and influence

Operational Definitions

Adverse Drug Reaction: An injury or unintended side effect of taking a medication (Boltz, Capezuti, Fulmer, & Zwicker, 2016).

Catheter associated urinary tract infection: The most common type of preventable nosocomial infections reported (The Centers for Disease Control and Prevention, 2018).

Centers for Medicare and Medicaid Services (CMS): The agency of the United States federal government that administers the Medicare program and partners with states to run the Medicaid program. Has oversite authority for healthcare entities and long-term care facilitates. Through surveys, inspections, and certification processes, this agency has

oversight of quality standards for healthcare facilities (Centers for Medicare and Medicaid Services, 2018)

Central line blood stream infection: A preventable infection that results in thousands of deaths each year and billions of dollars in additional healthcare costs (The Centers for Disease Control and Prevention, 2018).

Electronic Medical Record (EMR): The digitized storage and collection of the medical information of patients and populations. The federal government of the United States has offered financial incentives for healthcare organizations to transfer paper based charting systems with EMR (Vrbnjak, Denieffe, O'Gorman, & Pajnkihar, 2016).

Food and Drug Administration (FDA): The agency of the United States federal government responsible for protecting and promoting public health and safety. The FDA controls and supervises drugs, vaccines, blood transfusion, and medical devices (U.S. Department of Food and Drug Administration, 2016).

Medication Error Classifications: Medication errors are classified alphabetically from A through I. An A had the potential for error, but the error did not reach the patient and resulted in no harm to the patient. A B error did not reach the patient and caused no harm. A C error reached the patient but caused no harm. A D error reached the patient, caused no harm, but required increased monitoring of the patient. An E error reached the patient, caused temporary harm, and necessitated medical intervention to reverse harm. A F error reached the patient, caused temporary harm, and caused a hospitalization of the patient or prolonged their current stay. A G error reached the patient and caused

permanent harm. An H error posed a risk of death to the patient and required life support

measures. An I error resulted in the patient's death (Abdel-Latif, 2016).

Nosocomial Infection: An infection acquired inside of a healthcare facility or

because of an interaction or treatment in a healthcare setting (The Joint Commission,

2015).

Sentinel Event: An event occurring in a healthcare facility where an error has

reached the patient and caused permanent harm or death because of a circumstance

attributable to the facility or its employees and not a part of the patient's natural course of

illness (The Joint Commission, 2015).

Ventilator Associated Pneumonia: A lung infection that occurs on a patient that is

connected to an artificial breathing machine and has a high mortality rate (The Centers

for Disease Control and Prevention, 2019).

Assumptions, Limitations, and Delimitations

Assumptions

An assumption is a fact presumed to be true by the researcher in order to give

direction to the study (Fusch, Fusch, & Ness, 2017). Within this study, I made six

assumptions. The first assumption was that medical errors do occur in the facility I had

chosen to conduct my study and that some of these errors were preventable. The second

assumption was that the participants involved were actively seeking and had leadership

strategies to reduce the number of preventable medical errors due to the high

performance of the organization in reported rates of preventable errors. The third

assumption was that all participants responded in an honest, accurate, and truthful

manner. The fourth assumption was that it was in the interest of the executive leadership and the organization to achieve reduced levels of preventable medical errors. The fifth assumption was that leadership strategies influence the rates of preventable medical errors. The sixth and final assumption was that information from the nurse managers regarding leadership strategies would be helpful to reduce preventable medical errors.

Limitations

The limitations of a study are factors not within the control of the researcher. These limitations can possibly influence the findings of the study in a negative way (Marshall & Rossman, 2016). The first limitation for this study was bias. Bias may have occured as part of the interview process. The respondents may have overemphasized some strategies and deemphasized others based on being part of a study. The second limitation of the study was the small sample size, and that the datum was received from only a single organization. The respondents may have communicated with each other and altered their answers based on those communications. The third limitation was that each respondent may have had a different interpretation of preventable medical errors and a different focus for improving patient care and quality. The fourth and final limitation was that the some of the preventable medical error rate data was self-reported. This self-reporting may have led to informational bias and under reporting (Kornbluh, 2015).

To address these limitations, I made sure my questions were open and broad enough to gain understanding, and I asked that each respondent refrain from discussing their responses with anyone else until the completion of the study. I also reviewed

preventable error rate benchmarking data to determine how successful my target

organization was at reducing preventable medical errors.

Delimitations

The delimitations of a study are factors that are within the control of the

researcher. The delimitations establish a set of limits defining the scope of the study

(Marshall & Rossman, 2016). This study was limited to a single organization located in

Southern California that received a five-star CMS rating; 7% of hospitals in the U.S.

received this score. This organization also received an A grade for patient safety from

Leapfrog. Only 17 hospitals in Southern California achieved both scores (Hospital

compare, Medicare.gov, 2018).

From this organization I chose six nursing leaders as my respondents. I

interviewed these six nursing managers asking the same questions and performed a

review of related hospital documents to gather the data required to satisfy the study. The

contribution of this study was the identification of strategies nurse managers can

implement to reduce the number of preventable medical errors and contribute to the

quality of care received by patients.

<div align="center">

Significance of the Study

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Contribution to Business Practice

This research may add to the knowledge of the business and medical community

through the description of what strategies can affect preventable error rates. The

reduction of errors in the workplace is a key strategic goal for many businesses seeking

increased quality and decreasing costs (Erskine, Hunter, Small, Hicks, McGovern,

Lugsden, & Eccles, 2016). Administrators and other healthcare leaders might use this research to determine which leadership strategies are best suited to lower preventable medical error rates. Lower preventable error rates can lead to increased patient perception of quality of care, have a positive effect on organizational reputation, reduce the expenses and liabilities of preventable errors, and increase standing in the community due to decreasing errors (Zikhani, 2016).

Implications for Social Change

The implications for social change include reducing the incidence of preventable medical error. Preventable medical errors are the third leading cause of death in the United States (Agency for Healthcare Research and Quality, 2016). The reduction of preventable medical errors may lead to increased confidence in and use of healthcare services by the public, potentially increasing overall population health. Reduced preventable medical errors might also contribute to lower healthcare costs (Zikhani, 2016).

<p style="text-align:center">**A Review of the Professional and Academic Literature**</p>

Preventing medical errors using leadership strategies by nursing managers is important to the improvement of the care and services provided to patients and protect organizational reputation and profitability (Vrbnjak, Denieffe, O'Gorman & Pajnkihar, 2016). Preventable medical errors in the healthcare industry accounted for hundreds of thousands of patient deaths annually (Zikhani, 2016). Regulations and laws do exist to ensure patient safety and describe correct staff behavior (Pozgar, 2019) yet preventable medical errors are the third leading cause of death in the US (AHRQ, 2016).

Preventable errors in healthcare organizations are made by staff facing increasingly complex tasks, lack of adequate personnel to meet patient needs or staff without proper training (Beer, 2015), and the human factors may be assumed to be a primary contributor but, healthcare practitioners have been able to improve the effectiveness of error investigations (Berry, Spingfield & Shappell, 2010). Nursing Managers can engage their staff, identify processes that eliminate human errors and encourage teamwork to improve patient care using leadership strategies, while safeguarding organizational profitability (Swensen, Kabcenell, Shanafelt, & Sinha, 2016).

Organization of the Review

The review of the literature was divided into four sections. The first section consisted of a review of the theories pertaining to the conceptual framework of the study. I based the conceptual framework for this research on the complex systems theory, which was first described by Stephan Wolfram in 1985. Wolfram (1985) described that the world around us is a vast and infinitely complex system, but when broken down to its basic components, the individual components can be quite simple.

The second section is a review of the literature on leadership, including a specific search on transformational leadership and authentic leadership styles. Leadership is a critical activity and good or bad leaders have a tremendous effect on their organizations (Sürücü & Yesilada, 2017). The third section of the literature review pertains to types of preventable medical errors, quality improvement efforts to reduce the trends of preventable medical errors which continue to climb despite industry wide efforts (AHRQ, 2016). I will also present legal and cultural considerations of preventable medical errors

as well as costs. The fourth section of the literature examined specific strategies currently employed by leaders in the healthcare industry to reduce preventable medical errors. Several organizations have reported significant efforts and success in reducing the rate of preventable medical errors (AHRQ, 2016).

Strategy for Searching

This section adheres to required APA standards and reviews the literature providing substance to the leadership strategies nurse managers use to reduce the rates preventable medical errors among their employees. This literature review includes article from the Walden University Library, articles found using Google Scholar, the ProQuest database, EBSCO host database, and data from the U.S. Health and Human Services website. I also included data and article from Centers for Medicare and Medicaid Services (CMS) and from the Agency for Healthcare and Research Quality (AHRQ).

Additionally, I used books from the Walden library. I used a Boolean search strategy for all of the data resources with phrases related to transformational leadership, human error, medical error, complex adaptive systems, adverse events and leadership strategies. This study includes 112 citations. Ninety-four or 84% of the articles were peer reviewed and published within 5 years of my expected graduation date, in 2020. Eighty-two citations were used in my review of the literature, eighty or 98% were peer reviewed and published within 5 years of my expected graduation date in 2020.

Application to the Applied Business problem

Purpose of the Study

The purpose of this qualitative, single case study is to explore what strategies nurse managers use to reduce the rates of preventable medical errors among their employees. The geographical location of the research will take place in a hospital located in Southern, California, U.S. This hospital is one of 337 out of 4,579 hospitals in the nation surveyed that received a five-star rating from the Centers for Medicare and Medicaid Services (CMS) for quality of care based on 57 different quality measures (Medicare.gov, 2017). I plan to interview at least six nursing managers and perform a review of related hospital documents to gather the data required to satisfy the proposed research.

The contribution to social change might be the identification of strategies nurse managers can implement which can reduce the number of preventable medical errors and contribute to the perceived quality of care received by patients. Lower preventable error rates can lead to increased patient perception of quality of care having a positive effect on organizational reputation, and a reduction of the expenses and liabilities of preventable errors, and an increased standing in the community due to decreasing errors. Reduced preventable medical errors might also contribute to lower costs to society for healthcare (Zikhani, 2016).

Complex Adaptive Sstems Theory

Complex adaptive systems (CAS) is the theory on which I based the conceptual framework for this research. CAS first described by Stephan Wolfram in 1985. Wolfram

(1985) described that the world around us is a vast and infinitely complex system, but when broken down to its basic components, the individual components can be quite simple. The complex systems theory is useful for examining the basic functions of a system (Wolfram, 1985), and the interrelatedness and influence on the organization's system (Al-Hakim, Wu, Koronios & Shou, 2016).

Healthcare organizations are extremely complex and part of an increasingly complex regulatory and legal environment (Kuziemsky, 2016). There are many organizational variables contributing to the problem of preventable medical errors such as access to care, quality of care, and costs of care. The factors all interact in dynamic and unpredictable fashions. There are nay inputs, process changes and outputs contributing to the complexity.

In addition, the healthcare environment in this country is politically and legally complex. There are several different regulatory agencies overseeing the healthcare community often with differing interpretations of the rules and laws governing the healthcare industry (Kuziemsky, 2016). Using the complex systems theory allowed me to examine basic functions of the healthcare environment and gain an understanding of how each element may contribute to preventing medical errors in the hospital system. Further, the complex systems theory allowed me to explore the interrelatedness and influence of a complex organization and explore the strategies the nurse managers use to reduce preventable medical errors (Iosim, 2016).

