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Strategies to Reduce Hospital-Acquired Conditions

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This is to certify that the doctoral study by

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2019

Abstract

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MHA, George Washington University, 1985

BA, Gettysburg College, 1983

Doctoral Study Submitted in Partial Fulfillment

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Doctor of Business Administration

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Abstract

Hospital-acquired conditions cause harm to patients and increase mortality. In addition to lowering the quality of patient care, hospital-acquired conditions also negatively affect financial performance, which makes them a business problem for hospital administrators. The purpose of this single case study, which was grounded in the theory of high reliability, was to explore strategies used to reduce the number of hospital-acquired conditions. The sample consisted of 13 senior leaders of a large academic medical center in the southeastern United States, who shared successful strategies used to reduce hospital-acquired conditions. Data collection took place through semistructured interviews and a review of plans and reports that showed rates of hospital-acquired conditions from 2014 to 2017. Data analysis involved using Yin's 5-step process as well as coding interview text and data from documents and then grouping related words to develop themes. Themes that emerged from this study included leadership style, communication practices, and trust. A key finding was the importance of positive and trusting leadership behaviors by senior leaders planning to reduce hospital-acquired conditions. Another key finding was the confirmation that hospital administrators can and should prioritize quality and financial improvement simultaneously. The implications of this study for positive social change include the potential to reduce health care costs and save patients' lives by reducing the number of hospital-acquired conditions.

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Dedication

I dedicate this doctoral study to my family. First to my parents, for providing me with all the resources to obtain my bachelor's and master's degrees, and for showing me the value of hard work. Second, to my wife, Debra, and two daughters, Amy and Jacqueline. They supported my doctoral study, even when I missed the best days on the beach. Their constant encouragement and understanding made my doctoral journey a dream come true.

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Table of Contents

List of Tables

List of Figures

Section 1: Foundation of the Study

Hospital administrators can use a variety of strategies to create a culture of safety that leads to reductions in patient harm from hospital-acquired conditions. Officials at the Centers for Medicare and Medicaid Services refer to hospital-acquired conditions as *never events*, which indicates that hospital leaders can reasonably prevent them from harming patients (Waters et al., 2015). Clinicians traditionally use clinical guidelines, policies, and procedures to prevent such conditions (Leape, 2014). Some hospital administrators could benefit from organizational strategies that extend beyond clinicians' traditional efforts to prevent hospital-acquired conditions. In this study, I explored successful strategies that hospital administrators use to reduce patient harm from hospital-acquired conditions.

Background of the Problem

Hospital administrators may benefit from understanding how business incentives are linked to the quality of care employees provide in their hospitals. Business problems for leaders of the hospital industry include preventing medical errors and achieving highly reliable quality of patient care (Padgett, 2014). High numbers of hospital-acquired conditions add to the costs of healthcare and strain state and federal budgets (Fuller, Goldfield, Averill, & Hughes, 2017). Hospital administrators can respond to business incentives that include increasing revenues, reducing costs, and improving patient satisfaction to prevent hospital-acquired conditions (Figueroa, Wang, & Jha, 2016). High reliability, which I used in this research, is a framework that leaders can use to develop an

organizational culture focused on reducing hospital-acquired conditions and other forms of patient harm (Cochrane et al., 2017).

Problem Statement

Hospital-acquired conditions increase hospital costs, reduce revenues, and negatively affect the quality of patient care in hospitals (Zikhani, 2016). Medicare penalties for hospital-acquired conditions totaled $364 million in reduced payments to U.S. hospitals in 2016 (Koenig et al., 2017). The general business problem was that hospital-acquired conditions decrease organizational profitability and quality of patient care in hospitals. The specific business problem was that some hospital administrators lack strategies to reduce hospital-acquired conditions.

Purpose Statement

The purpose of this qualitative single case study was to explore strategies hospital administrators use to reduce hospital-acquired conditions. The target population included senior administrators (vice presidents and academic department chairs) of a large academic medical center in the southeastern United States. I interviewed senior administrators who successfully implemented strategies to reduce hospital-acquired conditions. The implication for social change includes the potential for insights that administrators can use to improve healthcare quality. Moreover, hospital administrators' efforts to reduce hospital-acquired conditions may help to reduce fear and restore public trust in the U.S. hospital industry.

Nature of the Study

The three research methods are qualitative, quantitative, and mixed methods (Denzin & Lincoln, 2011). I selected the qualitative method to explore the study phenomenon, which was the successful strategies hospital administrators use to reduce hospital-acquired conditions. Researchers who use the qualitative method give participants a chance to tell their stories through researcher and participant collaboration (Fassinger & Morrow, 2013). The qualitative method aligned with the goal of asking senior administrators of a medical center to explain their strategies to reduce hospital-acquired conditions. Researchers use quantitative methods and mixed methods, which combines qualitative and quantitative methods, to test a hypothesis, conduct statistical analysis, and generalize the findings to situations (McCusker & Gunaydin, 2015). I did not use the quantitative method or mixed method, as I did not conduct statistical analysis to test a hypothesis. I selected the qualitative method because of my desire to explore administrators' thoughts on healthcare strategies in an in-depth manner. I considered three qualitative designs for my research study as follows: case study, phenomenology, and narrative. Researchers use the case study design to study small group behavior and organizational processes (Yin, 2014). I used a single case study design to explore the strategies a small group of senior administrators used to influence organizational processes to reduce hospital-acquired conditions.

Researchers use the phenomenological design to explore the lived experiences of participants related to a specific phenomenon (Moustakas, 1994). The focus of my exploration was on the strategies used by participants to reduce hospital-acquired

conditions and not on the lived experiences of the participants. As such, the phenomenological design was not appropriate for my investigation. The focus of the narrative design is on the impact of a topic on individual experience (Stuckey, 2013). A narrative design was not appropriate for this study because the focus was on the strategies administrators use to reduce hospital-acquired conditions and not the effect of the conditions on the employees and medical staff.

Research Question

The research question was as follows: What strategies do some hospital administrators use to reduce hospital-acquired conditions?

Interview Questions

1. Describe your role related to reducing hospital-acquired conditions in your organization.
2. Describe your hospital's performance related to hospital-acquired conditions compared to your expectations and goals.
3. What strategies have you used to reduce hospital-acquired conditions?
4. What methods did you find worked best to help your employees and medical staff reduce hospital-acquired conditions?
5. What methods did you find most challenging in helping your employees and medical staff reduce hospital-acquired conditions?
6. How did you overcome any challenges your employees and medical staff faced while attempting to reduce hospital-acquired conditions?

7. What additional information can you share about the strategies healthcare administrators should use to reduce the number of hospital-acquired conditions?

Conceptual Framework

Leaders may use high-reliability theory to improve performance in organizations facing high-risk operations with potential for catastrophic errors. According to Hales and Chakravorty (2016), Weick and Sutcliffe wrote the seminal text on high reliability in 2001. In a later work, Weick and Sutcliffe (2015) defined high reliability as the ability to sustain better than expected results in high-risk environments. In their text, Weick and Sutcliffe described five principles of high reliability: (a) preoccupation with failure, (b) resistance to simplify, (c) sensitivity to operations, (d) commitment to resilience, and (e) deference to expertise. The focus of the early literature on the theory of high reliability was on three high-risk operations: commercial air travel, nuclear power, and naval operations (Saunders, 2015). In these operations, leaders used high-reliability principles to sustain low rates of errors (Mousavi, Dargahi, & Mohammadi, 2016). Hospital leaders can study the similarities between hospital care and air travel, nuclear power, and naval operations to explore strategies to improve performance (Saunders, 2015). Therefore, the theory of high reliability was an appropriate theory for a study of strategies that hospital administrators use to reduce hospital-acquired conditions.

Operational Definitions

High-reliability organization: A high-reliability organization is an organization operating in high-risk environment with very high consequences resulting from process failures (Hales & Chakravorty, 2016).

Hospital-acquired conditions: Researchers at the Centers for Medicare and Medicaid Services defined hospital-acquired conditions as encompassing eight categories of high-cost or high-volume events in hospitals that are reasonably preventable (Waters et al., 2015).

Medical errors: Medical errors are a form of defective care caused by humans due to flaws in systems, processes, or human character (Chukwuneke, 2015).

Mindfulness: Mindfulness is a qualitative strategy to encourage employees to focus on tasks and promote understanding of how one individual contributes to the success or failure of the entire process or organization (Hales & Chakravorty, 2016).

Never events: Never events are harmful hospital-acquired conditions that the Centers for Medicare and Medicaid Services identified as largely preventable (Waters et al., 2015).

Patient safety culture: Patient safety culture is the product of individual and group values, competencies, and behaviors related to safety (Donaghy, Doherty, & Irwin, 2018).

Resilience: Resilience is a term used to describe employees' ability to respond to a surprising event that results in the preservation of normal business operations (Grabowski & Roberts, 2016).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are beliefs and ideas that are assumed to be true by researchers but are not verified (Marshall & Rossman, 2016). The first assumption for this study was that

the participants would be fully engaged in the leadership of their organization's efforts to reduce hospital-acquired conditions. The second assumption was that the hospital administrators I interviewed would answer all of the questions truthfully and honestly. The third assumption was that the hospital in the study would provide documentation of communications, plans, and reports related to the success or failure of their strategies to reduce hospital-acquired conditions.

Limitations

Limitations are weaknesses of a study (Marshall & Rossman, 2016). A limitation of this case study was the use of self-reported data from interview participants. Diefenbach (2009) noted that participants in qualitative research might deliberately attempt to mislead the interviewer. Participants may provide misleading information that reflects their personal beliefs and is in their own best interest (Diefenbach, 2009). I kept the possibility of receiving misleading information in mind, and I used follow-up questioning and the member checking process to mitigate this limitation. Another limitation was the use of one hospital. Researchers conducting qualitative studies of problems in a specific context may not be able to transfer their findings to other sites or populations (Cleary, Horsfall, & Hayter, 2014). Results of this case study, therefore, might include strategies that not all hospital administrators are able to transfer to their organizations.

Delimitations

Delimitations are the limits or boundaries the researcher places on the study to limit the scope (Becker, 2013). The boundaries of a qualitative study indicate the breadth

and depth of the study (Marshall & Rossman, 2016). The first delimitation of the study was the use of a single case study design with senior administrators working at one medical center in a specific geographic location. The second delimitation was the exclusion of middle-level managers as the focus of the study was on the strategies senior hospital executives might use to reduce hospital-acquired conditions. Exclusion of middle-level managers may have limited the understanding of how frontline employees and members of the medical staff feel about leaders' strategies to reduce hospital-acquired conditions.

Significance of the Study

Contributions to Business Practice

High rates of hospital-acquired conditions add costs and reduce revenues to hospitals (Fuller et al., 2017). Three separate Medicare programs create incentives for improving quality in hospitals by reducing payments by a maximum of 5.5% if hospital-acquired conditions and other quality measures exceed the national average (Figueroa et al., 2016). This research may fill gaps in hospital administrators' understanding of the relationship between reduced hospital-acquired conditions and improved business performance. Barriers to reducing medical errors and improving the quality of hospital care include the lack of (a) top management support, (b) employee incentives, (c) training and knowledge, and (d) a holistic approach to solutions (McFadden, Henagan, & Gowen, 2009). Business practices that may address the barriers include (a) changing the work environment, (b) using transformational leadership, (c) optimizing communication and trust, (d) providing training and education, and (d) creating a culture of high reliability

(Ulrich & Kear, 2014). Improved business practices that lead to a reduction of hospital-acquired conditions may help hospital administrators strengthen hospital financial performance.

Implications for Social Change

This study contributes to social change by highlighting strategies to improve quality and help build trust in the U.S. hospital industry. Makary and Daniel (2016) estimated that deaths from medical errors in hospitals are the third leading cause of death in the United States. In this study, I identified strategies to reduce the impact of hospital-acquired conditions on mortality, which may help address the lack of patient trust in hospitals. Patients want to trust their medical teams; however, many patients fear the dangers associated with conditions they acquire in hospitals (Pannick, Beveridge, Wachter, & Sevdalis, 2014). Lower rates of hospital-acquired conditions may give people a reason to feel more confident about the care they receive in hospitals. Patients may feel more trust in the U.S. hospital industry if they feel confident they will not suffer harm from hospital-acquired conditions.

A Review of the Professional and Academic Literature

The purpose of the literature review is to consider the business and social implications of hospital-acquired conditions and strategies to reduce them. I obtained the sources for the literature review from the Walden University library and the Jersey Shore University Medical Center library. The databases searched included Business Source Complete, EBSCOhost, Google Scholar, MEDLINE, ProQuest, and SAGE. These databases contain peer-reviewed journal articles, seminal texts, informational websites,

and doctoral studies that I used to gather information about the strategies that hospital administrators use to reduce hospital-acquired conditions. The literature review includes 89 references, 94% of which have publication dates between 2014 and 2018. In addition, I confirmed that 88% of the sources came from peer-reviewed journals by using Ulrich's Periodical Directory. I applied key words and phrases related to the business problem, which included *healthcare quality*, *high reliability*, *high-reliability organizations*, *hospital-acquired conditions*, *leadership*, *medical errors*, and *patient safety*.

The purpose of this qualitative single case study was to explore strategies hospital administrators use to reduce hospital-acquired conditions. I first discuss the components of hospital quality and the nature of hospital-acquired conditions. I then describe how these two topics relate to the conceptual framework. Next, I offer an explanation of hospital quality, patient safety, medical errors, and hospital-acquired conditions. I follow the explanation with an in-depth description of high-reliability theory and its five principles. The literature review includes an explanation of the limitations of high-reliability theory and the application of the theory to hospitals. Subheadings within the discussion of high-reliability theory include the role of leadership and the importance of organizational culture in reducing medical errors, including hospital-acquired conditions. A review of supporting and alternative theories follows the discussion of high-reliability theory. The review concludes with a consideration of the business case for hospital leaders to reduce hospital-acquired conditions.

Healthcare Quality and Hospital-Acquired Conditions

Practitioners and scholars may have different understandings about the definition of healthcare quality. Healthcare quality measures include clinical process measures, clinical outcome measures, and measures related to patient safety (Sousa, Uva, Serranheira, Nunes, & Leite, 2014). Quality and patient safety measures include medical errors and hospital-acquired conditions (Smorti, Cappelli, Zarantonello, Tani, & Gensini, 2014). Quality, as defined by researchers at the Institute of Medicine, refers to care that includes the characteristics of safety, accuracy, resourcefulness, fairness, and accessibility (Parand, Dopson, Renz, & Vincent, 2014). The definition of patient safety at the Institute of Medicine is the prevention of patient harm (Parand et al., 2014). A focus on patient safety might lead to improved clinical outcomes and quality of healthcare.

Patients may perceive hospitals harm them when medical errors and adverse events occur. However, medical errors may not cause harm if they do not reach patients (Marcus, Hermann, & Cullen, 2018). The Institute of Medicine's definition of adverse events is injuries to patients caused by the process of caring for them (Marcus et al., 2018). Medical errors occur more frequently than adverse events. Some errors do not result in an adverse event, because people or systems intervene and prevent errors from reaching patients (Marcus et al., 2018). A systematic review of medical records from five countries revealed adverse events occurred in 9.2% of admissions (Rafter et al., 2014). An unexpected patient fall is an example of a medical error that does not become an adverse event unless the patient suffers from harm (Marcus et al., 2018). As healthcare leaders' gain a better understanding of the difference between medical errors and adverse

events, they may focus efforts on preventing the events that cause the most harm to patients.

Industry leaders have made slow progress in addressing incidents of adverse events, including hospital-acquired conditions, in the United States (Zikhani, 2016). Hospital-acquired conditions include (a) pressure ulcers, (b) postoperative hip fractures, (c) pulmonary embolism, (d) postoperative sepsis, (e) postoperative wound ruptures, (f) injuries from falls, (g) wrong-sided surgery, and (h) accidental punctures or lacerations during surgery (Averill, Fuller, McCullough, & Hughes, 2016). Hospital-acquired conditions also include hospital-acquired infections, which include catheter-associated urinary tract infections and central-line-associated bloodstream infections (Waters et al., 2015). Infections acquired in the hospital are the most common preventable medical errors and hospital-acquired conditions (Evans, 2016).

Healthcare leaders may find that achieving a reduction in medical errors is a significant challenge. Medical errors in the United States result in 400,000 deaths and cost $1 trillion every year (Zikhani, 2016). Funding to address these errors lags behind other national priorities, such as the war on cancer, which hampers efforts to improve safety and quality in healthcare (Sarata, 2016). The National Institutes of Health, which fund cancer research in the United States, have a $30 billion budget, which is 60 times the budget for the Agency for Healthcare Research and Quality (Morello, 2017; Sarata, 2016). Healthcare leaders might benefit from additional funding for the Agency for Healthcare Research and Quality, which is the organization that conducts research and

disseminates information on best practices clinicians should use to improve quality of patient care.

Despite the lack of outside funding sources, hospitals have a business case for improving quality and patient safety. Improvement in the structure and process of care reduces financial penalties and increases hospital payments (Evans, 2016). Financial incentives and public awareness of the effect of patient harm may give hospital administrators reasons to improve quality by reducing hospital-acquired conditions.

The causes and scope of medical errors. Hospital administrators may benefit from understanding the types of medical errors and the scope of the problems they cause. Medical errors are a form of defective care caused by humans due to flaws in systems, processes, or human character (Chukwuneke, 2015). These errors have become a priority for healthcare leaders as public awareness has increased (Smorti et al., 2014). In the high-profile Bristol Royal Infirmary report on hospital medical errors, the authors concluded that clinicians failed the patients and their families, who trusted them to provide acceptable levels of care (as cited in Donaghy et al., 2018). The authors of another high-profile report, *To Err Is Human*, which was published by the Institute of Medicine in 1999, estimated that as many as 98,000 people die every year in the United States from medical errors (as cited in Vogus & Iacobucci, 2016). Researchers have since increased that estimate to 400,000 deaths from preventable medical errors in the United States annually (Zikhani, 2016). The number of deaths caused by preventable medical errors is a moral reason for hospital administrators to implement strategies to prevent them.

As a result of the number of deaths caused by medical errors, researchers have studied how medical errors occur. According to the Swiss cheese model, errors occur when invisible faults line up to create successive holes in the layers of organizational prevention (Milch & Laumann, 2016). Variations in training and experience, and the failure to recognize the risk and prevalence of medical errors, lead to the increased risk of adverse outcomes (Chukwuneke, 2015). The reliance on humans to provide clinical care introduces the risk of inevitable negligence, which causes errors in clinical care (Chukwuneke, 2015). Smorti et al. (2014) identified two approaches to medical error: the human factors approach and the systemic approach. Understanding the differences between the two approaches may help leaders teach their personnel effective ways to prevent errors.

Human factor errors. Human factor errors are errors that people make, and they can be categorized as being skill-, rule-, or knowledge-based (Bondurant, Nielsen-Farrell, & Armstrong, 2015). Skill-based process failures are a form of personal error and occur when people become distracted during routine procedures. Skill-based errors result from mental slips and lapses and not from purposeful deviations (Smorti et al., 2014). Rule-based errors occur when people fail to obey established policies and procedures. Knowledge-based mistakes result from people making the wrong choice when they evaluate a response to a problem (Smorti et al., 2014). Knowledge-based mistakes include errors of commission and errors of omission (Kumar & Raina, 2017). Clinicians make errors of commission by taking the wrong action or by improperly performing the correct action (Kumar & Raina, 2017). Errors of omission occur when communication

fails between two or more caregivers (Kumar & Raina, 2017). The variety of medical errors may present a range of challenges for healthcare leaders. Hospital leaders who want to prevent errors from occurring can train their personnel to understand the types of personal errors.

System errors. System errors, which differ from personal, or human factor errors, require interrelated processes to fail (Saward & Stanton, 2018). System errors present additional challenges related to finding the cause of an error due to multiple sources within related systems (Smorti et al., 2014). Safety experts refer to system errors as latent errors, because they occur when organizational processes or operating systems fail (Saward & Stanton, 2018). Leaders should support a nonpunitive environment for employees when they believe system failures cause errors (Smorti et al., 2014). To prevent errors, leaders who believe in the systems approach focus on changing the conditions within which people work (Bondurant et al., 2015). Experts agree that most errors occur when both personal errors and system errors combine to cause problems (Bondurant et al., 2015). Personnel in high-reliability organizations may reduce the number of errors if they build systems to tolerate human mistakes and contain their damaging consequences.

Theory of High Reliability

I used the theory of high reliability as a framework for my research on strategies to reduce hospital-acquired conditions. High reliability also provides a structure for creating an organization capable of managing high-risk processes that result in the prevention of errors (Weick & Sutcliffe, 2015). The theory of high reliability emerged in

the 1980s and became a common framework for understanding how to balance efficiency and safety (Khorsandi & Aven, 2014). High reliability describes an organization that combines ideal efficiency and effectiveness to produce error-free results (Cochrane et al., 2017). The journey toward high reliability produces improved organizational competitiveness (Hales & Chakravorty, 2016). Because it is impossible to achieve a state of total reliability, leaders of organizations might think of high reliability as a dynamic process that allows continuous improvement (Weick & Sutcliffe, 2015).

High-reliability organizations have common characteristics (Pettersen & Schulman, 2016). Leaders of high-reliability organizations value safety over all other objectives and will shut down operations before risking unsafe conditions (Pettersen & Schulman, 2016). Such leaders train employees and manage social structures to promote a safe culture (Vogus, Rothman, Sutcliffe, & Weick, 2014). Employees operationalize the principles of high reliability to optimize outcomes (Bondurant et al., 2015). Everyone in a high-reliability organization encourages a level of skepticism about change and success (Pettersen & Schulman, 2016). Additional characteristics of these organizations include the sharing of knowledge, a relentless attention to detail, and an organizational understanding about uncertainty (Khorsandi & Aven, 2014). Hospital leaders may study the common elements of high-reliability organizations to gain a better understanding of how to use these elements in their organizations to reduce the number of hospital-acquired conditions.

Hospitals and other high-hazard industries. Hospital administrators may benefit from looking to other industries for examples of how to apply the theory of high

reliability. However, in the United States, healthcare lags behind other high-hazard industries that have adopted high-reliability principles to reduce the number of errors to extremely low levels (Zikhani, 2016). For example, the aviation industry averages 10 critical errors per 10 million flights (Zikhani, 2016). In contrast, hospitals experience up to 240 operating room fires and up to 2,700 wrong-site surgeries every year (Day, Rivera, Farlow, Gourin, & Nussenbaum, 2018; Guglielmi et al., 2014). Despite the differences in rates of errors, the elements of high reliability that leaders use in nuclear power and aviation relate well to medical care and the hospital industry (Vogus & Iacobucci, 2016). For example, operations in nuclear power plants and aviation involve complex technologies, fast-paced operations, and levels of high risk (Barach, 2016). Similarly, clinicians in hospitals are faced with the challenge of adapting to new technologies and a fast pace of work driven by the need to reduce costs, which create higher levels of risk (Barach, 2016).

Hospital administrators may benefit from studying airline operations to understand how to apply the theory of high reliability. Airline operations control centers must cope with changing levels of uncertainty and serious consequences of errors, which also affect clinicians in hospitals (Rubinstein, Martin-Rios, Erhardt, Gittell, & George, 2016). The management of safety in high-hazard industries rarely concerns the use of technology (Offstein, Kniphuisen, Bichy, & Childers, 2014). Rather, the factors that create reliable operations in airline operations and other industries relate to leadership and social, political, and human resources (Offstein et al., 2014). Healthcare leaders may

learn from studying the ways leaders in other high-hazard industries use the high-reliability framework.

The components of the theory of high reliability may extend beyond simple traditional prescriptive processes designed to control quality in high-hazard situations. Using highly standardized processes supports the limitation of variability, which reduces the potential for errors (Zikhani, 2016). However, leaders in high-hazard industries have learned that overreliance on a rigid approach, such as checklists, may fail to produce the correct response to certain operations (Rubinstein et al., 2016). Checklists, clinical practice guidelines, and protocols represent examples of standardized processes that clinical personnel use to reduce variation and prevent errors in healthcare (Sutcliffe, 2011). However, people cannot anticipate every condition and write a prescription for every solution (Zikhani, 2016). High-reliability operations thus require knowledge of human factors and training in problem solving (Bondurant et al., 2015). Personnel in high-reliability organizations must receive mindfulness training so they are better able to anticipate the risks leading up to errors and work to prevent them from occurring (Weick & Sutcliffe, 2015). The leaders of high-reliability organizations may depend on personnel to think about how to prevent errors instead of relying only on standard quality control techniques.

Limitations of high-reliability theory. The common characteristics of high-reliability organizations give some critics reason to argue that the theory of high reliability relates only to the industries researchers have studied and is not transferrable to other situations (Haavik, 2014). To have a better understanding of whether the theory of

high reliability is generalizable, researchers should analyze the effectiveness and applicability of the theory in new industries with complex and interrelated processes (Saunders, 2015). Olde Scholtenhuis and Doree (2014) addressed critics who noted they could not relate the theory of high reliability to construction management. Traditional high reliability theorists suggested only industries with a track record of error-free performance should study safety through the lens of high reliability. In addition, they suggested high reliability only applies to industries where safety is a top priority (Olde Olde Scholtenhuis & Doree, 2014). Olde Scholtenhuis and Dorees disagreed, noting that high-reliability theory provides a framework for organizations not previously recognized as having a focus on safety. In addition, the researchers argued that people in any high reliability organization have the capability to make mistakes. Therefore, researchers should not exclude application of the theory to industries where errors might occur (Olde Scholtenhuis & Doree, 2014).

Leaders of organizations with atypical characteristics may struggle to use the theory of high reliability as a framework to improve performance. The traditional focus of high reliability on aviation, nuclear power, and military aircraft limits the research and applicability to other industries, including construction management, according to Olde Scholtenhuis and Doree (2014). However, high-reliability leaders can apply the theory to nontraditional businesses and entities that fail to meet the common definition of organizations (Olde Scholtenhuis & Doree, 2014). For example, leaders can apply high-reliability theory at the level of aggregated behaviors, whether individual employees are a part of a formal organization or not (Weick & Sutcliffe, 2015). Thus, leaders can focus on

the way employees act to prevent and recover from errors, even if they are not part of a formal organizational structure. Future research on the theory of high reliability may include nontraditional industries and forms of organizations. The leaders of different types of organizations might apply the theory of high reliability differently, and organizational leaders might apply different types of theories to reduce errors.