Morecroft (2015) suggested that healthcare leaders needed to conduct a strategic examination of their organizations to provide an opportunity to have more control of their

industry in the wake of the massive changes caused by the PPACA. CAS provides

healthcare leaders a method to examine their organizations strategically providing an

element of control when responding to internal and external forces. Clinical and financial

improvement can be realized if leaders can gain an understanding of their basic

processes, while allowing managers to continue to introduce changes that improve the

basic processes of the organization (Morecroft, 2015).

A researcher can use CAS theory to study the relationship between the different

variables that can affect the rate of preventable medical errors in a healthcare system

(Braithwaite, Churruca, Long, Ellis & Herkes, 2018). The researcher can study how

different leadership strategies affect error rates in positive or negative ways or evaluate if

the leadership strategies of nurse managers have a direct or indirect on error rates. As an

example, increased utilization of electron medical records (EMR) will decrease rates of

medication administration errors. The increased adoption of EMR's has positive effect on

the rates of medication administration errors (Shen, Cochran, Neish, Moseley &

Mukalian, 2015). The researcher uses CAS theory to perceive the many different

relationships in the complex environment of a hospital. The researcher can seek

understanding as to whether the effect of the leadership strategies is direct or indirect

(Noble & Smith, 2015).

Leadership Trait Theory

Leadership trait theory was one of the first methods attempted to measure and

describe what made a good leader. Trait theory describes that leaders are born with

certain traits. The traits the great leaders of the past possessed are studied. These studies

enable researchers to determine what traits these people shared and if those traits

characteristics can identify the next generation of great leaders (Deichmann & Stam,

2015).

Leadership Trait research focuses entirely on the leader and the results they

produce. Their leadership skills are determined through the measurement of five to nine

different personality and behavioral scores. Various high scores in several of these

categories have shown a strong correlation to performance in several different leadership

conditions. By focusing only on the leader, the research performed on this leadership type

is seems simple and straightforward. However, with no focus on the employees or

followers, the results of the research on leadership traits are incomplete (Effelsberg &

Solga, 2015). Nursing Managers have an enormous impact on the operations of the

healthcare organization. They manage the frontline staff that provides bedside care. The

early identification, development and education of nurse manager leadership traits can

have huge impact for organizations (Deichman & Stam, 2016).

Leadership Style Theory

The style a leader chooses to employ or adopt can have a large effect on their

employees. Research on leadership style theory first began at the University of Ohio in

1957. Two researchers developed a comprehensive questionnaire containing over 1800

elements. Using this survey, which they named the Leader Behavior Description

Questionnaire (LBDQ), they performed a study across a wide variety of leaders

throughout the United States. The results of the study showed that leadership styles

clustered into two primary groups. Task-focused or employee focused (Deichmann & Stam, 2015).

Further research conducted at the University of Michigan throughout the 1960's has produced similar and supportive results to those from the University of Ohio. Both studies results showed the predominance of two distinct behavior types, Task focus and employee focus. In the early stages of the research, the two groups of leaders, treated as separate groups, categorized as being either task or employee focused. As the research continued it showed that leaders existed that could be strong in both focus areas. They had the ability to display both a task and employee focus (Katou, 2015).

This research led to the development of a leadership grid, which to measure the leadership style of an individual. The research scored on a grid receiving a 1-9 score on task focus and 1-9 on employee focus. Based on the score in the two elements organizations can assess their individual leadership style. Organizations can place various leaders where they will excel or have the knowledge of which areas a leader needs development (Uhl-Biena & Arena, 2018). Nurse Managers often lack formal leadership training (Moore, Sublett & Leahy, 2016). The lack of formal training is a hindrance in identifying a nurse manager's leadership traits and style. Formal leadership training is a key component for nurse managers to develop strategies to deal with the complex environment of the healthcare organization (Moore, Sublett & Leahy, 2016).

Transformational Leadership

James Macgregor Burns first defined transformational leadership as a type of leadership style in 1978 as cited in (Warrick, 2017). This theory was an evolution from

earlier theories attempting to describe the effects of leadership style. Transformational leadership described what an ideal leader could be (Sürücü & Yesilada, 2017). This theory distinguishes the Transformational leader, from the Transactional leader and describes behaviors and qualities a leader can develop to effect change in their organization (Yilmaz & Flouris, 2017).

A leader can develop their employees to a point where they are more productive and produce superior results because of the environment that the leader develops. The employees are involved in the decision-making process and treated as equal members of the team (Yilmaz & Flouris, 2017). The leader can build relationships with the employees that allow the employees to achieve self-actualization and are able to develop their skills to the highest levels (Hoch, Bommer, Dulebohn & Wu, 2016).

A transformational leader can articulate a vision for the organization that the employees support and follow. The transformational leader can communicate the direction and necessity for a new process or change and enjoys the support of the employees. This support enables the leader to effect change within the organization that would be impossible for the transactional leader to do (Hoch, Bommer, Dulebohn & Wu, 2016).

Transformational leaders are the change agents of an organization. They empower and develop employees. The transformational leader can get greater performance out of their employees than the employee would normally be motivated to give. The presence of these leaders will separate the organization to which they belong from others (Yilmaz & Flouris, 2017).

Pongpearchan (2016) reported results indicating a strong relationship between transformational leadership qualities and positive job motivation existed. Also shown was a strong relationship between job motivation and high-level task performance. Contrary to expected outcomes, there was no relationship between power distance and the effects of transformational leadership on job motivation or task completion. Nursing consists of many high-level tasks and this study will help explain why some managerial strategies are superior to others for reducing errors.

The complexity of the healthcare environment is ever increasing. Nurse Managers must be the change agents leading transformation of the healthcare organizations. Governmental regulations, laws and new pay for performance incentives require a reversal in the preventable error rate trends. Nurse Mangers can use transformational leadership strategies to reshape the operational healthcare environment into a place where errors are the exception (Vryonides & Papastavrou, 2019).

Authentic Leadership

Authentic Leadership theory is one of the newest areas of leadership study. (Hoch, Bommer, Dulebohn, & Wu, 2016). The research performed on Transformational leadership led to discussions of the traits of the authentic leader and recent events in the early 2000 have provided the need for this type of leader. Authentic leadership is an extension of a transformational leader (Hoch, Bommer, Dulebohn, & Wu, 2016). At the beginning of this century, several high-profile business scandals destroyed the trust that existed between employees and their leaders (Baykal, 2019). Leaders and management in general are now viewed with deep suspicion. Employees held beliefs that organizational

leaders were just out to make a profit and that attempts at transformation are not designed for mutual benefit, but ultimately for the benefit of the leaders (Baykal, 2019).

An Authentic leader displays the qualities of a transformational leader but are perceived by their employees to possess high morals and values (Baykal, 2019). The authentic leader can differ from the transformational leader in that their main focus is not to transform employees into future leaders, but to act as a role model, influencing the behavior of their subordinates in a positive manner (Baykal, 2019). The authentic leader displays qualities that generate feelings of trust from their employee and the employees believe and expect this type of leader to behave in an ethical manner (Baykal, 2019).

Authentic leaders develop good interpersonal relationships with their subordinates (Banks, McCauley, Gardner, & Guler, 2016). The leader uses these improved relationships to develop their subordinates empowering them to make positive contributions to the work environment and in their personal goals (Banks, McCauley, Gardner, & Guler, 2016). The objective of the empowerment given by the authentic leader is to multiply the positive contributions of the subordinates, allow those subordinates a measure of control in the organization and allow the subordinates to contribute to the success of the organization (Banks, McCauley, Gardner, & Guler, 2016).

The effectiveness of the authentic leader is in part due to the subordinate's recognition of the leader as being authentic, the perceived transparency of the leader and the connections the leader establishes with the subordinates (Chang & Diddams, 2009). Chang and Diddams (2009) reported that authentic leadership has shown a correlation between the life experiences of a leader and the strength of their authentic leadership

skills, the more self-aware the leader, the stronger their authentic skills. If they know themselves and can use and learn from their own lives, they are better able to display high levels of authentic leadership and build loyalty among their employees (Sürücü & Yesilada, 2017).

Research is ongoing but early results have shown that this type of leadership to have a strong correlation to improved organizational performance (Baykal, 2019). As healthcare organizations attempt to deal with the large number of preventable medical errors, the need to identify, train and cultivate self-aware authentic leaders increases as does the need to increase the performance of their employees (Galuska, 2012). The authentic leaders' passion to empower subordinates to positively contribute to the organizations mission by developing supportive environments (Sürücü & Yesilada, 2017).

Relevancy of Literature

Types of Preventable Medical Errors

Preventable medical errors are separated into 5 different types. These are errors of (a) commission, (b) errors of omission, (c) errors of communication, (d) contextual errors, and (e) diagnostic errors (James, 2013). Errors of commission occur when a provider provides care in the wrong manner. An example of this type of error is there is a wrong site surgery performed on a patient (Kalisch 2016).

Errors of Omission occur due to a care providers' negligence, failure to act, or carelessness. An example of this type of error would be if a patient came into the Emergency Department (ED) with chest pain and no attempt was made to determine if the patient was experiencing a Myocardial Infarction (MI) (Kalsich, 2016). Errors of

communication can occur between providers or between care providers and the patient.

Examples of this is are if a physician verbally orders 2mg of morphine intravenously, but

the nurse taking the order hears 20mg morphine intramuscularly, which is a potentially

lethal dose, or if a physician does not advise a patient that taking certain medications can

have possible side effects such a drowsiness, and the patient takes the medication and

becomes drowsing while performing a complex task like driving (James, 2013).

Contextual errors occur when providers to not account for situations may not have

the ability to understand risk factors of care, reasons for care, or post care instructions.

An example of this type of error is if a physician has a patient sign a surgical consent in

English, but the patient's primary language is not English, and they do not have a grasp

of the language. They do not have the capacity to consent due to language barrier (James,

2013). Diagnostic errors occur when the diagnosis is missed, wrong or delayed. An

example of this is when a physician performs a biopsy to detect cancer, and reports to the

patient they are cancer free, when they are not (Verghese, Charlton, Kassirer, Ramsey,

Ioannidis, 2015).

Continuous Quality Improvement

In order to succeed in the current environment, physicians and healthcare

organizations both acute and outpatient providers must increase the volume of patient's

cared for, while maintaining high quality outcomes and reducing operational costs

(Golden, 2015). Failure to adapt and change business processes we add to the increasing

number of healthcare organizations beginning to fail around the country (Golden, 2015).

Arbab Kash, Spaulding, Johnson & Gamm (2014) reported a study of 61 healthcare leaders examining what the most important factors to for leaders to focus on when implementing change. The top three were first, culture and values, second, business processes and third, people and engagement. Organizational culture can have a strong effect on how an organization's continuous quality improvement (CQI) teams operate.

The type of leadership present in the organization best shows this. If the organization is led and dominated by physicians, the CQI team will look much different from an organization run by and with strong nursing or an organization led by business leaders. Each group's culture has value to the CQI process but often conflict with the other members of the group. These three groups often have greatly differing views on what constitutes quality care. In order to build an effective CQI team, the patient must remain the focus of the entire process (Latifi, 2019).

When these three groups work together in a multi-disciplinary approach, excellent quality improvements and higher satisfaction scores are often the result. Processes can be analyzed, and improvements examined across the entire care spectrum and at all levels of the patient experience. The culture of the physicians, nursing, ancillary care and administration must all come into alignment for quality processes to be meaningful and lasting (Latifi, 2019).