Principles of high reliability. The theory of high reliability may provide leaders of organizations with a holistic approach to creating an error-free environment. The use of strict rules and preventative measures are insufficient to create a highly reliable organization (Saward & Stanton, 2018). In addition, adopting too many rules adds excessive costs and complexities (Ragusa, Bitterman, Auerbach, & Healy, 2016). Leaders of high-reliability organizations reduce susceptibility to failure by establishing practices and processes focused on the following principles: (a) viewing failures as an opportunity to understand the health of the system more effectively, (b) avoiding simplified explanations and assumptions, (c) maintaining sensitivity to operations, (d) developing resilience to manage adversity, and (e) migrating decisions to people with the most expertise (Weick & Sutcliffe, 2015). Each high-reliability principle deserves further review and explanation.

***Preoccupation with failure*.** The elimination of errors may require a level of pessimism and a constant focus by every employee in an organization. A preoccupation with failure involves a constant search by people within an organization for surprises and potential weaknesses in the system (Weaver, 2015). Leaders of high-reliability organizations use every near miss or actual small error as an opportunity to teach people

how to intervene before another event occurs (Oster & Deakins, 2018). Leaders develop a preoccupation with failure by increasing alertness, containing inertia, and constantly searching for improvements in processes (Hales & Chakravorty, 2016). A preoccupation with failure requires a desire to learn from small errors and close calls (Barach, 2016). When failure happens, leaders of high-reliability organizations attempt to replicate the failure and then learn how they can interrupt it (Weick & Sutcliffe, 2015). Hospital administrators may benefit from learning that pessimism is a positive trait in high-reliability organizations.

Reluctance to simplify. Leaders in high-reliability organizations may learn to appreciate the value of complexity. Simplifying processes may increase efficiency; however, simplification also may mask the details of causes of errors (Weick & Sutcliffe, 2015). Simplifiying complex processes into normal routines can lead to skipped process steps and increased risk of errors (Barach, 2016). To correct for oversimplification, leaders of high-reliability organizations train their personnel not to make assumptions and to raise questions about root causes of problems (Bondurant et al., 2015). The use of computers in healthcare promotes the use of data and the latest evidence to guide patient care. However, computers can oversimplify processes and lead caregivers to ignore the complexities of individual circumstances (Weaver, 2015). Heightened awareness may support the reluctance to simplify.

Maintaining sensitivity to operations. The principle of sensitivity to operations may relate to the importance of paying attention to details. People operating in high-reliability organizations focus on the work itself and consider near misses as a sign of

failure and not success (Weick & Sutcliffe, 2015). In addition, sensitivity to operations requires that all members of a team understand and share the most current and available information in real time (Barach, 2016; Bondurant et al., 2015). Situational awareness, or mindfulness, promotes using small adjustments to prevent the loopholes in processes from growing into larger problems (Hales & Chakravorty, 2016). Leaders of high-reliability organizations might teach the importance of every individual maintaining awareness of how his or her actions affect others.

Situational awareness applies to healthcare in that caregivers must pay attention to what they see and think about patients and not just to the results of tests (Weaver, 2015). The concept of *having the bubble* describes how frontline personnel must keep sight of the big picture while coordinating the details of complex activities (Le Coze, 2016). Mindful action gives organizational leaders the ability to mitigate the resulting damage from a crisis (Weick & Sutcliffe, 2015). People act in a mindful manner when they disengage from their personal beliefs and pay attention to the task (Vinson & Wang, 2015). Leaders may teach clinicians to have the bubble at all times when caring for patients.

Commitment to resilience. Organizational leaders must build the capability to adjust to unavoidable fluctuations in conditions and performance (Weick & Sutcliffe, 2015). Resilience refers to the way people respond to and cope with hazards after they contribute to or cause errors (Paries, Macchi, Valot, & Deharvengt, 2018). Resilience includes the ability to deal with stressful conditions, the ability to rebound from adversity, and the ability to learn from previous challenges (Paries et al., 2018).

Employees of an organization might achieve high levels of safety without displaying characteristics of resilience (Le Coze, 2016), and employees may experience the need to recover from adversity before leaders of the organization can identify the characteristics of resilience (Le Coze, 2016).

Resilience may require organizational capabilities beyond just bouncing back from adversity. Adaptive capacity evolves from leaders' focus on resilience (Burnard, Bhamra, & Tsinopoulos, 2018). Adaptive capacity involves bouncing back from adversity and learning from the experience to support the prevention of future errors (Burnard et al., 2018). Organizational leaders foster resilience by developing improvisation, by multitasking, and by adapting skills (Barach, 2016). Leaders must nurture organizational resiliency by constantly questioning the origins of success and by maintaining awareness of the unexpected (Grabowski & Roberts, 2016). In addition, leaders of high-reliability organizations may benefit from understanding the need to build resilient capabilities to prepare for the unexpected.

Some researchers believe proponents of high reliability overgeneralize the concept of resilience (Le Coze, 2016). Vague understandings of resilience give leaders a false sense of security in perceived high-reliability organizations, and they negatively affect the pursuit of an error-free environment (Pettersen & Schulman, 2016). Woods (2015) refined the definition of resilience to include the ability to rebound, the robustness of control mechanisms, the ability to overcome brittleness, and sustainable adaptability. Brittleness refers to the strength of an organization when it operates near the boundaries of capability (Woods, 2015). An organization becomes brittle and susceptible to errors

when employees stretch resources to capacity (Woods, 2015). Sustained adaptability requires employees to preserve fundamental strengths while changing processes to address changes occurring across the life cycle (Woods, 2015). Hospital administrators may benefit from understanding the importance of resilience when faced with the need to recover from significant errors.

Precursor resilience describes employees' ability to manage within established operating conditions (Pettersen & Schulman, 2016). Operations that fall outside of precursor zones trigger warning mechanisms and mitigation efforts before major errors occur (Pettersen & Schulman, 2016). The ability of employees to maintain high levels of vigilance over their precursor zone is a better indicator of resilience than is their ability to bounce back from failure (Pettersen & Schulman, 2016). Hospital administrators may have a chance to prevent an error or a hospital-acquired condition from occurring when they use data to monitor precursor zones.

Deference to expertise. The principles of high reliability include deference to expertise (Bondurant et al., 2015). People working in high-reliability organizations understand the formal organizational hierarchy becomes less important during unexpected events (Hales & Chakravorty, 2016). During a crisis, the person with the most expertise may possess less authority than the formal leaders of the organizational structure (Rubinstein et al., 2016). Situational experts become the most important people within organizations, even if they have a lower hierarchical rank than other participants (Hales & Chakravorty, 2016). When formal leaders defer to the rank and file experts, they develop a broader ability to ensure safety (Bondurant et al., 2015). Researchers of

healthcare practices have shown that performance improvement begins when frontline employees participate in making decisions (Hales & Chakravorty, 2016). Mature leaders use the principle of deference to expertise to allow people with the most accurate information, regardless of their role, to respond to uncertainty (Barach, 2016). In hospitals, a bedside nurse or family member may possess more expertise than the physician in certain situations.

Leadership and high reliability. Leaders may play an important role in achieving success by creating a high-reliability organization. Administrative leadership is one of the most important components of a high-reliability organization (McMillian & McEldowney, 2014). Healthcare leaders must lead efforts actively and directly to improve patient safety and reduce hospital-acquired conditions (Berwick, Feeley, & Loehrer, 2015). At the organizational level, chief executive officers must begin a focus on safety and extend it throughout every level of an organization (McMillian & McEldowney, 2014). At the national level, leaders should set the tone and create accountability for reducing medical errors across the country (Dixon-Woods et al., 2014).

Leaders in all levels of healthcare organizations have a responsibility to make the quality of care and patient safety their highest priority (Parand et al., 2014). Unit leadership is just as important as executive leadership in creating a high-reliability organization (Cockerham et al., 2014). Unit leaders can remove barriers to change and create opportunities to improve performance (Longenecker & Longenecker, 2014). Effective leaders in high-reliability organizations may need to dedicate their time and become educated on how to implement the principles of high reliability. Organizational

change requires leaders to commit time, resources, and support (Longenecker & Longenecker, 2014). Leaders must understand the science of safety and the power of using data (McMillian & McEldowney, 2014). Although researchers may agree leadership commitment is important, some researchers may debate the importance of commitment from chief executive officers.

Levels of leadership. The level of leadership may not be as important as other factors related to preventing hospital-acquired conditions. For instance, if a chief executive officer fails to lead the commitment to safety, other leaders could effectively influence the organization to make safety a top priority (Gutberg & Berta, 2017). However, the commitment to safety must come from someone in senior management who controls the allocation of resources and has management accountability (Parand et al., 2014). Leaders of high-reliability organizations should provide the necessary support and resources to produce a culture of safety (Lee, Hong, & Kim, 2016). Leaders of high-reliability organizations may improve organizational performance by accepting responsibility to play an active and effective role in teaching employees how to prevent serious errors.

The role of leaders. Hospital leaders may benefit from playing a direct role in determining the quality of care people provide in their organizations. The personal attention of leaders to patient safety has a strong effect on the safety culture of an organization (Lee et al., 2016). Senior leaders' focus on the structures and processes of care supports the prevention of errors (Hillen, Pfaff, & Hammer, 2017). However, the structures and processes of care require a supportive environment, and a supportive

environment requires respectful interactions among caregivers (McMillian & McEldowney, 2014). An understanding of the relationship between leaders' behaviors, a supportive environment, and organizational culture may help hospital administrators improve patient outcomes.

Leaders should base respectful interactions on trust, which is a foundational element in creating a high-reliability organization (Vogus & Iacobucci, 2016). Differences in perceptions of trust levels among the individuals responsible for patient care are a risk factor for organizations (Willmott & Mould, 2018). Levels of trust positively and negatively affect the development of an organizational safety culture (Ayenew, Gracia, & Toderi, 2015). Very high levels of trust can lead to groupthink, which can produce a cohesive approach to poor decisions (Ayenew et al., 2015). Moderate levels of trust that build mutual respect, enhance motivation, and increase employee commitment produce an optimal safety culture (Ayenew et al., 2015).

Trust may depend on the status of organizational norms and cultural expectations. Sutcliffe (2011) observed that people support three moral norms when they engage in respectful interactions. First, they respect the reports of others and base their beliefs on them. Second, they honestly report what they see and feel, so others form related beliefs. Third, they integrate the perceptions of others to build trust, honesty, and self-respect (Sutcliffe, 2011). Leaders might nurture these organizational norms as part of their efforts to develop and sustain a high-reliability organization.

Leaders may also benefit from developing a better understanding of the connected nature of individual actions in high-reliability organizations. Researchers have noted that

prosocial motivation and *emotional ambivalence* are important components of teamwork (Vogus et al., 2014). Prosocial motivation refers to the desire of employees to help each other, and emotional ambivalence refers to the state of equilibrium between differing emotions within an organization (Vogus et al., 2014). Both prosocial motivation and emotional ambivalence support the implementation of high reliability (Vogus et al., 2014). Prosocial motivation changes the focus from the individual to the whole organization, and emotional ambivalence makes employees open to alternative ways to approach changing situations (Vogus et al., 2014). Teaching and encouraging both prosocial motivation and emotional ambivalence may help leaders to develop a high-reliability organization.

Leadership style. Leadership style may influence how personnel respond to the challenge of reducing errors and creating a high-reliability organization. Leaders of healthcare organizations might consider the characteristics of transformational and transactional leadership to understand the most effective approach to producing and maintaining a high-reliability organization. Burns first introduced the concepts of transformational and transactional leadership in 1978 (Bass, 1999). Transformational leaders use an appealing vision to stimulate members of their team (Saravo, Netzel, & Kiesewetter, 2017). In addition, transformational leaders focus on developing an organizational culture that fosters teamwork (Giddens, 2018). In contrast, transactional leaders focus employees on economic rewards for specific levels of performance; they are reactive and participate in, rather than lead, the organizational culture (Smith, 2015).

Both leadership styles may be effective in leading efforts to reduce errors and sustain high reliability.

U.S. Navy Admiral H. G. Rickover was as an example of a transformational leader. Rickover used a charismatic communication style to articulate a strong vision and to create a new culture for the Navy (Ludwig, 2016). Empirical studies have shown that leaders can use the transformational leadership style to improve the quality of healthcare (Giddens, 2018). Successful healthcare leaders employ the transformational leadership style by articulating a vision, serving as a role model, setting high standards, and gaining the trust of employees (Boamah, Laschinger, Wong, & Clarke, 2018).

The transactional style of leadership may also align with the theory of high reliability. Transactional leaders exert influence on followers by rewarding employees' self-interests and desire for benefits in exchange for meeting performance expectations (Saravo et al., 2017). Some transactional healthcare leaders might achieve success in reducing hospital-acquired conditions. Leaders improve efforts to prevent errors when they mandate policies, systems, procedures, and climates to ensure patient safety (Parand et al., 2014). The use of the transactional style has enabled some healthcare leaders to improve job satisfaction and employee relationships (Cummings et al., 2018). However, researchers have shown that using transactional leadership in healthcare has resulted in lower feelings of staff empowerment and well-being (Cummings et al., 2018). The varied results from using transformational and transactional styles in hospital environments may create confusion for hospital administrators wishing to understand the most effective strategies to reduce hospital-acquired conditions.

Leaders can evaluate the beneficial elements of all leadership styles to develop a culture focused on high reliability. Bligh, Kohles, and Yan (2018) identified elements of leadership from both transformational and transactional styles that contribute to error-prevention behaviors. High reliability requires a comprehensive, organization-wide approach to the culture of an organization (Milch & Laumann, 2016). Enforcing compliance through safety rules and role modeling behaviors to prevent errors may require leaders to draw on elements of each of the two leadership styles.