A drawback to this approach is often the inclusion of so many members of a CQI team may make the team less nimble and less able to respond quickly to quality challenges. Disagreement or differing agendas can slow the quality process or factions between care providers, staff, and leadership may develop bringing the process to a halt

(Mager & Lange, 2014). The building of a strong CQI team is complicated but can be accomplished with good communication skills and keeping the focus on the patient. Too many preventable errors continue to occur in our health system and with organizations now facing fiduciary responsibilities for improving cost; a robust CQI team is necessary (Latifi, 2019).

For the addition of CQI teams to have a full effect, an exploration of partnerships with Home health and outpatient providers is necessary (AHRQ, 2016). With the increased monetary penalties for 30-day readmissions and post-surgical infections, reliable and quality care post discharge has increased dramatically for organizations and physicians. The outpatient and home health organizations that collaborate with acute care facilities will thrive through increased volumes and revenue as part of whole continuum of care (Kurec, 2014).

The healthcare delivery systems of the United States (U.S.) are among the most complex and advanced in the world (Williams, 2015). This highly complex healthcare delivery system is influenced and affected by a multitude of external and internal forces. The governments of the U.S. and individual states, special interest groups, patient care providers, consumers, and professional regulatory bodies each take a role in directing and affecting how care is provided. Each of these groups has a historic record of molding the current system and will continue to affect the direction of healthcare in the U.S. (Latifi, 2019).

Role of Technology in Quality Control

The introduction of electronic medical records (EMR) and its financial

encouragement the government through meaningful use measures built into Medicare

have revolutionized how CQI teams' function (Golden, 2015). With an EMR there is now

almost too much information available about a patient's stay that it can become difficult

to pinpoint where problems exist. Many QC or PI practitioners or program managers

have begun benchmarking high performing organizations, utilizing best practice

information and implementing evidence-based practices. In the past, reliable quality data

was available at the soonest, on a quarterly basis. Now information can be collected in

almost real time. This allows organizations to identify performance trends and respond to

those trends much faster than ever before. (Swensen, Kabcenell, Shanafelt, & Sinha,

2016).

Patient Protection and Affordable Care Act

The Patient Protection Affordable Care Act (ACA) is an example of government

enacting laws and regulations which has transformed health care in the U.S. With the

implementation of the ACA is having profound effects on healthcare delivery (Kitces,

2015). For physicians and health care leaders the passage of the PPACA has led to

increased utilization of healthcare facilities by consumers formally without health

insurance (AHRQ,2016). The increases have been primarily in outpatient services and

not emergent medical care. Outpatient services are normally less expensive than

emergent or critical care. This increase in patient volumes with insurance and decrease in

charity care initially benefited physicians, healthcare organizations, and the outpatient service providers (Rocco, 2015).

Now that the PPACA is 9 years old, several policies whose elements with delayed implementation date are beginning to take effect. Several of these elements have been difficult for physicians and healthcare organizations to deal with (Golden, 2015). Healthcare organizations and physicians must now treat and care for patients who are more expensive to treat, as they are sicker on average. The rising costs of covering more consumers coupled with Medicare and Insurance companies beginning to reduce reimbursements and the introduction of quality milestones healthcare organizations must meet in order to receive full reimbursement are placing large financial stress on providers and organizations (Golden, 2015).

Physicians and healthcare managers are now jointly responsible for patient outcomes and quality of care provided (Milstead & Short, 2019). In addition, reimbursements from Medicare and insurers have stagnated or decreased. Financial growth is limited and only realized through increased efficiencies and increased patient volumes (Milstead & Short, 2019).

Strategies, performance improvement processes, and long-term solutions are necessary to reverse the rising trend in preventable medical errors (Weeger & Greenwald, 2015). When first reported in 1999, the total number of deaths was approximately 100,000 per year (AHRQ, 2016.). With the latest figures at 400,000 just 15 years later, the trajectory of numbers of deaths in the industry is growing instead of declining, even after the increased awareness of the problem (CMS, 2016).

Employee engagement levels can have a major impact on employee performance levels. The Gallop Organization reported that Managers are responsible for more than 70% of employee engagement levels (Kruse, 2015). Increases in employee engagement scores by as little as 10% reduces errors by 58 per 10,000 processes (Karanges, Johnston, Beatson & Lings, 2015).

The PPACA is intended to provide greater access to healthcare services of millions of Americans (Kitces, 2015). However, beyond this many new regulations enacted as part of this law are also changing the way healthcare organizations operate. Currently, hospitals would receive a fee for services without regard to outcomes (AHRQ, 2016). Now organizations are being held financially responsible for the outcomes they produce. Evidence-based medicine has become a key tool for healthcare organizations to implement in order to provide the quality care while controlling costs called for in the PPACA (Kitces, 2015).

In addition to the legal effects of government, private professional organizations have developed to standardize the practice of a delivery of healthcare (Singer & Vogus, 2013). An example of these organizations is the Joint Commission of Hospital Accreditation. This organization certifies over 21,000 healthcare delivery organizations in the U.S. and certifies each organization is operating and delivering care to set and established standards. Failure to obtain certification by this organization may financially doom an organization as this certification is a requirement to participate in many governmental paid patient care activities (Rita, & Kany, 2000).

Legal Considerations

The legal environment that guides and affects healthcare delivery in the U.S. is as complex as the system it controls. The U.S. Congress and numerous Presidents have enacted laws leading to sweeping changes in the healthcare system (AHRQ,2016). There are also numerous regulatory bodies governing almost every aspect of medical delivery in this country. In addition, each state has its own unique laws and regulations defining what is acceptable practices. Each state also has different laws and regulations affecting payment, insurance and licensing.

While most states laws and regulations resemble those of the federal government, there are often profound differences between the states (Abendshien, 2018). The combined financial contributions of federal and state government payments to the U.S. healthcare system reached 46.5% in 2008 (Abendshien, 2018). As the dominant payer, government, outside of legal and regulatory functions now has a profound influence on the delivery of care (De Nardi, French, Jones & McCauley, 2016).

Cultural Considerations

The U.S. is a world leader in healthcare delivery and many new medical techniques, treatments, procedures, pharmaceuticals and medical equipment are developed there (Milstead & Short, 2019). Many Practitioners come the U.S. to study and train taking their acquired knowledge back to their home countries. With its leadership role in the world, many of the affects institutions and organizations have on the U.S. healthcare system reverberate around the world (Milstead & Short, 2019).

There are several cultural challenges addressing the healthcare delivery system in the U.S. One of the most significant is the high number of recently arrived immigrants that have not yet assimilated into the American culture (Do & Matsuyama, 2014). An example of this is the large Hispanic communities of the Southwestern U.S. Researchers have shown that this population group has a much lower rate of utilization of healthcare facilities. Therefore, this population experiences higher rates of complications with chronic diseases (AHRQ, 2016). Among the reasons for this underutilization is ignorance of the health system, language barriers, and low levels of acculturalization (Do & Matsuyama, 2014).

With so many cultural sub-groups in this country, facilities must now offer interpretive services to all patients in the native language the patient wishes (CMS, 2016) (Hu, Ong, Zhu, Liu, & Song, 2015). It has been acknowledged as a right for patients to receive medical information in an understandable manner. Providing services to the multi-national and cultural populations has caused the passage of laws and the implementation of regulations requiring healthcare facilities to comply. The U.S. is a destination for health care from patients throughout the world. The ease with which the system can provide care universally lead to increased usage by the vulnerable populations that most require care (Do & Matsuyama, 2014).

As the U.S. population is a mixture of the world's cultures and a destination for many foreign patients seeking care, U.S. based healthcare organizations must be ready to meet and account for the cultural norms of patients with wildly different cultural norms.

This need to become culturally sensitive has pushed health care organizations and suppliers to develop solutions to allow the organization to be as adaptable as possible. From handheld translation devices to patient beds that can be programmed to respond to foreign languages. Even the food that is served must be reviewed and evaluated. While these measures are the right and correct steps for organizations to implement, financial incentives and penalties are now being implemented as part of the ACA based on how satisfied patients were with their care (Kitces, 2015).

Healthcare Costs

In the U.S. there are 18.2 million individuals defined as high-end users of health care (CMS, 2016). Aldridge & Kelley (2015) reported that over 40% were from a single class of the population. They are persons with a chronic illness and limited function. These groups spent more than $17,500 per year on medical expenses and were responsible for $976 billion of the $2.7 trillion spent on all health care in the U.S. in FY2011 (Aldridge & Kelley, 2015). Reducing expenditures in this section of the population would allow for the highest levels of cost savings and reductions. This group of patients and preventative error total almost two-thirds of the monies spent on healthcare in the U.S. (Aldridge & Kelley, 2015). If leaders can control preventable medical error rates and spending on the patients with chronic illness, the U.S. would be much closer in alignment with the rest of the developed world in the amount spent per capita (Aldridge & Kelley, 2015).

Another component of health care cost are fraudulent billings. In 2011 the Federal Bureau of investigations reported that of the approximate 2 trillion dollars spent on

healthcare in the U.S., approximately 80 billion was fraudulent (Federal Bureau of

Investigation, 2018) (Bauder & Khoshgoftaar, 2017). A major contributing factor of

fraud, waste, and abuse in healthcare is very few individuals directly pay for the services

they receive (Thornton, Brinkhuis, Amrit, & Aly, 2015). Most costs are covered by

private, employer provided, or government provided insurance. The patient rarely is

aware of the entire details of their bill or the amount actually reimbursed by their

insurance. Another type of payer is the patient that pays for his or her own treatment.

This type of payer in the industry is known as a pay for service or private payer and are

often charges a different rate than the prices listed for insurance companies (Abendshien,

2018).

Another factor is the cost of services and goods provided. Healthcare

organizations list their prices, and bill insurance companies directly for those services.

The patient rarely sees the detailed bill for of services provided. The insurance companies

then reimburse the organization a pre-negotiated amount that is up to 90% less than the

prices listed by the organization. The patient may therefore be unaware a preventable

medical error occurred during their care as they may but unaware of all of the care they

received (Thornton, Brinkhuis, Amrit, & Aly, 2015). Additionally Medicare introduced

bundled payments or diagnosis group codes (DRG)'s which pay a lump sum regardless of

the cost to the organization (Abendshien, 2018), which does not encourage the reporting

of errors, as preventable medical errors may not be paid for by insurers or CMS (AHRQ,

2016).

Leadership Strategies

Employee engagement levels can have a major impact on employee performance levels. The Gallop Organization reported that managers are responsible for more than 70% of employee engagement levels (Kruse, 2015). Increases in employee engagement scores by as little as 10% reduces errors by 58 per 10,000 processes (Karanges, Johnston, Beatson & Lings, 2015). Leaders that recognize and utilize low-cost methods to increase performance and improve preventative error rates, these leaders position themselves to succeed in the future and increasingly challenging healthcare environment.

Pongpearchan, (2016) described a quantitative study seeking to discover if positive relationships existed between transformational leadership, job motivation, high-level task performance, and power distance. 896 lecturers were surveyed in Thailand measuring the level of transformational leadership reported and its effect on motivation. Also hypothesized is that higher motivation would lead to increased job performance, but the effects of the transformational leadership style would diminish the further down the chain of command an employee was.

The results of the study described indicated a strong relationship between transformational leadership qualities and positive job motivation existed. Also shown was a strong relationship between job motivation and high-level task performance. Contrary to expected outcomes, there was no relationship between power distance and the effects of transformational leadership on job motivation or task completion. Nursing consists of many high-level tasks and this study will help explain why some managerial strategies are superior to others for reducing errors (Pongpearchan, 2016).