Culture and high reliability. Achieving the state of high reliability may require a holistic approach from leaders. Hospital administrators can sustain an environment of zero hospital-acquired conditions by establishing a culture of safety aimed at reducing harm to patients (Willmott & Mould, 2018). An organization's safety culture provides the foundation on which to build a high-reliability organization (Poore, 2018). A culture of safety includes shared values and beliefs that people turn into acceptable behaviors that promote organizational safety (Ulrich & Kear, 2014). Leaders find changing employees' shared values and beliefs challenging because changing culture requires a comprehensive commitment over an extended period of time (Latney, 2016). A holistic approach and a strong commitment from leaders may serve as two important characteristics of high-reliability organizations.

Another common characteristic of high-reliability organizations is an organizational culture focused on transparency, individual performance, and consistent attention to operational changes and safety threats (Saunders, 2015). Research into large-scale accidents, including the NASA Challenger and Deep Water Horizon accidents, has

shown that communication and trust problems between organizations with different cultures contributed to the causes of accidents (Milch & Laumann, 2016). When leaders proactively look for hidden safety concerns, they foster a culture of safety (Pater, 2018). Creating a culture of safety is a bottom-up process, which means all employees must feel encouraged to communicate concerns about safety (Sutcliffe, Paine, & Pronovost, 2017). In a high-reliability organization, employees display recurring behaviors that become habits that produce consistently safe conditions (Vogus & Hilligoss, 2016).

Hospital administrators may benefit from understanding how to create the proper safety culture. Leaders create a high-reliability culture by focusing on the development of individual and group values, attitudes, perceptions, competencies, and forms of behavior (Alquwez et al., 2018). Leaders at the highest levels in an organization must make a commitment to a high-reliability culture that includes the provision of adequate resources, including training and technology (Sutcliffe et al., 2017). Researchers studying the Challenger and Columbia space shuttle accidents concluded that missed opportunities for learning, and learning bad habits, can result in disastrous consequences for an organization (Gotcheva et al., 2016). Hospital administrators might benefit from studying organizational factors that contributed to past serious accidents.

Inclusion of the board of directors or trustees in the quality improvement process may help to change the organizational culture. The amount of time that members of boards of trustees spend on quality positively correlates to higher levels of performance (Parand et al., 2014). Board members and senior executives must hold everyone in an organization accountable for quality and safe patient care (Parand et al., 2014). All

individuals in an organization should understand their vulnerability and have a sense of responsibility and accountability. Every employee should remain vigilant and pessimistic, and assume bad things will happen (Harvey, Waterson, & Dainty, 2016). Cultures that lack an emphasis on learning from even the smallest problems create conditions for serious errors to occur (Donaghy et al., 2018). A board of directors or trustees can help to establish safety as a top priority for an organization.

Leaders of high-reliability organizations might consider a number of strategies to engage employees in preventing errors. Strategies to promote a high-reliability culture may include constructing the infrastructure for staff, management collaboration, and management accountability (Parand et al., 2014). Infrastructure includes compensation based on quality and safety achievements (Parand et al., 2014). Leaders of high-reliability organizations might also encourage employees to proactively share information to prevent errors. Researchers refer to the deliberate process of personnel sharing their capabilities when reacting to changing conditions as mindful organizing (Vogus & Iacobucci, 2016). Hospital administrators might use strategies related to compensation, mindful organizing, awareness, and skepticism about success to develop an organizational culture with a focus on safety.

Supporting and Alternative Theories

Leaders of high-risk environments may consider frameworks other than the high-reliability framework when they evaluate ways to prevent and reduce errors. High reliability has received much attention from researchers, but documented studies have taken place in only three industries: aviation, military operations, and nuclear power

(Saunders, 2015). Alternative theories may give researchers and organizational leaders in healthcare an opportunity to apply different theories and evaluate their effectiveness compared to high-reliability theory. Alternative theories include resilience engineering, normal accident theory, and checklists.

Resilience engineering. Hospital administrators might consider evaluating the theory of resilience engineering as a supporting theory to high reliability. Resilience engineering is a supporting theory that leaders of nontraditional organizations can consider to reduce errors (Grabowski & Roberts, 2016). The theory of resilience engineering evolved as researchers studied distributive systems with a history of successfully adapting to change (Le Coze, 2016). The theory of high reliability includes the principle of resilience, which is the ability to recover from adversity (Weick & Sutcliffe, 2015). Resilience engineering builds on the characteristic of resilience as an alternative to high reliability (Le Coze, 2016). Resilience engineering describes the process organizational leaders use to recover from a shock or change and then to implement safeguards to prevent similar occurrences (Grabowski & Roberts, 2016). Resilience engineering is the process of learning and building adaptive capability from experience that involved surprises and challenges (Woods, 2015).

The theory of resilience engineering includes techniques hospital administrators might use to prevent hospital-acquired conditions. Resilient leaders must learn to monitor changing systems and adapt them to prevent errors (Le Coze, 2016). Leaders of resilient personnel must purposefully engineer resiliency over time by incorporating lessons learned from continuous cycles of disruptions (Woods, 2015). Resilience engineering

requires people to build on lessons learned from the past (Woods, 2015). Hospital administrators might apply the theory of resilience engineering when they adopt prior lessons learned to prevent future errors.

The theory of resilience engineering became more attractive as leaders relied on new technologies to support complex operations without highly skilled personnel on site (Grabowski & Roberts, 2016). Three principles of resilience engineering emerged as researchers and organizational leaders applied the theory. The first principle is the importance of treating complex systems as constantly changing. Complex distributive systems create moving targets for the people responsible for preventing errors (Cristancho, 2016). The second principle is the importance of considering the effects of the interrelationships between systems. A holistic view of systems gives leaders the ability to comprehend potential outcomes (Cristancho, 2016). The third principle is viewing systems from multiple perspectives. Multiple perspectives serve as different ways to adjust to changing conditions (Cristancho, 2016). In summary, the principles of resilience engineering highlight the importance of system adaptability, whereas high-reliability principles emphasize personal sensitivity to operations.

Normal accident theory. Researchers and organizational leaders may study the use of alternative theories to prevent catastrophic errors in high-risk environments. Critics of high-reliability theory have noted the theory does not apply in low-risk environments (Saunders, Gale, & Sherry, 2016). Critics describe high-reliability proponents as overly optimistic (Ramasesh & Browning, 2014). Normal accident theory is an alternative theory to high reliability that emphasizes that accidents are inevitable (Saunders et al.,

2016). Charles Perrow first described normal accident theory in an attempt to explain the causes of nuclear power accidents (Brown, 2018). The study of normal accident theory may reveal alternative approaches to achieving low rates of errors, including hospital-acquired conditions.

Normal accident theory includes an emphasis on specific aspects of organizational processes (Ramasesh & Browning, 2014). Supporters of normal accident theory emphasize the effects of coupling, interactive complexity, politics, and social pressures on the safety culture (Brown, 2018). Coupling refers to the extent to which systems and processes connect together. Interactive complexity refers to the degree of unexpected interactions among systems or process components (Brown, 2018). Normal accident theorists are pessimists who believe organizational efforts will not prevent accidents that inevitably occur in complex and tightly coupled environments (Ramasesh & Browning, 2014). Healthcare leaders may benefit from evaluating the applications of normal accident theory in the hospital industry.

Hospitals have four areas where tight coupling raises the risk of errors (Tamuz & Harrison, 2006). Emergency procedures, technology-driven procedures, medication processes, and automation all create the potential for the rapid spread of a small mistake (Tamuz & Harrison, 2006). Interactions among multiple clinicians and handoffs from one practitioner to another raise the risk of errors (Chera et al., 2015). Hospital personnel reduce the risk of error by using components of normal accident theory, including comprehensive monitoring, electronic communication, and standardized work processes (Chera et al., 2015). Healthcare leaders may reduce hospital-acquired conditions if they

understand the emphasis on tight coupling and the inevitability of accidents within normal accident theory.

Critics believe normal accident theory lacks attention to organizational culture (Chera et al., 2015). Proponents of normal accident theory maintain a pessimistic view of leaders' ability to create a safety culture due to the inherent presence of politics and blame (Tamuz & Harrison, 2006). Proponents of high reliability believe they can prevent accidents in complex environments by teaching proper behaviors that lead to thoughtful approaches to safety, problem solving, and error prevention (Ramasesh & Browning, 2014). Normal accident theorists support external monitoring of organizations to force organizational leaders to adopt safety practices (Tamuz & Harrison, 2006). External monitoring reduces the effect of internal politics, which moves decision-making to the most influential participants and not to the people with the most expertise (Tamuz & Harrison, 2006). In contrast, high-reliability theory includes a dependence on effective leadership to train and motivate frontline personnel to become experts in ways to prevent errors in their organization (Weick & Sutcliffe, 2015). Understanding the comparisons and contrasts between high reliability and normal accident theory may help hospital administrators make effective decisions about how to reduce medical errors, including hospital-acquired conditions.

Checklists. Some researchers and clinicians suggest the use of checklists as an alternative to the theory of high reliability (Leape, 2014). Checklists include a list of steps users must address (Braham, Richardson, & Malik, 2014). Aviation regulators require the use of checklists to evaluate the mechanical condition of an airplane (Hussain et al.,

2016). Airline pilots use checklists to manage threats and prevent errors (Hussain et al., 2016). Each step in the checklist should include the industry's evidence-based best practices to ensure an error-free process (Braham et al., 2014). Clinicians operating in the healthcare industry might adopt the use of checklists to prevent medical errors and improve organizational performance.

Physicians have used clinical checklists to reduce variation and prevent medical errors (Ragusa et al., 2016). The first formal checklist appeared in the healthcare literature in 2008 to help prevent infections from venous catheters (Braham et al., 2014). The World Health Organization published a recommendation to use surgical checklists in all hospitals to improve the safety of surgical procedures (Ragusa et al., 2016). The World Health Organization's surgical checklist promotes teamwork, attention to details, and effective communication (Braham et al., 2014). Clinical researchers demonstrated that using the World Health Organization checklist helped reduce surgical complications and infections (Thomassen, Storesund, Softeland, & Brattebo, 2014). A study among hospitals in South Carolina demonstrated using checklists improved teamwork and perceptions of safety in the operating room (Molina et al., 2016). Despite reported success in using checklists, not all physicians and quality experts agree that checklists are the best method for preventing medical errors. The checklist method may lack all the necessary steps to reliably prevent medical errors and hospital-acquired conditions.

Concerns about checklists include compliance, user attitudes, and effectiveness in preventing errors (Leape, 2014). Using checklists requires strict compliance by users (Leape, 2014). Ragusa et al. (2016) demonstrated that compliance with the use of

checklists declined during the day as user fatigue increased. Checklists might fail to prevent errors when users refuse to use them. Staff expressed frustration about using checklists in studies conducted to assess their effectiveness (Ragusa et al., 2016). Checking off steps on a list does not indicate practices have change in the ways necessary to support highly reliable error prevention (Leape, 2014). Reliable error prevention requires leadership, compelling data, training, and teamwork (Leape, 2014). Hospital administrators may achieve desired results when they consider the need for a complete set of steps to prevent errors and hospital-acquired conditions.

The Application of High Reliability

Hales and Chakravorty (2016) described the results of one hospital intensive care unit's experience implementing the principles of high reliability. The researchers noted that leaders of the unit implemented the following five high-reliability steps: (a) training personnel in mindfulness, (b) observing personnel and documenting problems, (c) conducting meetings to identify root causes of barriers to optimal performance, (d) conducting meetings to change processes, and (e) assigning responsibility for implementing action plans (Hales & Chakravorty, 2016). Action plans support resilience by hardwiring prevention and preparing organizations to recover from failures quickly (Hales & Chakravorty, 2016). Hales and Chakravorty (2016) found that the unit's implementation of high-reliability principles and strategies enabled employees to improve performance related to measures of efficiency, process, and outcome. The cost of patient care decreased by $100 per patient (Hales & Chakravorty, 2016). In addition, the percentage of patients discharged with stable vital signs increased from 93.8% to

99.5% (Hales & Chakravorty, 2016). Finally, the outcome measure of mortality rate from acute myocardial infarction decreased from 1.5% to 0.9%, which represented a 60% improvement in reliability (Hales & Chakravorty, 2016). This example illustrated the effective use of high-reliability principles to improve quality of care in one unit of a hospital. Hospital administrators might also effectively deploy high reliability principles across an entire organization.

Health system leaders have used the principles of high reliability to achieve national recognition for improving the quality and reduction of hospital-acquired conditions. For example, the leaders of one health system that includes 12 hospitals taught the principles of high reliability to all 20,000 employees in an effort to achieve a goal of zero medical errors (Shabot, Monroe, Inurria, Garbade, & France, 2013). The system's leaders aligned the organization's vision with goals for each employee and supported the measurement of progress with a robust monthly operations review (Shabot et al., 2013). Promotion of the organizational vision and individual goals is a key characteristic of the transformational leadership style (Boamah et al., 2018). The transformational leadership approach ensured accountability for implementing the process and outcome measure results at the health system (Shabot et al., 2013).

The health system's top leaders' commitment was apparent through active discussions and progress reviews conducted by the health system's board of trustees, and the system achieved the goal of reducing two types of hospital-acquired conditions: central line infections and ventilator-associated pneumonia cases (Shabot et al., 2013). Hospital administrators might use the system's high-reliability process as a model for

reducing hospital-acquired conditions and as an example of how organizations can achieve success by teaching the principles of high reliability to employees. However, the system's leaders may not have incorporated all the strategies that hospital administrators can use to reduce hospital-acquired conditions.

The business case for reducing hospital-acquired conditions. The literature contains examples of the ways hospital-acquired conditions cost hospitals additional expenses, reduce revenues, and increase the risk of reputational harm. The federal Medicare program provides financial incentives to reduce hospital-acquired conditions, which include medical errors, patient falls, preventable readmissions, and hospital-acquired infections (Arefian, Vogel, Kwetkat, & Hartmann, 2016). The Patient Protection and Affordable Care Act of 2010 directed officials at the Centers for Medicare and Medicaid Services to adjust hospital payments based on hospital performance related to specific quality and patient safety measures (Kahn et al., 2015). Infections are the most common type of hospital-acquired condition (Zikhani, 2016). Medicare officials deduct as much as 1% of Medicare payments from hospitals performing in the lowest quartile for the hospital-acquired infections measures (Kahn et al., 2015). Medicare penalties may incentivize hospital administrators to pay close attention to the financial impact of poor performance related to hospital-acquired infections.

The business case for hospital leaders to reduce hospital-acquired conditions may relate to the impact of hospital-acquired conditions on hospital revenue. Hundreds of hospitals lose revenue each year due to penalties for higher than average rates of hospital-acquired conditions (Kahn et al., 2015). Of the 3,300 U.S. hospitals participating in the

hospital-acquired conditions incentive program in 2015, 758 received reduced payments (Kahn et al., 2015). In addition to the federal Medicare program, some state Medicaid programs adopted the incentive reimbursement philosophy to promote the reduction of hospital-acquired conditions. Texas, New York, Illinois, Minnesota, and Maryland Medicaid payments to hospitals include penalties for high rates of preventable conditions (Averill et al., 2016). Maryland Medicaid officials reported a 32.3% reduction in hospital-acquired conditions over 3 years after implementing a payment incentive system (Averill et al., 2016). Researchers have highlighted hospitals' successes in responding to financial incentives to reduce the number of hospital-acquired conditions.

Despite evidence of success under the federal and state incentive payment programs, some hospital administrators may struggle to avoid payment penalties for high rates of hospital-acquired conditions that cause early returns to the hospital. Hospitals lose revenue from financial penalties for excessive readmissions of patients within 30 days of discharge (Shah, Churpek, Perraillon, & Konetzka, 2015). The Hospital Readmissions Reduction Program targets readmissions within 30 days for patients diagnosed with heart failure, heart attack, or pneumonia (Shah et al., 2015). In addition to resulting in financial penalties to hospitals, excessive readmissions add unnecessary expense to the cost of healthcare (Shah et al., 2015). The cost of readmissions across the country adds $17 billion in additional annual expenses to the Medicare program (Kripalani, Theobald, Anctil, & Vasilevskis, 2014). A reduction in the number of readmissions caused by hospital-acquired conditions may improve hospital revenues and save the government money on healthcare.

Potential causes of readmissions include preventable hospital-acquired conditions (Polinski et al., 2016). The most common cause of preventable hospital readmissions is adverse drug events, which are a type of hospital-acquired condition (Polinski et al., 2016). Hospital leaders who focused on improving compliance with medications after discharge from the hospital demonstrated reduced rates of readmission (Polinski et al., 2016). Efforts to reduce readmissions due to adverse drug events include identifying high-risk patients who may struggle to take their medications appropriately (Kripalani et al., 2014). After hospital personnel identify high-risk patients, they can direct resources to increase education, follow up with the patients by phone, and increase the frequency of home care visits (Kripalani et al., 2014). Hospital personnel charged with reducing readmissions due to hospital-acquired conditions might learn from those who have experienced success with strategies to reduce the incidence of adverse drug events.

Authors of articles in the literature discussed some of the criticisms of the financial incentives to reduce hospital-acquired conditions. Critics of the Medicare incentive programs have claimed large urban teaching hospitals receive a disproportionate share of financial penalties caused by factors outside their control (Figueroa et al., 2016). The factors include the clinical and social conditions of the patients served by large urban medical centers. Marital status, education level, income, and a patient's mental capacity affect providers' ability to lower hospital-acquired infection rates (Figueroa et al., 2016). The current Medicare incentive program fails to include considerations regarding how differences in consumers affect providers' ability to deliver care (Antos, 2016), and critics have argued that Medicare officials should adjust

the incentive measures to account for risk factors associated with treating high-risk patients (Figueroa et al., 2016).

Articles in the literature include examples of hospitals that achieved success in reducing hospital-acquired infections. For example, one nonprofit health system based in California reported saving $30 million in costs over 2 years by training nurses to prevent hospital-acquired infections (Boerner, 2016). The hospital industry is showing improvement in the trend toward reducing hospital-acquired conditions (Obama, 2016). The rate of hospital-acquired infections declined 17% from 145 per 1,000 discharges in 2010 to 121 per 1,000 discharges in 2014, and the reduction in hospital-acquired infections prevented 87,000 deaths over the 4 years of decline (Obama, 2016). Obama (2016) demonstrated how financial incentives help to reduce hospital-acquired conditions and mortality rates.

Summary

The high-reliability theory may help hospital administrators understand strategies to reduce medical errors, including hospital-acquired conditions. The literature contains descriptions of the five principles of high-reliability theory, which hospital administrators can use to develop an organizational culture focused on reducing errors, including hospital-acquired conditions. Authors of articles about high-reliability theory highlight the important relationship between leadership style and the use of high reliability to reduce errors. Leadership style influences organizational culture, and researchers believe culture serves as the foundation for an error-free environment (Singer & Vogus, 2013).

Leaders may consider alternative theories to high reliability, which include normal accident theory and checklists, to guide their efforts to reduce errors.

Hospital administrators have business and social reasons for responding to incentives to reduce hospital-acquired conditions. Medical errors, including hospital-acquired conditions, may negatively affect the profits of hospitals by adding expenses and reducing revenues. Hospital-acquired conditions may also represent a serious risk to the health of hospital patients. Reviewing the literature revealed the need for administrators to consider the principles of high reliability, leadership style, and organizational culture when developing strategies to reduce hospital-acquired conditions.

Transition

In Section 1, I provided a description of the study, the background of the problem, and a review of the literature related to the research question. In the literature I reviewed, I discussed how hospital administrators could align the theory of high reliability to strategies used to reduce hospital-acquired conditions. The literature includes data to support the business case for hospital administrators to reduce hospital-acquired conditions. The literature also includes references to the importance of leadership and organizational culture in reducing hospital-acquired conditions.

In Section 2, I describe my role as the researcher. I also discuss the research method and parameters that provide research rigor. This includes the study design, ethical considerations, and the collection and analysis of the data. I conducted a single case study by interviewing senior administrators who use successful strategies to reduce hospital-acquired conditions. My data collection and analysis plan included using interview data

and reviewing one medical center's archival records. The archival records included the medical center's quality assurance plans and reports related to hospital-acquired conditions. I then used software to support coding and thematic development.

In Section 3, I present the findings of the study, which include the themes that emerged from the data I collected and analyzed from the interviews and the hospital's archival records. I also provide a discussion of the applicability of the findings to support the theory of high reliability in the field of hospital administration. The discussion includes suggestions for how the findings can contribute to improved business practice and implications to positive social change. Also in Section 3, I provide recommendations for further research.

Section 2: The Project

In Section 2, I describe the research process for the project. Section 2 includes a discussion of the researcher and the participants, followed by a review of the research method and design. I review the data collection, data organization, and data analysis processes. This section also includes a discussion about the importance of ethical research and the steps I took to assure the reliability and validity of the study.

Purpose Statement

The purpose of this qualitative single case study was to explore strategies hospital administrators use to reduce hospital-acquired conditions. The target population included senior administrators (vice presidents and academic department chairs) of a large academic medical center in the southeastern United States. I interviewed senior administrators who successfully implemented strategies to reduce hospital-acquired conditions. The implication for social change includes the potential for insights that administrators can use to improve trust in the hospital industry. Moreover, hospital administrators' efforts to reduce hospital-acquired conditions may help to reduce fear and restore public trust in the U.S. hospital industry.

Role of the Researcher

In qualitative research, the researcher is the instrument for collecting data (Marshall & Rossman, 2016). My role included (a) selecting participants, (b) conducting interviews and reviewing archival records to collect data, (c) analyzing the data, (d) interpreting emergent themes, and (e) formulating conclusions and strategies related to the business problem. Therefore, I was the instrument in the data collection process for

my study. I did not know the participants in my study personally, and I spent only the minimum amount of time with them to obtain the data required to complete my study. By conducting the literature review, I had some knowledge of the research topic. However, I had limited knowledge of successful strategies to reduce hospital-acquired conditions. I expected the study participants to provide new and specific information about implementing successful strategies to reduce hospital-acquired infections.

In addition to my research of the literature on the theory of high reliability, I reviewed the literature on the responsibility of researchers to conduct ethical research. The authors of the *Belmont Report* defined the principles of research to protect participants (Bromley, Mikesell, Jones, & Khodyakov, 2015). The *Belmont Report* includes information regarding how researchers must address the principles of respect for participants, beneficence, and justice (Bromley et al., 2015). Beneficence refers to maximizing the benefits of research without harming participants (Bromley et al., 2015). Justice refers to balancing the needs of society with the cost to participants (Bromley et al., 2015). I adhered to the *Belmont Report* principles and protocol for conducting research. To protect the research participants, I followed the guidelines I learned by completing the National Institutes of Health training course Protecting Human Research Participants. As part of this process, I obtained a signed informed consent form from each participant before conducting any interviews.

Avoiding bias is an important component of conducting ethical research (Yin, 2014). Researchers are prone to bias due to their understanding of the problem under study (Yin, 2014), and researchers' identity, experience, and values create biases

(Marshall & Rossman, 2016). Bias occurs in every step of qualitative research, including data collection, analysis, and interpretation (Simundic, 2013). Therefore, I knew I must maintain awareness and attempt to mitigate bias in my research.

I avoided viewing data from a personal lens through my data collection practices and member checking. Member checking is the process of repeatedly confirming the accuracy and completeness of the researcher's interpretation of the interview responses (Koelsch, 2013). Researchers use data collection and member checking to reach data saturation and mitigate bias, and to ensure the data represent only the views of the participants (Fusch & Ness, 2015). The interpretation of the findings must represent the views of the participants and not the researcher (Fusch & Ness, 2015). I used data collection and member checking to mitigate any personal bias and confirm that my interpretation of the data represented only the participants' views.

Researchers may benefit from using an interview protocol to avoid common mistakes, which include misunderstanding answers, asking leading questions, and failing to listen effectively (Baskarada, 2014). An interview protocol consists of questions posed to the researcher (Yin, 2014). Researchers use interview protocols to help plan what data to collect and to understand why they are collecting those data (Yin, 2014). Interviewers who follow a protocol can adhere to proper interview practices and lower the risk of biased reports (Benia, Hauck-Filho, Dillenburg, & Stein, 2015). I used an interview protocol (see Appendix A) to mitigate bias during the interview process.

Participants

The eligibility criteria for participants in the study included success with implementing strategies to reduce hospital-acquired conditions as a member of the senior management team. I established a working relationship with the research participants by contacting them using an introductory e-mail (see Appendix B) to explain the study and how they will participate. A colleague agreed to introduce me to the chief operating officer (COO), who I referenced in the introductory e-mail. Many researchers face challenges in gaining initial access to the research site and in maintaining access throughout the data collection process (Høyland, Hollund, & Olsen, 2015). To further my working relationship, and to ensure adequate access, I explained my research study to the COO and described the data collection process. Participation in interviews can benefit the organization and the participant (Doody & Noonan, 2013). I noted the potential value and benefit of my research study to the COO's hospital, as well as other hospitals. I obtained the list of participants including their e-mail addresses and phone numbers from the COO.

I asked the COO to sign the letter of cooperation (see Appendix C), which included the process for participant selection and interviews, data collection, results dissemination, and the voluntary and confidential nature of the study. I communicated with the eligible participants in an introductory e-mail after I obtained the required signature from the COO. E-mail is a generally accepted mode of communicating with qualitative study participants (Bowden & Galindo-Gonzalez, 2015). The introductory e-mail included a description of me and my study, the eligibility criteria, and the interview

and follow-up data collection process. I attached the informed consent form to the introductory e-mail. I collected all of the signed informed consents to confirm each participant's engagement before I conducted the interviews.

Research Method and Design

I selected a qualitative method after evaluating all three methods, including quantitative and mixed methods. Qualitative research is a general approach to the study of social conditions (Marshall & Rossman, 2016). Qualitative research focuses on context and involves the interpretation of information gathered from participants (Marshall & Rossman, 2016). Qualitative researchers use social exploration to understand how people interact and interpret their environment (Malagon-Maldonado, 2014). In addition, I selected a single case study design. The case study design gives researchers a complete understanding of the perspectives of the people involved in the research (Baskarada, 2014). Use of the single case study design provided the opportunity to conduct an in-depth exploration of the perspectives of one hospital's administrators who have used successful strategies to reduce hospital-acquired conditions.