Buck & Doucette (2015) described a study identifying and comparing

relationships between dependent and independent variables. In this study, the dependent

variable was the self-assessment leadership score of Chief Nursing Officers (CNO) of

109 organizations. The independent variable was if the CNO was the leader of a Pathway

to Excellence (PTE) facility. A PTE accreditation is like Magnet recognition (CMS,

2016). The authors identified a gap in the research, Magnet facilities have many studies

of leadership effects on working environments and outcomes, whereas PTE facilities do

not (Buck & Doucette, 2015).

Buck & Doucette (2015) reported statistically significant results for leaders of

PTE organizations having higher transformational leadership tendencies than those of

non-PTE organizations. The researchers found PTE accredited organizations foster a

more positive environment, which is conducive to better patient care with lower

preventable medical error rates.

The leaders of the PTE facilities tended to implement significant leadership

strategies and low-cost organizational culture changes that successfully reduced

preventative medical errors in their organizations. The PTE leaders had superior

recognition of the level of engagement of the employees and in their organization's use of

transformational strategies to increase the job motivation levels of their employees. The

differences led to higher performance in high difficulty level tasks. The results described

by Pongpearchan (2016) also show that a message or behavior increasing job motivation

starting with senior leadership remains undiminished in its effect on employees. A senior

leadership that actively finds, positions new leaders, and practices transformational

leadership will establish a low-cost method to create an environment where there is a reduction in preventative errors (Pongpearchan, 2016).

Operational Strategies

Harris (2014) reported examining the relationship between a nursing preceptor's knowledge of and prior training level in medication error reduction techniques. Researchers have identified a deficiency in training and education provided to nursing preceptors responsible for the training and onboarding of new nurses. Most pronounced when onboarding newly graduated nurses this knowledge deficiency contributes to increased medical errors.

Previous research showing nurses are most likely to make a medication error when interrupted during their task. Nurses are interrupted an average of 2.8-14 times per hour. Most nurses do not have adequate strategies to cope with the multiple interruptions (Harris, 2014). Leaders in the organization designed a series of pre-tests to determine current knowledge, an on-line practicum, and a post-test. Measured against preventable medical error rates in the respective work areas Harris (2014) reported the results of the tests show significant relationships existed between the post-test results and lower preventable medical error rates suggesting preceptors with greater knowledge of preventable medical error reduction strategies contributed to lower error rates (Harris, 2014).

During the onboarding of new staff is one of the most effective times and methods of introducing and assimilating new staff members into the safety culture of the organization (Williams, 2016). With that in mind, the preceptors are the front-line

change agents of the organization. The front-line supervisors are responsible for monitoring performance, but the preceptors will be the employees that have the greatest effect (Williams, 2015). They are the individuals that show new employees what the true culture is and how safety can really work. If these individuals are ignorant and non-compliant, this will drastically affect the performance of new staff. This will also lead to a mismatch in messaging between management and front-line employees (Harris, 2014).

Ning, Lin, Chiu, Chang, Wen, Peng & Wu (2016) presented a study that examined measures undertaken in a 3800-bed teaching hospital in Taiwan to reduce patient identification errors when retrieving and processing laboratory specimens. In a previous study, 55% of specimen errors were the result of labeling errors. Of those errors 1 in 18 resulted in an adverse reaction to the patient. The cost estimated to be $280,000 per 1 million specimens processed associated with the adverse reactions. In 2005, just in this one large facility, 4 million specimens were processed.

The researchers introduced four different interventions to reduce the specimen processing error rates. In the beginning of the study, the facility had an error rate of approximately 5%. After the implementation of the four interventions, the error rate dropped to less than 1%. Most improvement came from the first intervention of rejecting questionable or mislabeled specimens. This single intervention accounted for a 76% reduction in error. Leaders of smaller organizations where it is impossible to implement all the necessary steps to eliminate preventable errors can focus on the one or two items that cause the highest levels of reductions (Williams, 2015).

Seven Steps

Medical errors can be broken down into two types, active errors, those committed by healthcare providers and latent errors, those caused by systems or processes. Seven steps leaders could implement to raise awareness of medical errors by the staff and initiate error proof or error-reducing processes reported by Zikhani (2016). In this study, the seven steps organization should implement are first, focus on education and training of the leadership and staff about the importance of reducing or eliminating preventable errors. Second, the leaders of the organization must develop and implement rules, policies, and procedures that clearly identify the safety practices of the organization.

The third step is to ensure there is effective communication of the policies. Open invitations to the staff to provide feedback or opportunities for change and improvement to ensure increased organization adoption. Fourth, the establishment and creation of a method of reinforcement, rechecking and blind checking by staff and leaders is necessary. Fifth, the opportunity for simplification and standardization for every part of the organization or possible adoption by other organizations. Sixth, opportunities for computerization or an automation of processes to reduce the amount of human error. The seventh and final step is forcing functions of processes where it is impossible for the staff to make an error.

While this step may not be possible for every activity, steps like preventing a staff member from running a test or delivering a medication without electronically scanning a bar code or a dispensing system which can identify adverse drug reactions and stop the delivery process are two examples where step seven is possible (Zikhani, 2016).

Staff Empowerment

Alimohammadzadeh, Esmaili Joladi, Olya, Ghaiyoomi & Zaferani Arani (2017) reported a study examining factors affecting patient safety. The researchers reported they could find no other studies examining this problem from the front-line staff perspective. The authors of this quantitative examination of three private hospital located in three major municipalities reported several statistically significant relationships existing between organizational support, staff empowerment and the safety culture of the organization.

The researchers reported results suggesting no significant relationship was suggested between personnel factors and patient safety performance, but their results suggested the higher the level of organizational support for patient safety as reported by staff, the better the organization as a whole performed in regards to improved patient safety. The authors also reported the data collected suggested a significant relationship between reported levels of staff empowerment and the incidence of medical error.

Additionally, Al-Bsheish, Mustafa, Ismail, Meri & Dauwed (2019) reported results suggesting a significant relationship between a nurses' phycological perception of empowerment and their level of compliance with organizational safety initiatives. Their results also suggested a significant relationship between their perception of management engagement, their perception of empowerment and their compliance with organizational safety initiatives.

Collaboration

This research is focused on the work of nursing managers but it must be noted that healthcare organizations are highly complex with many complex processes contributing to the problem of preventable medical errors (Zikhani, 2016). Efforts to reduce preventable medical error rates will have limited success if only implemented by a specific group, in this case nursing managers (Keast, & Mandell, 2014). Collaboration between the many different patient care disciplines is a necessary step when attempting to lower preventable medical errors. Collaboration at all levels, including leadership, physicians, staff, members of the Board and the community (Keast & Mandell, 2014)

Larson, Donnelly, Podberesky, Merrow, Sharpe & Kruskal (2017) reported peer feedback, open communication and non-punitive communication were essential elements when dealing with increased rates of preventable errors. Old models of organizational dealings with error focused on identifying mistakes instead of celebrating successes. This method of addressing preventable errors drove staff inward and set up unhealthy competitions. Open, non-punitive peer to peer communications lead to healthy interpersonal relationships enhancing organizational performance.

Accountability

Porter-O'Grady (2019) reported a study describing the balancing act many healthcare organizations must undertake when using and promoting shared governance with its professional staff. Shared governance of a professional staff such as nurses cannot be considered a management strategy, rather a recognition that regulating and leading that professional group is different than managing a group of employees. The

author described three principles of shared governance 1: Professional governance is grounded in practicing nurse accountability, 2: Structures are built around professional accountability and clinical decision-making, 3: Professional governance structures reflect distributive decision-making. This structure is often at odds with the normal hierarchical relationship existing in most organizations but is reported a necessary element to effect practices promoting patient safety and reducing preventable medical errors.

Webb, Dmochowski, Moore, Pichert, Catron, Troyer, ... & Hickson (2016) described research examining how enabling co-workers to anonymously report unsafe conduct or behavior that could contribute to poor patient care affected reoccurrence of these types of behaviors. A reporting tool was developed allowing for communication between staff members facilitating non-punitive corrections and respectful communications. These peer messages were shared between co-workers, including physicians and advanced practice nurses, allowing for full transparency. After receiving the peer message, the staff, physician or advanced practice nurse showed a significant inclination to self-regulate and reported occurrences of unsafe or unprofessional behaviors was reduced.

Leonenko & Drach-Zahavy (2016) described the differing perspectives staff nurses held from nurse leaders dealing with personal accountability in the healthcare environment. Staff nurses reported personal accountability was insufficient by itself to generate accountability behaviors in most front-line staff. This belief was more prevalent in the front-line staff, than in the leadership. The staff reported accountability as a crucial

element of nursing care but reported there must be an organizational element to reinforce the personal element.

Threats

The results of a survey of Chief Information Officers (CIO) showed 23% of the CIO's reported cost as the number 1 obstacle to implementing electronic medical records (EMR) (Healthcare CIO Survey, 2003). Despite the fact that EMR have been deemed a necessity for healthcare organizations by CMS under the meaningful use provisions (CMS, 2016). In addition, the authors described a survey of future threat perceptions; rated as most important was error reduction and privacy compliance, followed by Medicare reimbursement reductions.

At the bottom of the list was patient quality perceptions and improving the quality of care. The turn of the century priorities when compared to the priorities of today and those forecast for the future is significant. Of interest is how low the level of concern leaders displayed for providing quality of care and customer satisfaction soon after the year 2000 despite the initial medical error rates first being published in 1999 (Weeger, & Gewald, 2015). Now many of the conditions of the PPACA tie an increasing portion of Medicare reimbursement to on the quality of the care provided and customer satisfaction scores (AHRQ, 2016).

<div align="center">

Summary and Conclusions

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Preventable medical errors continue as one of the greatest challenges to the healthcare industry. With now a reported 400,000 deaths attributed to preventable errors and now listed, as the third leading cause of death in the U.S. with over a $ 1 trillion

annually in associated costs, the current levels of preventable medical error rates is unsustainable for the country and the industry (AHRQ, 2016). If any other industry in the country had the same level of costs, errors, and attributable deaths, there would be an overwhelming demand for change. If the airline, food, or automobile industry had the same rates, they would be non-existent (Shojania & Dixon-Woods, 2017). The airline industry has achieved an error rate of fewer than 10 errors per 10 million processes (Walls, Revie & Bedford, 2017). If the airlines were responsible for the deaths of 400,000 annually, no one would ever fly (Walls, Revie & Bedford, 2017).

Deblois & Lepanto (2016), conducted a comprehensive review of the literature seeking to understand how Lean and six sigma management techniques have been used to improve outcomes in the healthcare industry. They reported findings that suggested a poor to fair utilization of the Lean and Six Sigma management techniques in the industry. This suggests a greater use of the Lean and Six Sigma management techniques may aid leaders in the healthcare industry in emulating the successes of the airline industry.

What is remarkable is healthcare is primarily a negative service industry. Very few of the persons actually want to use the services (Hsu & Marsteller, 2016). Large privacy issues exist which can make detecting errors difficult (Gould, 2017). When an error occurs, that error cannot be highly publicized in part due to the secretive nature of the personal illness, and in part, to the heavily regulated methods involved in sharing healthcare information (Gould, 2017). It was not until 1999 that the first major study was published addressing the issue of preventable error (HHS.gov, 2019).