Research Method

I selected the qualitative method because it was the most appropriate method for exploring a phenomenon that answers the research question. Researchers use the quantitative method when their goal is to measure *how much* or *to what extent* a result occurs from a phenomenon (Westerman, 2014). In contrast, I explored *what* successful strategies senior hospital administrators used and *how* they overcame related challenges to reducing hospital-acquired conditions. I did not use the quantitative method, as I did

not intend to collect or analyze statistical variables to test a hypothesis. Researchers' should base their decision to use a mixed-methods design on the additional value that using both quantitative and qualitative methods would produce (Halcomb & Hickman, 2015). A mixed-methods approach was not necessary for my study, as the qualitative method provided sufficient data to answer the research question.

The qualitative method is the process of collecting and analyzing documented data derived from conversation (Grossoehme, 2014). My interview questions prompted conversations with senior administrators about what strategies they used to reduce hospital-acquired conditions. Researchers use the qualitative method to explore complex issues, which include improving business performance in healthcare (Houghton, Murphy, Shaw, & Casey, 2015). I used interview questions and documents to explore the phenomenon of strategies senior administrators' use to reduce hospital-acquired conditions. Qualitative researchers seek to understand the experiences of the people in a case study sample (Kahlke, 2014). The senior administrators of the academic medical center represented my participant sample, and the qualitative method was appropriate for exploring strategies used to reduce hospital-acquired conditions within the organization. Exploring the successful strategies used by administrators provided me with details of the advantages and disadvantages of these strategies. The qualitative study method aligned with my goal of exploring how senior administrators of a medical center interacted and interpreted their environment to develop successful strategies to reduce hospital-acquired conditions.

Research Design

I selected a single case study research design after considering three qualitative study designs: case study, phenomenology, and narrative. Researchers frequently use the case study design to conduct qualitative research (Yazan, 2015). The case study design includes elements of flexibility that the phenomenology and narrative designs lack (Hyett, Kenny, & Dickson-Swift, 2014). The phenomenological design is best suited for the study of the participants' mental life related to a specific phenomenon (Matua, 2015). The phenomenological design was not the most effective option, as I intended to focus on the strategies the senior administrators related during the interviews and not participant descriptions of their mental lives. Researchers use the narrative design to elicit stories from participants who share an experience (Paschen & Ison, 2014). The narrative design was not appropriate for this study because my focus was not on telling a story.

Case studies are the preferred strategy when the researcher seeks answers to questions about events that relate to a real-life setting (Ardhendu, 2014). I gathered and analyzed data from interviews and documents relevant to a real-life situation, which was to explore strategies hospital administrators use to reduce patient harm from hospital-acquired conditions. Vohra (2014) found a case study design provides a structure to capture information related to leaders' behaviors. Yin (2014) noted researchers use the case study when they focus on a specific population and desire to explore concentrated information. Researchers also use the case study design when they seek to obtain an answer to a real-world problem (Yin, 2014). The case study was appropriate, as I

explored a real-life problem on the strategies that a group of administrators' use to reduce hospital-acquired conditions.

I had to gather enough data while using the case study design to ensure I conducted a rigorous study. Researchers know they have obtained enough data when the process of data collection will result in more of the same findings (Marshall & Rossman, 2016). Failing to reach data saturation can affect the quality of a research study (Fusch & Ness, 2015). Data saturation is the process of turning data into rich information that helps the researcher understand the aspects of the research question (Morse, 2015b). Researchers achieve data saturation when they identify the same patterns repetitively and when they realize new information will not inform the study (Marshall & Rossman, 2016). I analyzed the data from plans and reports about the number of hospital-acquired conditions in the medical center and the responses to the interview questions until I identified all of the themes and achieved data saturation.

Population and Sampling

The population for this study consisted of senior administrators (vice presidents and academic department chairs) of a large academic medical center in the southeastern United States who have used successful strategies to reduce hospital-acquired conditions. The sample size was an important consideration in the design of a study. Sample size for interviews with open-ended questions depends on achieving data saturation (Tran, Porcher, Tran, & Ravaud, 2017). Different factors guide researchers on how many interviews are necessary to reach data saturation (Marshall, Cardon, Poddar, & Fontenot, 2013). Such factors include (a) the quality of the interviews, (b) the number of interviews

per participant, (c) the sampling methodology, and (d) the experience of the researcher (Marshall et al., 2013). The researcher can present the size of the sample as a range, and most studies require a provisional range during study planning (Robinson, 2014). I conducted 13 interviews of senior leaders who met my eligibility criterion.

I used the purposive sampling method to select participants for my study interviews. Researchers can select from different forms of sampling, which include purposive, snowballing, or intensity sampling (Ingham-Broomfield, 2015). Researchers use purposive sampling when they select participants based on their ability to meet a specific purpose (Roy, Zvonkovic, Goldberg, Sharp, & LaRossa, 2015). Purposive sampling involves the use of a systematic process to create the target population (Asiamah, Mensah, & Oteng-Abayie, 2017). The use of the purposive sampling method gave me access to the senior administrators who have successfully reduced hospital-acquired conditions.

Sample size may affect data saturation. A large sample size and completion of interviews do not ensure data saturation (Fusch & Ness, 2015). I planned to conduct 12 interviews based on input from the COO about which senior administrators had used successful strategies to reduce hospital-acquired conditions. After completing the 12 interviews, I identified the need to interview additional administrators with responsibility for finance. Again, I used purposive sampling to identify the participant, and received permission from the COO to invite the finance manager. However, I obtained no new information by conducting the 13th interview. Therefore, I conducted enough interviews and reviewed adequate numbers of plans and reports to reach data saturation, which was

the point at which I could not identify any new data or themes. The researcher also reaches data saturation by paying attention to all the data, especially the less common data elements (Morse, 2015b). I explored all elements of the data, including data I collected from the interviews and the organization's plans and reports until no new themes emerged.

Interview participants should understand the terminology and have the ability to engage with the interviewer (Cleary et al., 2014). To be eligible for my study, the participants must have used successful strategies to reduce hospital-acquired conditions. This means the participants must have knowledge of the hospital's performance related to the number of hospital-acquired conditions. The participants were able to address the challenges associated with helping employees and physicians reduce hospital-acquired conditions. To interview the participants, I found a private, neutral conference room that was free of distractions.

Ethical Research

I conducted ethical research in accordance with established principles and protocols. Ethical principles describe the commitments researchers make themselves and to external audiences (Hammersley, 2015). I learned the elements of ethical research by completing the course Protecting Human Research Participants offered by the National Institutes of Health Office of Extramural Research. Ethical research must include (a) integrity, which includes researcher competency; (b) justice, which prohibits participant exploitation; (c) beneficence, which explains the benefits and risks to participants; and (d) respect, which relates to the capacity and autonomy of participant decision-making

(Wallace & Sheldon, 2015). I obtained approval from the Walden University Institutional Review Board (IRB) before conducting my research (approval number 06-18-18-0479983). The IRB application addresses the (a) description of the proposed procedures, (b) community research stakeholders and partners, (c) participants' potential risks and benefits, (d) data integrity and confidentiality, (e) potential conflicts of interest, (f) data collection tools, (g) description of the research participants, and (h) process for obtaining informed consent (Walden University, 2015).

As part of conducting ethical research, I obtained informed consent from each study participant. Informed consent is an important and required component of any research study (Hoeyer & Hogle, 2014). Researchers use the informed consent process to alert the study participants to the purpose of the case study and to the voluntary nature of participation (Yin, 2014). Informed consent also includes the specification of how the researcher will collect and use the data (Sanjari, Bahramnezhad, Fomani, Shoghi, & Cheraghi, 2014). The participants received an email invitation (See Appendix B) to participate voluntarily in the research. Participants were invited to complete the consent form before participating. I reviewed the consent form with each participant and promised to keep the information I obtained secure and confidential. The informed consent process helped to assure the ethical protection of the participants. I did not use any incentives to induce participation.

Participants could withdraw by e-mailing me or calling me. They could also withdraw in person when I was on site to conduct the interviews. Researchers must carefully consider how to manage data when participants withdraw from a study (Thorpe,

2014). When participants withdraw, researchers have three options: continue with partial data, continue with all the data, or discontinue the study (Thorpe, 2014). One of my participants withdrew before I interviewed her. At the suggestion of the COO, I then invited a colleague of the person who withdrew, to ensure I gathered sufficient data. Anonymity is necessary in qualitative research for protecting the participants (Yin, 2014). Researchers ensure anonymity by preventing links between the participants and the study (Drake, 2014). Researchers should remove any specific identifiers to protect the identity of participants (Drake, 2014). I assigned a unique alphanumeric code number to each participant, beginning with the letter A (for *administrator*), followed by the appropriate number 1 through 13. Three different COOs led the medical center where the interview participants worked during the most recent 4 years. I used the labels of Dr. A, Dr. B, and Dr. C to identify the three COOs described in the interview responses. When necessary within participant quotes, I bracketed the respective label to eliminate gender pronouns and protect the COOs' identity.

I maintained all my data on a password-protected external storage device used for the exclusive purpose of conducting my study. I established separate files on the encrypted device to store the interview audio files, the transcribed interviews, the consent forms, and the scanned documents from the medical center. I shredded any papers I obtained from the medical center or participants immediately after I scanned and stored them on the external encrypted storage device. I will keep the encrypted storage device in my bank safe deposit box for 5 years. I will destroy the device after the required 5-year storage period.

Data Collection Instruments

I conducted all the interviews and served as the data collection instrument for the study. I conducted the initial set of interviews in person, one participant at a time. I used the interview protocol (see Appendix A) to guide the interview process and to help me follow all the necessary interview steps consistently. I used open-ended semistructured interviews to gather data on strategies to reduce hospital-acquired conditions from the participants. Interviews allow researchers to obtain large amounts of data quickly and in a manner that allows for follow-up and clarification (Marshall & Rossman, 2016). Individual semistructured interviews provide researchers with a detailed understanding of the personal decisions and experiences of the participants (Karimi, Brazier, & Paisley, 2017). Semistructured interviews can involve a flexible approach by researchers, and researchers can follow up on answers that provoke additional questions (Baskarada, 2014). Member checking allows researchers to assess the reliability and validity of the data (Harvey, 2015). To enhance the reliability and validity of the study, I used the interview protocol, which included the initial interviews and the member checking process. I conducted member checking by sending the participants a synthesis of their interview and then calling them to review my interpretations of their responses and make sure they had no additional information to add.

In addition to the data from the interviews, I collected archival records on hospital-acquired conditions from the medical center. Archival records include plans, budgets, personnel records, and data produced about the case study participants (Yin, 2014). Multiple sources of data support accurate findings (Yin, 2014). Johnson et al.

(2017) used multiple methods of data collection, including interviews, observations, and document reviews, to facilitate identification and validation of the issues relevant to their study. The archival records I requested were the medical center's quality assurance plans for reducing hospital-acquired conditions, and the corresponding data showing the rates of hospital-acquired conditions for the most recent 4 years. Analysis of the medical center's archival records related to hospital-acquired conditions helped me corroborate and elaborate on the findings from the interviews.

Data Collection Techniques

I gathered data by interviewing participants using semistructured interviews, and by studying the hospital's plans and reports related to strategies to reduce hospital-acquired conditions. Semistructured interviews allow participants to provide open-ended responses (Koch, Niesz, & McCarthy, 2014). I followed the interview protocol, which guided me to use semistructured interview questions in a consistent manner. Closed-ended questions are less valuable in qualitative research (Koch et al., 2014). The interview technique has both advantages and disadvantages. One advantage of the interview technique is the simplicity of using it, which is why qualitative researchers use interviewing more often than any other technique (Jamshed, 2014). Dennis (2014) noted interviews could create feelings of discomfort by the participants, which is a disadvantage of the interview technique. To overcome this disadvantage, the interviewer must maintain a calm demeanor and always respect the participant (Dennis, 2014).

In the literature review, I highlighted the importance of culture in reducing medical errors, including hospital-acquired conditions. The interview is a useful tool in

uncovering cultural influencers in a social environment (Vaisey, 2014). However, some researchers contend that interviews create the opportunity for people to provide contradictory and inadequate accounts of their experiences (Vaisey, 2014). To overcome this disadvantage, researchers should assemble their responses and look for patterns that can point to the genuine cultural influencers among the responses (Vaisey, 2014). I assembled all my data and used a deliberative data analysis process to look for patterns and emergent themes from the interviews and archival records about the number of hospital-acquired conditions in the hospital.

My archival records request included quality reports showing rates of hospital-acquired conditions during the most recent 4 years. I also received and reviewed the medical center's written quality assurance plans to reduce hospital-acquired conditions during the most recent 4 years. I traveled to the site and spent 2 full days interviewing the participants on the medical center campus. I used e-mail to communicate with participants to coordinate dates when they would be available. While on site, I requested the medical center's data related to strategies to reduce hospital-acquired conditions. Multiple data-collection strategies, including interviews and data analysis, can improve the validity of a study (Baskarada, 2014). However, a disadvantage of using archival records is they may not always reflect reality (Yin, 2014). In addition to the medical center's archival records, I analyzed what I learned from the interviews to prevent overreliance on archival records.

I recorded all of the interviews. Audiotapes provide better accuracy than handwritten notes (Yin, 2014). I used a microphone attached to my password-protected

laptop to record and save each interview using an alphanumeric labeling code for each participant. I copied the audio files to a coded file for each participant using an encrypted storage device for backup. The process of recording interviews should not interfere with the participants' work or setting (Marshall & Rossman, 2016). Few researchers have assessed the impact of using recording devices in qualitative research (Nordstrom, 2015). Recording devices offer the advantage of capturing the exact words of the participant (Jamshed, 2014). However, overreliance on the recording device may contribute to researcher bias and political interpretation of the data (Nordstrom, 2015).

To overcome dependence on the recorded word, researchers might pay close attention to the nonverbal communication of the participants. The use of a recording device can free researchers from documenting responses during interviews and allow them to pay close attention to nonverbal communication from the participant. Nonverbal cues make up 93% of human communication (Onwuegbuzie & Byers, 2014). Qualitative researchers must pay attention to nonverbal communication such as facial expressions and gestures to understand fully the meaning of the participant's responses (Onwuegbuzie & Byers, 2014). A disadvantage of using nonverbal data, especially for novice researchers, is the risk of incorporating contradictory and inconsistent results (Fusch & Ness, 2015).

During the interviews, I wrote notes in a reflective journal. Once I completed the interviews, I typed the notes verbatim using Microsoft Word into a folder for each participant, which I then exported into my QSR NVivo journal. Another source of information was archival records related to efforts to reduce hospital-acquired conditions.

I analyzed the medical center's quality assurance plans and data showing rates of hospital-acquired conditions during the most recent 4 years. Analysis of the written plans and reports helped me identify successful strategies to reduce hospital-acquired conditions. In addition, I exported the text from each of the medical center's four (one for each year) quality assurance plans into QSR NVivo. Therefore, I formed a complete database by combining my observation notes with the interview audio files, interview responses, and the organization's data from documents related to hospital-acquired conditions. Methodological triangulation, which involves the use of multiple data sources, helps the researcher enhance validity and reliability (Fusch & Ness, 2015). A complete database facilitated methodological triangulation.

Member checking involves repeated questioning of participants to verify proper interpretation of the data (Koelsch, 2013). Kornbluh (2015) noted member checking is not without faults. Participants may respond simply to be kind to the researcher and to limit the amount of time they spend following up on the original interviews (Kornbluh, 2015). Member checking also extends the study timeline and may provoke negative reactions from participants (Simpson & Quigley, 2016). To avoid negative reactions to member checking from my participants, I explained the importance and format of the member-checking process in the introductory e-mail. I made phone calls to all of the participants to conduct follow-up member checking.

Data Organization Technique

I used a deliberative process to bring order and structure to all my data. I used Microsoft Word to develop a coded folder for each participant to protect his or her

identity. I scanned the consent form into each participant's folder. I transcribed the interviews using Microsoft Word to support data analysis and provide backup to the audio files. I then added the transcription to each participant's coded folder. Using databases allows researchers to store, manage, and protect research information (Woods, Paulus, Atkins, & Macklin, 2016). Researchers use software to help them effectively manage their data (Yin, 2014). I used the QSR NVivo software to organize and support analysis of the data from the interviews and the quality assurance plans. Yin (2016) cautions researchers to not expect software to do the analytical work. Researchers should value the process of handling and making notes about hardcopy materials (Yin, 2016). Researchers use QSR NVivo to code both transcripts and audio files (Onwuegbuzie & Byers, 2014). I exported the transcribed audio files and quality assurance plans into QSR NVivo. Patton (2015) suggested the option of organizing qualitative data by grouping answers to common questions. I started by organizing the data into broad topic areas based on responses to each question, followed by exploration of each topic to identify detailed codes, based on common terms. The coding process facilitated identification of themes related to successful strategies to reduce hospital-acquired conditions. Researchers should keep and secure data for a minimum of 5 years (American Psychological Association, 2012). I will save all documentation on an encrypted data storage device in my bank safe deposit box for 5 years.

Data Analysis

I used methodological triangulation to support the analysis of my data. The four types of triangulation are (a) methodological triangulation, (b) investigator triangulation,

(c) theory triangulation, and (d) data source triangulation (Carter, Bryant-Lukosius, DiCenso, Blythe, & Neville, 2014). Methodological triangulation is the process of using more than one source of data to develop an understanding of the research question (Yin, 2014). Johnson et al. (2017) used methodological triangulation to identify themes from their observation and interview data, which they used to study the influence of patient safety on paramedic decision making. I used methodological triangulation to identify themes from two sources: the interview data and the data I obtained from the medical center's quality assurance plans and reports, which illustrated performance related to hospital-acquired conditions for the most recent 4 years.

I used a deliberative and iterative process to analyze all of the data. I focused the analysis on the strategies the participants used to reduce hospital-acquired infections. The data analysis process involves a five-phase process, which includes compiling, disassembling, reassembling, interpreting, and concluding (Yin, 2016). The researcher should expect an iterative process that involves going back and forth between phases (Noble & Smith, 2014). The compiling phase of the data analysis began with assembling my data, which included interview data and the organization's archival records. At this stage, I also familiarized myself with the data by reading my interview notes and listening to the audio files of each interview. During the compiling phase, I made sure I organized the folders for each participant and included all the relevant notes for each interview. Software helps the researcher formally organize data (Yin, 2016). I used Microsoft Word for transcribing and storing documents, and QSR NVivo for analysis of the data.

In addition to the text from the interviews, I analyzed the number of hospital-acquired conditions that the medical center reported in each of the most recent 4 years. The hospital recorded the number of hospital-acquired infections, pressure ulcers, and injuries from patient falls, all of which Medicare counts as hospital-acquired conditions (Waters et al., 2015). I obtained and reviewed a trend graph of the total number of the medical center's reported hospital-acquired conditions over the most recent 4 years. In addition to the reported numbers, I analyzed the text in the hospital's quality assurance plans (QAPs) for each of the most recent 4 years (2014-2017), which included a summary of performance during the prior year, and the target number of hospital-acquired conditions in the plan year. I labeled the plans QAP-1 through QAP-4. The medical center's board of trustees approves the quality assurance plan and targets annually to ensure they hold senior management accountable for performance related to hospital-acquired conditions. Finally, I referred to the literature review to correlate the emergent themes with the conceptual framework.

The disassembling phase involves two activities, which include creating analytic memos and coding (Yin, 2016). I created analytic memos to document the ideas that occurred to me as I analyzed the data. I documented my memos in a journal that I created in QSR NVivo. I used the notes in the journal to support identification of the themes and nodes in QSR NVivo. I used a coding process to turn my data into concepts with meaning. Researchers use qualitative data analysis systems to extend the analysis process beyond the capabilities of manual and paper techniques (Woods et al., 2016). However,

the software does not take the place of the researcher, who must do all of the coding and analytical thinking (Yin, 2016).

I used QSR NVivo to facilitate the disassembling phase. Some researchers have experienced difficulty exporting audio files into QSR NVivo (Zamawe, 2015). To mitigate this problem, I exported the Microsoft Word files and the audio files for each interview into QSR NVivo. I also exported the text from the quality assurance plans that outlined the medical's centers approach and goals related to reducing hospital-acquired conditions. After I listened to the audio recordings of the interviews, I read through each transcribed file while making notes in my journal about the major points each participant made in response to a question. I began the disassembling phase by reading the major points and noting patterns, or categories, which I documented in the journal. I followed the process outlined by Patton (2015), who noted qualitative researchers might start organizing data based on responses to common questions. I selected initial headings, or nodes, for each question. Next, I re-read the entire exported text of each interview and quality assurance plan, and then coded the segment of text to the appropriate node in QSR NVivo. I repeated the text coding process three times before I felt assured I had coded all of the text to the appropriate node.

The two types of codes include theory-generated codes and in vivo codes. Researchers derive theory-generated codes from the literature, and in vivo codes from real-life data (Marshall & Rossman, 2016). I organized the common codes into QSR NVivo nodes, or folders, which facilitated reassembling, which is the third phase in the analysis process. The reassembling phase involves searching for patterns in the data (Yin,

2016). Researchers must identify and interpret any significant patterns or themes (Baskarada, 2014). I used the coding process to evaluate the data and help me develop emergent concepts.

The reassembling phase involves (a) making constant comparisons, (b) identifying negative items, (c) engaging in rival thinking (Yin, 2016). The search for constant comparisons supports identification of themes. The search for negative items helps to challenge early assumptions about codes. Rival thinking involves searching for alternative explanations for initial observations (Yin, 2016). Writing notes and memos allows the researcher to move the data analysis process from ignorance, through understanding, to conclusion (Marshall & Rossman, 2016). I continued to document my thoughts and questions in QSR NVivo while reassembling the coded data.

Yin's (2016) fourth phase is interpreting, which is the phase in which the researcher gives meaning to the findings. The researcher's interpretation must be complete, empirically accurate, fair, and credible (Yin, 2016). In the inductive research approach, researchers develop interpretations by creating themes from the coded data (Gale, Heath, Cameron, Rashid, & Redwood, 2013). Analysis of coded data resulted in the identification of five themes. Percy, Kostere, and Kostere (2015) recommended researchers follow a step-by-step process to create an interpretation. Researchers should cluster data to form patterns, identify items of data that correspond to the pattern, highlight and name configurations of patterns, and arrange the themes in a matrix that corresponds to the underlying patterns (Percy et al., 2015).

Researchers then write a detailed description of the theme and combine all the patterns and themes that pertained to all the participants (Percy et al., 2015). I followed a similar process to interpret my data. I focused on the themes contained in the literature review, including themes related to high-reliability theory and leadership style. In addition, I focused on the emergent themes from the data that related to successful strategies administrators use to reduce hospital-acquired conditions. Analysis of the themes may lead to a call for action, which I specified in the concluding phase. The concluding phase is the final phase of data analysis (Yin, 2016). Conclusions capture the significance of the study and offer implications and suggestions for future research (Yin, 2016). I employed an iterative process of revisiting my thoughts about the data, themes, and information contained in the literature review to draw my conclusions.

Reliability and Validity

Researchers may benefit from considering the rigor of their research. Quantitative researchers determine rigor by assessing the reliability and validity of their study (Morse, 2015a). I chose a qualitative case study design because it was the best method to explore the strategies hospital administrators use to reduce hospital-acquired conditions. Qualitative researchers determine rigor by assessing trustworthiness, the criteria for which includes dependability, credibility, transferability, and confirmability (Lincoln & Guba, 1985). Reliability relates to dependability and confirmability of the data and findings (Houghton, Casey, Shaw, & Murphy, 2013). Validity of the study relates to transferability and confirmability (Houghton et al., 2013).

Reliability

Dependability refers to the extent to which other researchers would consistently obtain similar findings across studies (Hays, Wood, Dahl, & Kirk-Jenkins, 2016). I used the interview protocol and same interview questions to support the consistency and dependability of my study. Member checking, also known as member validation, allows researchers to check the accuracy and thoroughness of the collected data (Harvey, 2015). Member checking involves giving participants relevant components of the interview findings and asking them to add comments or make corrections to the data (Koelsch, 2013). Researchers conduct member checking by reviewing interpretations from the interviews with the participants, so they can confirm the findings (Harvey, 2015). I summarized the transcribed responses and emailed them to each participant. I then called each of them to ask if I properly interpreted their answers and to see if they had additional information to add. None of the participants added any new information. Case study researchers use methodological triangulation, which might include different techniques to study a phenomenon (Cronin, 2014). Triangulation also supports confirmation and completeness of the data (Cronin, 2014). In this study, I used methodological triangulation from two sources, which included interviews and the medical center's plans and reports related to hospital-acquired conditions. The use of multiple data sources enhanced reliability.

Validity

I used methodological triangulation from two data collection techniques: interviews, and review of archival records, to enhance the credibility of the findings.

Credibility relates to believability, and the ability of the researcher to make inferences based on interviews and documents (Hays et al., 2016). Qualitative researchers use the process of triangulation to analyze different sources of data and draw a single conclusion (Marshall & Rossman, 2016). The use of methodological triangulation supported the credibility of my data.

Transferability means researchers can apply the findings of the study to different settings or groups (Amankwaa, 2016). The research is transferable if people not involved in the study can make use of the results (Cope, 2014). Researchers support transferability by providing a rich, detailed description of the components of the study and by maintaining transparency about the process (Connelly, 2016). In Section 3, I provide a rich, thick, description of the interview responses, and the medical center's rates of hospital-acquired conditions, to support the transferability of my study findings.

Confirmability is another criterion for a trustworthy qualitative study. Confirmability is the ability of the researcher to eliminate bias and reflect only the participants' perspectives (Hays et al., 2016). Qualitative researchers should maintain detailed notes, so a colleague can review them to assess confirmability (Connelly, 2016). I maintained detailed notes, audio transcripts, and a reflective journal describing the research journey. A reflective journal provides a transparent audit trail, which also enhances creditability (Connelly, 2016). Access to all of my data is available, if necessary, to assess confirmability.

I gathered enough data to ensure I captured all the information related to the research questions. Yin (2014) suggested researchers rephrase data saturation and call it

theoretical sufficiency. Theoretical sufficiency implies the researcher has developed categories that the data thoroughly describe (Yin, 2014). Data saturation also relates to the scope and replication of the data (Morse, 2015b). Scope refers to the comprehensiveness of the data. The scope of the data must include the elements of the data that do not appear as frequently as others do. The researcher must assess all the data to ensure saturation (Morse, 2015b). Replication means the data obtained from different participants have common characteristics (Morse, 2015b). I collected data by conducting interviews, followed by member-checking phone calls, and reviewing plans and reports to achieve data saturation. I can provide a complete description of my study location, context, and participants, without violating confidentiality, to support the transferability of my study findings.