The leaders and practitioners of this industry now possess a greater understanding of why errors are occurring (Zikhani, 2016). The case study design is a well-suited qualitative methodology for researcher to use for studies of the healthcare industry (Colorafi, & Evans, 2016). It allows a researcher to use several data collection techniques, sampling techniques and theoretical approaches. Using transformational leadership techniques, improving processes, and through technology utilization, it is possible for the healthcare industry to achieve error rates similar to other major industries. With the implementation of new regulations such as pay for performance, reimbursements based on outcomes, and quality metrics, any organization that is to survive will need to utilize the techniques and strategies to remain viable and successful in the future.

Transition

The identification of leadership strategies used by nurse mangers to reduce the number of preventable medical errors is important for society by reducing unnecessary suffering and reducing the associated organizational costs (Kalsisch, 2016). This exploration into the strategies used by nursing managers in a single organization with low levels of preventable medical errors may add to the body of knowledge allowing other managers to identify leadership strategies to reduce preventable medical errors in other institutions. This may also contribute to the perceived quality of care received by the patients.

In section 2 of the project, the reader will encounter thirteen subsections. Section 2 begins with a restatement of the purpose statement allowing the reader to recall the

original intent of this research project. Provided next is a description of the role of the

researcher providing peer reviewed sources along with information regarding my

personal experience with the subject. I present information on the participants, the

research method, research design, population and sampling, ethical research, data

collection instruments, data analysis, reliability, validity and provide a transition and

summary. In section 3 I provided my research findings, applications to professional

practice, implications for social change, recommendations for action, recommendations

for additional studies, a self-refection and a conclusion.

Section 2: The Project

Preventable medical errors remain a challenge for healthcare organizations. The potential loss of revenue, reputation and customer satisfaction can have serious consequences on organizational health (Zikhani, 2016). This project was an exploration of strategies nursing leaders use to reduce the occurrence of preventable medical errors, and by that reduction, prevent deaths and other negative outcomes. Through the identification of successful strategies, I hope to contribute to awareness and national efforts to address this problem.

Purpose Statement

The purpose of this qualitative, single case study was to explore what strategies nurse managers use to reduce the rates of preventable medical errors among their employees. The geographical location of the research was in a hospital located in Southern California, U.S. This hospital is one of 337 out of 4,579 hospitals in the nation surveyed that received a five-star rating from the CMS for quality of care based on 57 different quality measures (CMS.gov, 2019). I interviewed six nursing managers and performed a review of related hospital documents to gather the data required to satisfy the proposed research. The contribution to social change is the identification of strategies nurse managers can implement which can reduce the number of preventable medical errors and contribute to the perceived quality of care received by patients.

Role of the Researcher

My role in this qualitative design case study methodology research study was to correctly evaluate and fulfill the requirements of the Institutional Review Board (IRB)

and correctly interpret the processes to complete a doctoral study (Bell & Waters, 2018). I followed appropriate interview protocols while in my role as a researcher for this study. I conducted semistructured interviews with nurse managers using the same open-ended questions and conducted department-specific document reviews to explore how nurse managers use leadership strategies to reduce preventable medical errors (Thorn, 2016).

I have been employed in the healthcare industry for over 25 years in multiple areas and in various leadership positions. I am a current employee and leader in the organization in which I performed my research study. I am not a part of the chain of command of any of the participants, nor do I have any assistant, supervisory, or managerial relationships with any of the participants. I have not worked on any quality improvement projects with any of the participants.

In order to mitigate any potential personal biases due to my research being conducted inside an organization of which I am a part, I requested the participants to review my results, which I verified with more data sources. I also checked for alternative explanations and reviewed findings with peers. Researchers conducting qualitative investigations use peer debriefing, member checking, and auditability to enhance credibility, establish dependability, and mitigate bias (Yin, 2017).

One of the purposes of this study was to have a positive social impact. One of the ways to ensure the projects meets this goal is to conduct ethical research. To accomplish this purpose, I closely adhered to the Belmont Report protocol. The Belmont Report provides an ethical framework to help researchers and other interested parties recognize and identify potential ethical issues that arise in research performed with human subjects.

First, researchers must be fair to all participants; second, researchers must practice beneficence in doing more good than harm and by adhering to the principle of justice (Belmont Report, 1979). The Belmont Report can also be used as a guide for the resolution of ethical dilemmas stemming from research (Belmont Report, 1979).

Participants

The six participants selected for this proposed study were all employed in a single organization located in Southern California. I communicated with the organizations' CNO, who agreed to allow me to solicit the participants' involvement and offer them the opportunity to be a part of this study. I developed a consent form to be signed by the chosen organization's leadership allowing me to use the premises for my study. The participants were employed in the organization as nursing directors, nursing managers, and a nursing director in the quality department. I did not know any of the participants prior to my employment at this facility. However, many of the participants are aware that I am attempting to complete a terminal degree.

I developed a letter of cooperation for the organization and a participant consent form describing how the datum I receive from the participants would be used, my obligation for ethical use of any datum, and the importance of protecting the privacy of the participants (Belmont Report, 1979). I allowed each of the participants to review and sign the consent form prior to conducting any interviews. I established an atmosphere of trust as suggested by Marshall and Rossman (2016). A researcher should make efforts to develop an atmosphere of trust that encourages truthful responses regarding sensitive or personal subjects (Marshall, 2016). It is very important for the participants to trust the

researcher and for the researcher to trust the responses of the participants (Sorsa,

Kiikkala, & Åstedt-Kurki, 2015). I also informed each participant they may withdraw

from this study at any time for any reason.

<div align="center">**Research Method and Design**</div>

Research Method

A qualitative methodology was used to further understand human behavior

observed within the phenomenon of a study (Eisner, 2017). The justification for the use

of the qualitative methodology was the need to explore, understand, and describe the

strategies nurse managers use to successfully reduce the rates of preventable medical

errors. The use of the qualitative method allowed me to explore human behavior in ways

the quantitative method did not (Yin, 2017). The quantitative methodology allows a

researcher to examine possible correlations or regressions (Hammersley, 2018).

Quantitative studies also allow a researcher to examine comparitive or descriptive studies

(Hammersley, 2018). The quantitative design was not appropriate for this study as I was

not seeking to study what factors or variables are related to outcomes, nor was I seeking

numerical data (Ingham-Broomfield, 2014). The researcher may reach a more complete

understanding of the research question with a mixed-method study, using both qualitative

and quantitative methodologies (Molina-Azorin, 2016). However, the mixed method

study takes more time and is more expensive to conduct (Shannon-Baker, 2015).

Research Design

I used the case study design for my study. The case study design was appropriate

as the datum generated came from an exploration of real-world medical error rates and

the strategies managers used to reduce these error rates in a single organization. I chose

the case study design as opposed to ethnography. Researchers use the ethnographic

research design to describe and explore the cultural phenomenon of people or groups

(Hammersley, 2018). I did not explore culture. Phenomenology research design is used to

understand the meanings of lived experiences of the population studied (Sanders, 1982).

My research was not confined to a single event or phenomenon or exploring the

uniqueness of events leading to reduced medical errors (Yin, 2016); thus,

phenomenology was not used.

As part of the design of this study I used the complex systems theory, which was

first described by Stephan Wolfram in 1985. Wolfram (1985) stated that the world around

us is a vast and infinitely complex system, but when broken down to its basic

components, the individual components can be quite simple. The complex systems theory

is useful for examining the basic functions of a system (Wolfram, 1985), and the

interrelatedness and influence of an organization's system (Morse & Coulehan, 2015).

Using the complex systems theory allowed me to examine basic functions of the

healthcare environment and gain an understanding of how each element may contribute

to preventing medical errors. Further, the complex systems theory allowed me to explore

the interrelatedness and influence of the elements of a complex organization and explore

the strategies nurse managers use to reduce preventable medical errors.

To ensure data saturation and accuracy, I conducted member checking. I provided

the participants with a copy of their transcripts for their review. I asked each participant

to review the transcripts for accuracy and completeness. I also offered them the

opportunity to add any other insights or ideas they felt should be included. In larger

studies, data saturation can take longer than in small studies (Fusch & Ness, 2015). With

only six participants in one organization, data saturation was achieved in a timely

manner.

Population and Sampling

The population of this sample derived from a healthcare facility located in

Southern California. The participants selected for this study were all nurse managers or

directors with at least 5 years of experience directly involved with patient care and all

working in the same leading healthcare facility. I selected a sample of six leaders who are

familiar with the problem of preventable medical errors in a hospital setting. Purposeful

sampling for this study involved nurse managers that have successfully addressed the

problem of preventable medical errors in their individual work areas (Palinkas, Horwitz,

Green, Wisdom, Duan, & Hoagwood, 2015).

Yin (2017) suggested a case study design may be appropriate to use when

researchers are studying a limited number of participants. I interviewed six participants,

linking my data with a document review and member checking. I used a purposeful

method of sampling, allowing the nurse managers that understand the problem to

contribute valuable information and allow me to gain an understanding of the research

question (Al-Hakim, Wu, Koronios, & Shou, 2016). To ensure I achieved data

saturation, I provided all the participants with a copy of the synthesis representative of

their responses. After letting them review the synthesis of their responses, I asked for

additional information they may have after considering the information I presented them.

This allowed me to achieve greater accuracy in my research with increased data saturation (Yin, 2016).

I established a set of criteria that the proposed population must meet. First, each participant must currently be a nurse manager or higher employed in my target organization. Second, each participant must have at least 5 years of experience with and have describable strategies dealing with the improvement of preventable medical error rates. Third, I have no conflicts or in the chain of command of the researcher. All of the participants were willing to participate in either a 30 to 45 minute phone interview or face-to-face discussion, and a 15 to 30 minute follow up interview. Yin (2016) suggested that researchers should take care in selecting the sample population as it is highly important to the quality of the study.

Ethical Research

I submitted to Walden University's IRB for approval to conduct my proposed research remaining in compliance with U.S. federal regulations. The approval number for this study is 03-27-20-0525117, with an expiration date of March 26, 2021. The privacy and protection of the participants is a primary responsibility of the researcher (Morse & Coulehan, 2015). In order to maintain the privacy and to protect the participants, I assigned each participant a letter, identifying them and allowing for their anonymity. I ensured during the coding of the data that no names or identifying information of the participants appeared on any of the documents or forms associated with this research study.

Participants retained the ability to withdraw this study at any time for any reason. I only asked that they submit their wish to withdraw to me in writing. The University has IRB standards in place to ensure all participants are treated with respect and in an ethical manner. I developed a consent form for each participant to review and sign outlining the purpose of the study. This form served as a consent form for each participant. Each participant voluntarily decided to be a part of this study. They signified their willingness to participate by signing the provided consent form.

The managers choosing to participate in this study were given the option to terminate the interview at any time, with no adverse reactions. There were no incentives provided to the managers to gain their approval to be a participant in this study. All the interviews were recorded, and I took notes during the interview and reviewed the information collected from the participant at the conclusion of the interview. This review helped me ensure the accuracy of the data collected and ensured I was interpreting the data correctly. To protect the privacy of the participants, I assigned each participant a unique letter identifier and removed any data or content identifying the participant. A further protection suggested by Morse and Coulehan (2015) is to refrain from including demographic information within the study, which was followed. No participant demographic information was included.

All the data and responses collected from the participants is stored on my personal computer which is password protected. I stored a copy of the data on a personal password protected flash drive, which is stored in my home safe. This information will only be made available to my committee members upon request. 5 years after the publication of

my study, I will delete all electronic data and research in order to preserve the

participant's anonymity. Any handwritten notes related to this study are preserved in my

home safe and will be destroyed 5 years after publication.

Data Collection Instruments

One of the elements that differentiates qualitative research studies from

quantitative is the data collection instrument (Yin, 2016). In this qualitative study, I, the

researcher, was the primary data collection instrument. I conducted these interviews in a

leading healthcare facility in Southern California. I chose the participants based on their

position within the organization. They were nurses in a managerial position, had

knowledge of leadership strategies, and possessed expertise with addressing preventable

medical errors (Thorn, 2016).

I used a semistructured interview style to ask open ended questions to facilitate

the collection of data (see Appendix B). I asked the questions I have developed in a

semistructured and open-ended manner to gain an understanding of how nurse managers

use leadership strategies to reduce preventable medical errors. I made every effort to

conduct the interviews face to face, which I was successful. If unavoidable, I planned

allow participants to be interviewed by phone. If I had to conduct phone interviews, I

would have used the video conference program Zoom, which would continue to allow the

gathering of non-verbal data and evaluation of body language. Matthews, Baird, &

Duchesne (2018) suggest video conferencing facilitates healthcare research when face to

face interviews are not possible. I provided each participant an overview of the purpose

of my study and asked a few icebreaker questions to develop rapport with the participant.

Even with the limited size of the population the collection of valuable research data remains possible when the researcher has a clearly defined problem paired with participants that are very familiar with the subject matter (Thorn, 2016).

My intention to have face to face interviews served as an additional element to my data collection. I was able to meet each participant in person, but if an in person meeting was not possible, I had planned to use a video conference program due to the importance of collecting this additional data. While conducting the interview, the researcher can evaluate non-verbal cues from the participants. The nonverbal cues aided me in data collection as in this study I was the primary data collection instrument. The interview was the secondary data collection instrument leaving it up to the researcher to fuse the data into a reliable and valid construct (Yin, 2016).

The interview questions were the same for each participant constituting the semi-formal nature of the interview, but a researcher must anticipate that the answers will be unpredictable. Accurate and insightful follow up questions are important to data collection reliability and validity (Yin, 2016). I used the follow up questions during the interviews for member checking, to ensure data saturation and ensure that I correctly interpreted the responses of the participants. I also conducted a thorough review of the documents generated from the notes taken from the interviews. I developed a set of review questions to find any additional data included in the documents. The follow up questions, document review, and member checking should strengthen the reliability and validity of my study.

Data Organization Technique

Morse, and Coulehan (2015) suggested the organization of the data collected and the setting of safeguards to protect the participants and organization is a primary responsibility of the researcher. All the data and responses collected from the participants are stored on my personal computer which is password protected. I also stored a copy of the data on a personal password protected flash drive, which is stored in my home safe. This information will only be made available to my committee members upon request. five years after the publication of my study, I will delete all electronic data and research in order to preserve the participant's anonymity. I will also ensure any handwritten notes related to this study are preserved in my home safe and destroyed 5 years after publication.

Data Analysis

The collection and analysis of the data during the interview process involves the recognition of various themes and associating the responses with various themes. The recognition and association contribute to the findings of a qualitative case study (Harvey, 2015) (Yin, 2016). The process of data analysis allows researchers using the case study methods to explore the data about the case in a narrative fashion (Bernard, Wutich & Ryan, 2016). During the interviews, I took detailed field notes, noted the participant behaviors, and asked detailed follow up questions seeking to gain data saturation (Yin, 2016). I used member checking to ensure all participants understood the topic I am researching, as well as determining if the questions I was asking were understood by all participants. At the completion of the interviews I compiled and sorted all my field notes

and transcripts, making appropriate annotations, as necessary. I loaded all of the notes and transcripts into my personal computers word processor, where I sorted the data before loading the data into the software I have chosen for classifying the themes (Christe, Bemister, & Dobson, 2015).

I used the NVivo 12 [©] software as the data analysis tool to organize the data collected. Analysis of the collected data is an essential part of qualitative research (Yin, 2016). Analysis should be a constant process of the researcher to confirm distinction in participant's responses. Confirming distinction is an important element when trying to reach data saturation and improving reliability and validity (Marshall &Rossman, 2016).

After I completed all the interviews, I repeatedly reviewed the audio recordings of the interviews interpreting and synthesizing the responses into themes. I provided my interpretations to each participant for validation of my interpretations. I then asked each participant if they had any additional information or adjustments to the information, I shared with them. The sharing of my interpretation of the data allows for member checking as a confirmation of my interpretations of the data. To ensure data saturation, I shared my interpretations simultaneously to check for any newly emerging themes. As part of the review, I made modifications required by the participants. I reviewed each participant's additional information and adjustments to identify all the emerging codes and themes.

Reliability and Validity

In order to present a scientifically acceptable research study, the researcher must take care to ensure the data generated is both reliable and valid (Yin, 2016). Elements

that a researcher can use to strengthen reliability and validity are credibility,

confirmability, transferability and dependability. There is a key difference between

establishing reliability and validity in quantitative and qualitative studies. In quantitative

studies, these elements can be measured, and in qualitative studies, they must be

established using qualitative methods such as member checking (Bernard, Wutich &

Ryan, 2016).

Credibility in a research study means that there is confidence in the data

generated. In a qualitative study, credible data mirrors the views of the participants.

Confirmability is the confidence that the views presented by the researcher are actually

the views expressed by the participants presented in a neutral and unbiased manner.

Transferability in qualitative research is the degree in which the data generated is

applicable to similar types of studies. Dependability ensures that the results of the study

are reproducible and consistent (Noble, & Smith, 2015).

Dependability

In order to strengthen the reliability of a study, the researcher must take steps to

ensure the data generated is dependable (Bernard, Wutich, & Ryan, 2016). I interviewed

6 nurse managers to explore leadership strategies used to reduce preventable medical

errors. I used member checking to increase data saturation and increase the validity of my

findings. Member checking is one of the qualitative methods researches use to increase

the dependability of the data generated, which should enable an external researcher to

achieve similar results if they repeated my research (Marshal, &Rossman, 2016) (Harvey,

L. 2015).

Credibility

Credibility is an important element for researchers to develop to ensure the data generated accurately reflects the view of the participants. Credibility can be strengthened through the use of several qualitative methods. I strengthened the credibility of my research through the use of data triangulation. I accomplished data triangulation through the use of subject matter experts for my participants, the use of open-ended research questions, member checking, and a thorough review of the notes and observations. The use of multiple sources for data triangulation strengthened the credibility and trustworthiness of my study (Kornbluh, 2015).

Transferability

Transferability of this research study will be dependent upon the readers of this research study. Future researchers may decide to follow the same methods as I have, to explore a case study based on their own experiences. However due to the small size of the sample size of my research study, a future researcher may not get the same results as I did yet, this does not indicate my methods were flawed. Future researchers interested in transferring the methods used in this study to another inquiry will judge for themselves the transferability by assessing the similarities and differences of the problems being studied (Marshal, &Rossman, 2016).

Confirmability

Marshall & Rossman (2016) suggested that researchers have the responsibility to present credible and confirmable explanations for their findings. The process of determining confirmability is the degree to which other researchers can confirm the data

generated. In qualitative research, there is an assumption that every researcher will inject a certain distinct perspective to the study presented. To prevent the injection of any personal opinions I compared the codes and themes I developed from my interviews and member checking sessions with the finding from my literature review. I used the findings of my literature review as confirmation or contradiction to the findings of my research, in an effort to minimize any interjection of my own perspectives, which could be a form a bias, into my research study (Yin, 2016).

Data Saturation

Data saturation is considered to be achieved in qualitative studies when sampling from participants becomes repetitive and results in no new themes (Morse & Coulehan, 2015). Fusch (2016) suggested researchers should stop their investigations when after engaging in member checking, no new codes, data or themes are generated. I interviewed my 6 participants until I was generating no new data or themes based on responses, observations, and responses derived from member checking. I continued my process of member checking and comparing to my literature review until data saturation was achieved (Fusch, 2016).

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Transition and Summary

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The purpose of this qualitative case study conducted in a single organization was to describe and explore nurse mangers leadership strategies to reduce preventable medical errors. Included in section 1 is a review of the literature describing the conceptual framework, strategies for searching, causes of error and strategies to prevent error. With interview questions, I applied the complex systems theory as the conceptual

framework to explore how the strategies of the nurse managers may influence the prevalence of preventable medical errors.

The findings generated from this study might enable the leaders of other organizations to reduce the rate of preventable medical errors in their own organizations. Lower preventable error rates can lead to increased patient perception of quality of care having a positive effect on organizational reputation, and a reduction of the expenses and liabilities of preventable errors, and an increased standing in the community due to decreasing errors. Reduced preventable medical errors might also contribute to lower costs to society for healthcare.

In section 2, I provided information divided into thirteen subsections. Section 2 began with a restatement of the purpose statement allowing the reader to recall the original intent of this research project. I then provided a description of the role of the researcher providing peer reviewed sources along with information regarding my personal experience with the subject. I then presented information on the participants, the research method, research design, population and sampling, ethical research, data collection instruments, data analysis, reliability, validity and provide a transition and summary. In section 3, I provided research findings, applications to professional practice, implications for social change, recommendations for action, recommendations for additional studies, a self-refection on my experiences during this study and a conclusion.

Section 3: Application to Professional Practice and Implications for Change

Introduction

In this section, I present the research findings applicable to the professional practice of nursing leadership, implications for social change in reducing preventable errors and increasing patient safety, recommendations for action, and suggestions for future studies. This section also includes proposed leadership strategies nurse managers might use to reduce preventable medical errors in a complex adaptive system. I conclude with a self-reflection on the experiences.

The purpose of this qualitative, single case study was to explore what strategies nurse managers use to reduce the rates of preventable medical errors among their employees. I used the qualitative case study design to address my research question by gathering information through the use of semi-structured interviews of participants all employed in a single site hospital setting. The participants represented a diverse cross section of nursing functions, to include medical surgical, intensive care, the emergency department, the operating room, and quality and case management.

Presentation of the Findings

The overarching research question was: What strategies do nurse managers use to reduce the rates of preventable medical errors among their employees? I gathered data through semistructured face-to-face interviews, using member checking to ensure the completeness and credibility of the data collected, and a review of company documents. Purposive sampling ensured the participants possessed the required knowledge, strategies, and expertise to provide data for the study (Marshal & Rossman, 2016).

Each participant responded to an email invitation sent to all leaders who met the study criteria. Each participant was given an opportunity to review the consent form before signing. Each participant indicated a willingness to participate and granted me permission to audio record the interview. After comprehensively reviewing the transcripts notes from each interview and field notes acquired from document reviews, I entered the written content and notes of the interviews into NVivo $^{©}$ 12 software.

The NVivo$^{©}$ 12 software made it possible for me to analyze the data and visualize relationships within the data. An exploration of the relationships within the data allowed me to develop common themes from the information provided by the participants. From my analyses of the coded outcomes from NVivo $^{©}$ 12 software, I developed a set of four common themes, which emerged from the integrative and interpretive analyses.

Four themes emerged from the data analysis (see Table 1): (a) Staff Empowerment, (b) Communication and Collaboration, (c) Standardized Processes, (d) Accountability. In Table 1, I display the themes that emerged after an extensive analysis of the participant interviews and follow up discussions. The themes presented in Table 1 reveal the number of findings of the themes emerging from the interviews after analysis.

Table 1

Participant Responses to Themes

Themes	P. 1	P. 2	P. 3	P. 4	P. 5	P.6	Totals

Staff Empowerment	21	19	13	11	5	9	78
Communication/Collaboration	5	10	5	6	18	9	53
Standardized Processes	4	8	14	9	0	3	38
Accountability	5	9	2	1	6	4	27

Note. P = Participant

Theme 1: Staff Empowerment

Several common preventable medical errors routinely reported are: adverse drug reactions, catheter associated urinary tract infections, centralline blood stream infections, sentinel events, ventilator associated pneumonia, which collectively are all considered nosocomial infections. Alimohammadzadeh, Esmaili Joladi, Olya, Ghaiyoomi, and Zaferani Arani (2017) reported that organizational factors, specifically staff empowerment, organizational commitment, and managerial support had a significant effect on patient safety and in the reduction of preventable medical errors. The researchers also reported that prior to their work, they were unaware of any studies where the researchers examined the factors affecting patient safety from the point of view of the front-line nursing staff. There were 78 responses to my interview questions that either described ways the nurse manager encouraged staff participation or partnered with the staff to reduce preventable medical errors. The nurse leaders of this organization showed many examples of how the staff was empowered to be active participants in the reduction of preventable medical errors.

During my interviews, I was introduced to Nursing Professional Practice Councils consisting of only front-line staff members, Nursing Leadership Councils, and Quality Councils, where the staff actively participated. According to Participant 1, "without staff involvement, no error reduction plan will work." Participant 4 reflected, "I always try to

involve the stakeholders in identifying, developing solutions and implementing those solutions, and with preventable errors, the front-line staff are the main stakeholder."

The Organizational commitment to staff involvement was evident when I discovered in a document review that nurses could advance their career, in some cases, only through participation in process improvement processes. The organization developed a clinical ladder for nurses, in which achieving the highest level is only possible by participation on a professional practice council, process improvement team, or rapid improvement project. Participant 3 stated, "If the staff feel like partners, instead of being dictated to, the results can be phenomenal." Participant 1 described a challenge their unit was experiencing with patient falls. We invited all the staff to participate in coming up with a solution to this constant problem, and we all agreed to adhere to the solutions we developed. I agreed to hold myself and all staff members accountable in a non-punitive manner. Those failing to adhere to the new proposed solutions would be the next representative on the unit-based safety council. The staff agreed they would also abide, but also to hold each other accountable. We implemented a staffing mix where a staff member would be able to respond immediately to a patient's room on fall precautions when the bed alarm went off. Staff would be speeding down the hall saying, "I'm not going to the Safety Council meeting!" Not that I want to discourage attendance, but fall rates dropped sharply (Participant 1).

Another example of staff empowerment came from Participant 5, who shared, "We want to increase our level of staff reporting to include the perception the staff have of errors. Instead of calling something a 'near miss', we encouraged the staff to report

events to their leaders and quality councils as a 'good catch.' If the staff is afraid to report errors, how will we be able to detect the need to improve?"

Al-Bsheish, Mustafa, Ismail, Meri, and Dauwed (2019) reported research suggesting nurses' phycological perception of empowerment was related to their level of compliance with organizational safety initiatives. Their results also suggested a relationship between their perception of management engagement, their perception of empowerment, and their safety performance. Participant 2 shared a method to empower and motivate staff to seek ways to reduce preventable medical errors actively: "When we discover an instance where a preventable medical error occurred, we would share it in a non-punitive way with the entire staff, but in a highly personalized manner."

I try to personalize the event for the staff. Instead of the patient in room a123 received the wrong dose of medication, an adverse drug reaction, we would state Mr. Smith, an 87-year-old father of three, grandfather of 12 who was highly active, enjoyed golfing and theater, will now have to spend several more weeks in a long term acute care facility and may not ever recover his prior full functionality. If the staff can understand the effect errors can have on a personal level, I feel this truly provides that extra level of motivation to take care and pay attention to what they are doing (Participant 2). Additionally, Participant 1 stated, "If they see them as a room number, instead of a person, we are in trouble, but we go out of our way to make it personal." Kruse (2015) reported that managers are responsible for up to 70% of employee engagement levels. Simple fixes such as personalizing the care provided, leading to organization wide changes reinforce the complex systems theory first proposed by Stephan Wolfram.

Theme 2: Communication and Collaboration

Communication and Collaboration had 53 responses during the six participants'
interviews. Healthcare organizations are extraordinarily complex, with many complex
problems contributing to the problem of preventable medical errors (Zikhani, 2016).
Participant 5 stated, "Poor communication leads to error. As leaders, we need to build
partnerships, gather information, and communicate our plan to the staff and each other.
Our whole goal is to get these patients to a safer environment, home." Participant 4
added, "It is so important to stay connected to staff and Peers. When possible, I try to
implement team solutions. This place is so big, working in a silo gets you nowhere."

A manager's efforts to reduce preventable medical error rates will have limited
success if only implemented by a specific group. Collaboration between the many
different patient care disciplines is necessary when attempting to lower preventable
medical errors. Collaboration is necessary at all levels, including leadership, physicians,
staff, members of the board, and the community (Keast & Mandell, 2014).

When trying to solve a problem, you often have less than half the picture. You can
develop tunnel vision. I have found my most successful improvement projects included
identifying how the issue I was addressing affected other departments. Often, the solution
I might have had in mind would have created a cascade of problems for other
departments had I not asked (Participant 2). Managers must ensure there is effective
communication (Zihknai, 2016). Participant 3 reflected, "It's one thing to communicate,
but do they really understand what you mean? You must have a clear goal, understand

what you are measuring and monitor frequently, but if the staff doesn't understand their role, what's the point?"

Disagreement or differing agendas can slow the quality process, or factions between care providers, staff, and leadership may develop, bringing the process to a halt (Mager & Lange, 2014). Participant 6 stated, "One of the things that allows us to be so successful in solving some problems is it's so easy to reach out and communicate with other leaders." According to Participant 5, "We are encouraged by administration to involve staff in improvement projects. They are very transparent, and the staff feels that. Also, many of the suggestions for improving processes made by the staff are implemented." Participant 1 shared, "I try to round with my staff every day, just to listen to their thoughts, develop a good relationship with them and allow them to bring issues to my attention. I do have to filter out the real issues from generalizations, but I try to keep my rounding non-punitive, but more to communicate and reinforce expectations."

Theme 3: Standardized Processes

The need for standardized processes had 38 total responses from the six participants. Strategies, performance improvement processes, and long-term solutions are necessary to reverse the rising trend in preventable medical errors (Weeger & Greenwald, 2015). The physicians, nursing, ancillary care, and administration culture must all come into alignment for quality processes to be meaningful and lasting (Latifi, 2019). Participant 1 stated, "To reduce preventable medical errors, you need to increase staff involvement, have peer support and accountability." Participant 3 shared, "Evidence based medicine has made things simpler yet harder if that makes sense." With the

introduction of the EMR there is now almost too much information available about a patient's stay that it can become difficult to pinpoint where problems exist (Golden, 2015). Participant 3 also shared, "We have templates for charting, which aids in developing standard processes, but you have to make sure the staff are paying attention to the template and not just clicking buttons." Participant 6 noted, "Understanding the culture is particularly important. Identifying patterns of behavior, identifying who the influencers are, and developing a standardized process that meets their needs can go a long way."

Organizations are being held financially responsible for the outcomes they produce. Evidence-based medicine has become a key tool for healthcare organizations to implement in order to provide quality care (Kitces, 2015). The rising costs of covering more consumers coupled with Medicare and insurance companies beginning to reduce reimbursements and the introduction of quality milestones healthcare organizations must meet to receive full reimbursement are placing large financial stress on providers and organizations (Golden, 2015).

Participant 4 stated "It should not matter what staff member is working that shift, each one should be providing the same level of care. And they hold each other to that". Participant 2 stated, "Many times, the best time to really reinforce our standardized processes is when we on-board a new staff member. We ensure they learn our processes which then reinforces those processes to their other co-workers". Harris (2014) described research showing that nurses are most likely to make a medication error when interrupted during their task. Nurses are interrupted an average of 2.8-14 times per hour. Participant 3

stated, "The hospital is a crazy environment at times. We ask so much of our staff, and the fact that more errors don't occur is due to our standardized practices."

Theme 4: Accountability

The fourth theme that emerged was the accountability of the staff to conformance with standardized practices and that leadership displayed their engagement and commitment to reducing preventable medical errors through the application of policies and identifying and correcting practices outside of policy. Enabling co-workers to anonymously report unsafe conduct or behavior that could contribute to poor patient care affected the reoccurrence of these types of behaviors (Webb, Dmochowski, Moore, Pichert, Catron, Troyer, ... & Hickson, 2016). Participant 6 stated, "We strongly encourage evidenced based practices, and we partner with the staff through our professional practice committees." Participant 4 commented, "As a leader, I certainly have a role to play, but cannot be everywhere. As part of our shared governance initiatives, we rely on peer relationships to ensure staff is performing in a safe manner". Participant 6 related the informal leaders' role on their unit and how those informal leaders set examples and communicated what acceptable levels of performance were. Particpiant 2 shared, "The impact of this informal influence is particularly true when onboarding new staff". The front-line supervisors are responsible for monitoring performance, but the preceptors will be the employees that have the greatest effect (Williams, 2015). They are the individuals that show new employees what the true culture is and how safety can work. If these individuals are ignorant and non-compliant, this will drastically affect the performance of new staff. These individuals will also lead

to a mismatch in messaging between management and front-line employees (Harris, 2014). Participant 1 shared, "When I determine assignments, I try to send to the right person to the right place" Participant 1 further described the difficulties of onboarding new staff, stating, "the staff have high expectations, and I have to make sure those expectations are reasonable."

Medical errors can be broken down into two types, active errors, those committed by healthcare providers, and latent errors, those caused by systems or processes (Zikhani, 2016). Participant 2 stated, "It can be very devastating to staff when a bad outcome occurs, and then on top of that to know it was related to a bad process, it's worse because you can ruin a staff member who believed they were doing the right thing." Participant 5 reflected about the need to ensure the nursing practices on their unit reflected the latest evidenced based medicine. They described the organization's dedication to continuing education and pointed to the recent recertification as a Magnet facility. Buck & Doucette (2015) found that PTE or Magnet accredited organizations foster a more positive environment conducive to better patient care with lower preventable medical error rates.

Shared governance of a professional staff such as nurses cannot be considered a management strategy, rather a recognition that regulating and leading that professional group is different from managing a group of employees (Porter-O'Grady, 2019). Participant 5 stated, "Yes, I am the leader, but that does not mean I am the best nurse." Participant 5 described the role and importance of informal leaders and the importance of the advice and opinions of the front-line staff are, especially when trying to reduce errors and in ensuring the compliance of other staff.

In the past, reliable quality data was available at the soonest, on a quarterly basis. Now information can be collected in almost real time. The collection of data in real time allows organizations to identify performance trends and respond to those trends much faster than ever before. (Swensen, Kabcenell, Shanafelt, & Sinha, 2016). Participant 2 noted, "It is amazing how much information is now available with the EMR. It is almost overwhelming" Participant 2 went on to describe the difficulties in having so much data, especially when finding effectives ways to share that data with the staff or using data to bring staff back into compliance.

Applications to Professional Practice

The findings of this study might assist healthcare nurse managers in hospital settings to determine which leadership strategies might be best suited to lead a department to lower preventable medical error rates. The specific business problem this study addressed was some nurse managers lack strategies to reduce the rates of preventable medical errors among their employees. Lower preventable error rates can lead to increased patient perception of the quality of care, having a positive effect on organizational reputation, a reduction of the expenses and liabilities of preventable errors, and increased standing in the community due to decreasing errors. In addition, the potential penalties imposed by the PPACA for low quality and low patient safety scores provide increased financial incentives for organizations to address this problem.

In this study, the complexity of the modern healthcare organization was revealed as the participants reported the unintended consequences some of their strategies had, which reverberated throughout the organization. The specific nurse leadership strategies

identified were organization dependent and not individual personnel dependent. The success the organization enjoys in reducing preventable medical errors was due to the culture fostered by leadership and the perception of that culture by the front-line staff. The skill level of the staff was not a determining factor, but how strong the organizational culture was evident on a specific unit.

The strategies identified provide a feedback circle for other organizations to emulate. Staff empowerment through the practice of shared governance provides a way to engage the staff to share responsibility for performance and outcomes. Improved communication and increased collaboration reinforces how complex an environment the healthcare organization is and provides solutions accounting for that complexity, and promotes partnerships within the organization. Standardized processes ensure all staff are practicing in the safest manner developed through the shared governance model, and accountability ensures that staff and leadership ensure everyone adheres to mutually agreed upon practices, all combined to reduce preventable medical errors. The datum gathered and reported was a confirmation of the CAS theory used as the conceptual framework for this study.

Implications for Social Change

The implications for social change include reducing the incidence of preventable medical error, the third leading cause of death in the United States. Many new medical techniques, treatments, procedures, pharmaceuticals, and medical equipment are developed there (Milstead, & Short, 2019). The perceived safety of patients and their family members will affect how they use healthcare facilities. With improved perceived

safety, populations will use healthcare organizations for preventative care and be less likely to use healthcare organizations solely for a health crisis or emergent care.

The change in utilization away from emergent care to preventive medicine can have societal benefits as well. The U.S. currently spends over three trillion dollars on healthcare annually. If healthcare leaders can control preventable medical error rates and spending on patients with chronic illness, the U.S. would be much closer in alignment with the rest of the developed world in the amount spent per capita (Einav, Finkelstein, Mullainathan & Obermeyer, 2018).

Recommendations for Action

The findings of this study on leadership strategies of nurse managers to reduce preventable medical error rates are to increase public awareness of this societal issue. As stated earlier, if the airline industry experienced 400,000 deaths per year, no one would ever fly. Healthcare organizations must strive to continuously improve the level of care provided to their patients and engage their employees as partners in the goal of improving patient safety. I intend to provide the results of this study to the leadership of the subject organization and submit for review to organizations like The American College of Healthcare Excecutives.

Healthcare leaders must focus on steps to create an organizational culture focusing on the quality of care and patient safety. The shared governance model should be used as a framework to provide increased levels of staff empowerment that permeates the organization. The nurse management leadership must also effectively communicate the importance of patient safety, not only in words but in how resources are dedicated to

reducing medical errors. Healthcare leaders must remain current with the latest data describing the best evidence-based medicine practices to implement to achieve the lowest rate of preventable error. These evidence-based practices should be shared and vetted through professional practice councils for standardized practices throughout the organization. The healthcare leaders and shared professional practice council members must also be ready to provide a framework to support the use of standardized practices and limit instances where deviations occur. The empowered staff and informal leaders should be fully supported by leadership for adherence and accountability to the process. Successes in reducing rates of preventable medical errors should be described in Nursing practice journals and presentations made at conferences to increase quality and promote patient safety.

Recommendations for Further Research

This qualitative case study of the leadership strategies of nurse managers to reduce preventable medical errors within a complex adaptive system was a small-scale study of a single organization with all the participants associated with the same organization. The first recommendation for future research is a study using the quantitative method to examine if each of the four themes, expressed as variables, are significantly related to improved volume of medical errors. The quantitative study would allow further research to provide statistical data to confirm the strategies identified in this study had a significant relationship to reducing preventable errors. A second recommendation would be a study of multiple organizations in a broader geographic area. A subsequent stdy may allow for a larger and more diverse sample size, and it might be

less likely for respondents to be aware of each other or compare answers. A third recommendation would be a mixed method study, which would allow a researcher to conduct an in-depth review of data to determine if error rates had increased or decreased at the organization where the participants were interviewed. The mixed method study could provide insights into the effectiveness of individual strategies providing greater insight into which strategies provided the highest reductions in preventable errors. This study focused on a narrow population of healthcare workers, nurses, and a final recommendation for further research to include a broad spectrum of healthcare nurse manager leaders, considering how complex healthcare organizations are. The inclusion of multidisciplinary education and research can enhance the data produced in a study (Claassen, Schers, Koëter, van der Laan, Kremers-van de Hei, Botman, ... & van den Ende, 2018).

Reflections

At the beginning of this journey, my focus was on obtaining a terminal degree, but having that focus, I was not prepared for all that obtaining that degree entailed. The genesis of this journey started when I was asked what types of problems the C-suite members dealt with on a daily basis. As a mid-level manager, I did not have a good answer to that question and felt additional education with a focus on healthcare management might provide me with additional insight.

I have been in the healthcare industry for many years and have seen a revolution in healthcare delivery. I always had a passion for providing the best care for my patients but I always questioned why certain rules for providing care existed and why at times,

they did not seem logical. During this journey I was able to engage with many members of the C-suite to discuss topics for assignments, and gain insights into the problems faced at that level, and was able to notice different decision making patterns of those C-suite members who were prior clinicians compared to those that came from a non clinical background. Before beginning my study, my personal bias would have leaned toward the clinician as a c- suite member being superior to the non-clinician. As I progressed, I learned that in a CAS, those distinctions are not so simple.

Another change in my thinking occurred when I discovered just how different qualitative and quantitative research are. I had initially intended my study to be quantitative, as I like hard provable data. However, one of my assignments was to conduct a qualitative practice study. I did one on employee appreciation programs, and the results I reported were significantly different from my expectation. I found the higher the level of the participant, the more important that individual thought employee appreciation programs were. As a leader, this was quite surprising and contrary to my personal bias. I was surprised by the result and the fact that I recognized my own bias. This was an important element for me to always watch for as I conducted my formal study. This assignment also led me to change my method at the last moment to qualitative.

Going through this program, realizing the reason research, especially with human participants, is conducted in such a manner, and how we as doctoral candidates must learn this, has changed forever how I look at the world. This program has changed me as a person and, most importantly, changed my vision on how to improve patient care. I

have so many more tools available to me and I can now scientifically debate the importance of reducing preventable medical error. In healthcare, one of the most important questions you must answer when trying to implement a change is, what does the research show? Thanks to this program and completing this study, I feel confident I can answer that question.

Conclusion

This study on strategies to reduce preventable medical errors is valid research that will help save lives, promote social change by raising awareness of this nationwide problem, and reduce healthcare costs by lowering healthcare costs associated with those errors. Overall, the strategies identified during the informational interviews at this single organization were related to reducing preventable errors. These strategies used at this organization verify my research and validate the literature review about leadership strategies used to reduce preventable medical errors. The strategies were also validated by the impressive safety record and national recognition of the organization whose leaders participated.

The strategies described also relate to the conceptual framework of this study of Complex adaptive systems. These complex systems can be demystified by examining them at their lowest levels but realizing that changes at the lowest level can have ramifications throughout the complex system. The leaders of this organization have fostered a culture of staff empowerment, keeping care decisions at the lowest level, while fostering a culture of communication to ensure that processes do not interfere and lead to harm.

The elevated level of care and commitment to quality can have a real effect on social change. This organization does not exist in a vacuum but has other healthcare organizations geographically close. As this organization continues to provide quality patient care with a commitment to safety, other healthcare organizations serving the same populations will have to continuously improve to to remaim competitive. As the healthcare industry increasingly becomes digital, and telemedicine becomes increasingly widespread, high performing organizations' influence will grow as geographic location becomes less relevant, ensuring high quality healthcare for everyone.

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Appendix A: Cover Letter (Invitation to Participate)

Date:

Dear_____:

       My name is Sedrick D. Bedolla and I am a Doctor of Business Administration (DBA) candidate at Walden University. I am conducting a doctoral study project of informational interviews to examine how Nurse Managers use leadership strategies to improve organizational performance to facilitate the reduction of preventable medical errors. The intention of my study is to explore the following inquiry: *Preventable Error Reduction Strategies of Nurse Managers in a Hospital Setting*.

       Based on your experiences within the healthcare industry in a position of leadership, I would like to interview you in order to gather information about your perceptions, beliefs, and professional experiences on appropriate measures used to reduce medical errors. Your participation in my study will be contributory in ensuring that I gather data from a variety of healthcare leaders within the industry with direct knowledge of cases and experiences. The interview may take 30-45 minutes of your time and scheduled at your convenience.

       Each participant will have an opportunity to review an informed consent. This consent form provides background information on the study and outlines a participant's privacy and rights during the interview process. I hope that you find my study of interest and would like to participate.

       Please contact me if you have any questions or need more information. You can reach me at ███████████ or via email at ███████████████ . I thank you in advance for your consideration and support of my study regarding a topic of nationwide importance.

Sincerely,

Sedrick D. Bedolla

Sedrick D. Bedolla, MBA
Walden University – Student

Appendix B: Interview Questions

1. What strategies do you use to prevent medical errors?

2. How did you identify the strategies you currently use?

3. How do you know the strategies you use are effective at reducing preventable
   medical errors?

4. What strategies do you use when the patient is cared for by multiple
   departments and staff?

5. How are strategies modified when staff interact with personnel from other
   departments?

6. How do you adjust your strategies to account for multiple department
   personnel and processes?

7. How have you modified your strategies due to increasing preventable medical
   error rates?

8. What other information or thoughts do you have that could provide greater
   insight aiding in the reduction of the rates of preventable medical errors?

Appendix C: Interview Protocol

1. Create a folder for each participant, include (Appendix A, B, and C). Solicit

   volunteer participants for the study (see Appendix A) and set up an interview

   for appropriate date and time.

2. Arrive at the interview 10 minutes prior to the scheduled time. Explain to

   each participant the interview contains nine questions and will take no more

   than 30 to 45 minutes in length.

3. Provide the purpose of the study and inform the participant that the researcher

   will take notes and record the interview with an audio recorder.

4. Assure confidentiality, and have participant sign the consent form (see

   Appendix B). Explain to participant that collected data will be coded to ensure

   privacy and will be kept in a locked safe.

5. Answer any questions of concern the participant may have.

6. Emphasize that the participant may stop at any time and the researcher will

   assure clarification if there are questions the participant does not understand.

   a. The participant will be unidentifiable given an alphanumeric classification

      for identification during analysis.

   b. Coding of the data and no names of any participant will appear within the

      notes during analysis.

   c. Only the specified assigned alphanumeric classification other than their

      signature on the consent form.

7. Gain a level of ease with the participants asking probing or icebreaker questions.

    a. How has your (morning/afternoon) been thus far?

    b. Are you enjoying the weather?

    c. Do you have any questions regarding the cover letter that you received?

8. Conduct face-to-face, semi structured interviews with managers who work for a healthcare organization.

9. During the interview probe the participant, and if needed go deeper into their meanings of the topic.

10. Review questions and when necessary, ask follow-up questions for the purpose of member checking to reach data saturation.

11. Share the interpretations with the participant for validation and allow each participant to comment on them.

12. Thank each participant for his/her participation in the study.