Transition and Summary

In Section 2, I restated the purpose of the qualitative case study, which was to explore the strategies hospital administrators used to reduce hospital-acquired conditions. I then described my role as the research instrument and discussed my plan for adhering to ethical principles. Section 2 also included a description of the study participants, population and sampling, data confidentiality, data collection, and data analysis. I conducted the research according to the requirements of the Walden University Institutional Review Board. I collected data from two sources, including interviews and the medical center's archival records. The data analysis process followed Yin's five-step phased approach, which ended with the development of conclusions. I employed member checking and methodological triangulation to support research rigor. In Section 3, I

present the findings of the study, which include conclusions and related findings. I discuss the relevancy of the findings to improved business practices in hospitals, as well as any implications for social change. Section 3 also includes recommendations for action and further research.

Section 3: Application to Professional Practice and Implications for Change

In Section 2, I discussed my role as the researcher and the role of the participants, followed by a review of the research method and design. I reviewed the data collection, data organization, and data analysis processes. I also discussed the importance of ethical research and the steps I took to ensure the reliability and validity of the study. In Section 3, I present the results of the research study, offer recommendations for action and further research, and reflect on the Doctorate in Business Administration study process.

The purpose of this qualitative single case study was to explore strategies hospital administrators use to reduce hospital-acquired conditions. I interviewed 13 leaders of a large academic medical center located in the southeastern United States. By analyzing the interview data, the medical center's plans and reports, and the most recent peer-reviewed articles in the literature review, I identified five emergent themes. Findings within the themes were (a) the need to prioritize quality and financial performance equally, (b) the importance of leadership style, (c) the role of individual and collective accountability, (d) ways to effectively communicate, and (e) the value of a culture of trust. These findings answered the research question in my case study about strategies to reduce hospital-acquired conditions.

Presentation of Findings

The research question for this study was as follows: What strategies do hospital administrators use to reduce hospital-acquired conditions? The five emergent themes identified from my case study were (a) organizational prioritization, (b) leadership style, (c) accountability, (d) communication practices, and (e) trust. The top five themes based

on the frequency of related participant comments appear in Table 1. Percentage values are also provided.

Table 1

Contribution to Study Themes

Theme	Number of participants contributing to theme	Percentage of participants contributing to theme
Organizational prioritization	12	92
Leadership style	11	85
Accountability	10	77
Communication practices	10	77
Trust	10	77

Note. The sample size was 13.

In addition, I uploaded the four quality assurance plans I collected into QSR NVivo and coded them by identifying text related to the comments from the interviews. Using a combination of data sources supported the identification of themes. For example, both the interviews and the plans contained text related to the theme of accountability, which reinforced for me that this was a genuine theme. I discuss each theme in the following sections.

Theme 1: Organizational Prioritization

The theme that had the highest number of related comments was organizational prioritization. Organizational prioritization refers to the need for hospital administrators to simultaneously balance the work of improving financial performance and reducing the number of hospital-acquired conditions. Senior leaders have the responsibility to create the structures and processes for a supportive environment, and this includes providing adequate resources (McMillian & McEldowney, 2014). Analysis of the interview data

revealed the challenge the medical center's leadership went through while attempting to achieve aggressive financial and quality objectives. Participants described how confused they and the employees were by the first COO's initial focus on quality, followed by the second COO's exclusive focus on finances, followed again by a focus on quality by the third COO. Participants discussed the negative impact of efforts to reduce expenses on the quality of care and on the number of hospital-acquired conditions. The findings indicate hospital administrators should use a balanced approach to achieve realistic quality and financial objectives at the same time.

Presentation of findings. The interview participants described a period during which the medical center struggled financially. The financial challenges became apparent at the end of the first COO's (Dr. A's) term, when the board of trustees hired and charged Dr. B with improving the hospital's financial performance. Participants described how Dr. A focused on quality at the expense of the financial health of the medical center. Participant A9 stated, "Dr. A was truly all about quality. I don't recall a whole lot of conversations about finance when [Dr. A] was here." In the first of the 4 years included in the study, Dr. B led a financial turnaround with a goal of improving the hospital's profit margin by $100 million in 1 year. Participant A10 described the challenge at the time: "I think [that] was when we were checkbook poor and losing money. And in order to defend the balance sheet, there was a need for dramatic action." According to the participants, the extreme focus on the financial performance took a toll on the employees' efforts to reduce hospital-acquired conditions. Participant A2 summarized how employees felt at the time:

> There was tremendous dissatisfaction, not just on the part of the leaders of the institution, but even other clinicians, whatever it was, because they knew of the cutbacks and they knew there was little they could do to stop any of that. The money was just going to be cut and that's all there was to it, and it affected this, but we had to cut money and the money was cut. So, I think, again, and people will say this, what Dr. B was asked to do—make our margin better—[Dr. B.] did. But [Dr. B.] did it in such a negative way, that's what people couldn't just tolerate. And they also couldn't tolerate some of the cuts because they were important programs.

The interview participants discussed the impact of the way their leaders handled the challenge and apparent conflicting priorities of reducing hospital-acquired conditions while also improving the medical center's profit margin. Participant A10 said, "If choices have to be made that reflect a certain value over another, say safety over production, an organization will respond to that. Conversely, if production over safety is messaged over and over, people will recognize that." Similarly, A7 noted how leaders found balancing financial and quality objectives difficult: "When you have an 8% margin, you can focus the hell out of some quality initiatives because you've got the wiggle room to do it. When you're at zero, you're struggling to focus even on one area; it's hard." However, A9 pointed out how pursuing one objective can help the other. Participant A9 noted,

> I do think there is an economic impact to having good quality. If we have lower rates of hospital-acquired conditions, we will incur fewer penalties from

> Medicare. And so, I think it is possible to have a better balance between quality and finances.

Participants noted the importance of maintaining a focus on quality and the reduction of hospital-acquired conditions during difficult financial times. Participant A5 said, "I think you have to keep it [quality] front and center. Leadership keeps talking about it. We don't say we'll put the quality stuff on hold for a little while we try to make our margin." Further, A3 stated that leaders can and should achieve balance:

> You have to be willing to say to all your people, "We're almost out of money. You guys have to help us spend it very carefully, but if you find something that's a safety problem, you need to plan on spending that money, and here's how you get it."

Participant A3 also described how Dr. B failed to visibly prioritize reducing hospital-acquired conditions: "I believe for Dr. B having quality was important, but none of [Dr. B's] actions showed that." The interview participants noted that Dr. B's directions to cut expenses negatively affected performance related to hospital-acquired infections. For example, A10 said, "It's pretty hard to drive quality and safety with a disenchanted workforce that's under strain and that feels overloaded. And so, we saw slippage in all of our quality metrics." According to A3, "If you have a reduction in force, the harm to your culture, and to your culture of reliability, is severe. Because people no longer feel like they are working in a safe environment." Participant A9 concurred:

> So in [that year] we had a reduction in force, so we went down in staffing, and a lot of that was in nursing. And when you cut your frontline people, quality tends to suffer. And I would say that was a downturn for us in quality.

A11 further noted, "I think it's hard to get people to buy in to zero harm when they're so woefully understaffed."

Leaders of other hospitals might experience a similar conflict between improving quality and financial performance at the same time. Participant A3 described the right balance for leaders: "If you pursue quality, everything else will follow, but investments in quality take a while. In the meantime, we may not have enough money for everything, so we have to prioritize." Participant A13 indicated that balancing quality and finances will always be a challenge for hospital leaders:

> Even if we were financially healthy, I don't think that quality would be the only priority next year. Let's say we had a 3% margin. I don't think that we'd have this call to order and arms to say, "You know what? We're gonna focus on quality next year." And so, I think everyone's using financials almost as a scapegoat, but I think that's also partly why we're in this financial situation, because we can't focus on all of our various priorities throughout the organization.

Leaders might mitigate the impact of prioritizing finances over quality by relying on strong relationships to achieve buy-in from frontline personnel. Researchers have noted how financial and quality performance improvement must begin with involvement of frontline personnel (Bondurant et al., 2015). Participant A10 summarized the

importance of senior leaders' relationships with staff when faced with conflicting priorities:

> Serious financial challenges place a strain on leadership relations. A highly functional team with deep, strong trusting relations might easily convert their actions to achieve shared purpose and innovation. Conversely, weak and not necessarily trusting interpersonal relationships between key leaders, when exacerbated by profound stress, can lead to a lot of counterproductive behaviors.

Healthcare leaders might benefit from exploring ways to build trusting relationships with frontline staff, so they become engaged in efforts to improve both financial and quality performance.

Participants noted one way to achieve both quality and financial targets is by setting realistic goals. Participant A13 identified the medical center's most profitable year in history, when the data showed improvement in every measure of hospital-acquired conditions over the prior year. Participant A8 summarized how they achieved their goals:

> Our heart's desire is to chase zero [hospital-acquired conditions]. But I think we have to balance. We have fewer resources to achieve zero, so we have to set more achievable goals this year. By not overextending our system, we can focus on both finance and quality, I believe.

Correlation to conceptual framework. Efforts to balance the financial health of the organization while improving quality may help hospital administrators develop a high-reliability organization. Weick and Sutcliffe (2015) noted administrators should consider variations in financial performance as part of the journey toward high reliability.

Financial challenges create doubt, and doubt is a critical part of managing unexpected outcomes (Weick & Sutcliffe, 2015). Doubt creates a "spirit of contradiction" (Weick & Sutcliffe, 2015, p. 52), which invites people to offer alternative points of view and criticism. As Weaver (2015) noted, preoccupation with failure involves the leadership constantly searching for surprises and weaknesses in the organization. However, as Sutcliffe (2011) noted, effective use of the principle of preoccupation with failure requires humility in leadership. Otherwise, people will hesitate to participate in the search for weaknesses and to speak up when they discover them.

Effective organizational prioritization requires a culture of debate, where people in the organization receive encouragement to address any challenge at any time (Sutcliffe, 2011). A majority of the interview participants agreed that Dr. B did not promote a culture of debate. In fact, as participants noted, Dr. B scared people into silence, which resulted in the highest number of hospital-acquired conditions in 4 years, as shown in Figure 1.

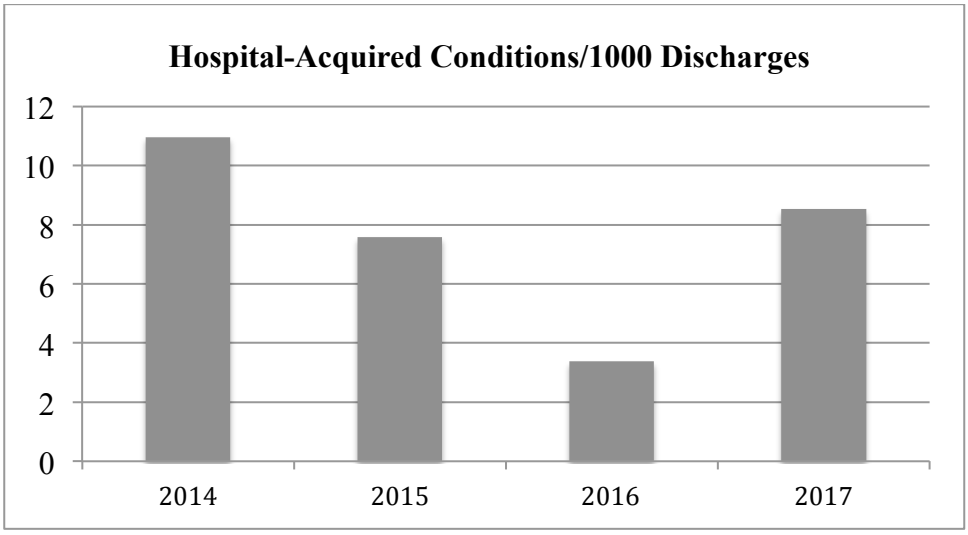

Figure 1. Number of hospital-acquired conditions per 1,000 discharges.

In contrast, Dr. C promoted a bottom-up process, which included the active involvement of people in the organization at every level. As a result, as documented in QAP-3, the hospital demonstrated improvement in all the measures of hospital-acquired conditions in 2016.

Theme 2: Leadership Style

The second theme was leadership style. In this case, leadership style referred to senior leaders' behaviors, including visibility, approachability, and the ability to communicate a vision and understand the needs of frontline staff. A review of the literature revealed the use of both the transformational and transactional styles can support quality improvement efforts (Cummings et al., 2018; Giddens, 2018). Participants discussed the impact of the turnover in the COO position, in addition to the different leadership styles of each COO, on the efforts within the medical center to reduce hospital-acquired conditions. Participant A9 noted the turnover: "From a leadership standpoint, we've been through several different types of leaders, at least in the COO role. I've been through three myself."

Presentation of findings. Participant A2 noted how all three COOs were strong leaders. However, the different behaviors and leadership styles of the COOs had divergent effects on the ability of their administrators and frontline staff to reduce hospital-acquired conditions. Effective leaders of high-reliability organizations should create an environment where people feel comfortable speaking up, even if they are delivering bad news (Popescu, 2013). Participants described Dr. A as aloof and unapproachable. They described Dr. B as outspoken, detail-oriented, and someone they

feared. They described Dr. C as someone who grew up in the organization and someone they knew, trust, and could approach easily. Participant A9 summarized the differences:

> Dr. A was an in-the-weeds kind of [person]. You never saw [Dr. A], ever. When you saw [Dr. A] in the elevator, [Dr. A] may speak to you, and [Dr. A] may not. I don't think [Dr. A] was stuck up; [Dr. A] was an introvert. When we flipped over to Dr. B, people were scared. So, they did what [Dr. B] said because [Dr. B] said so, and I don't think people felt empowered to push back in any kind of way. Dr. C is very approachable. Dr. C's in the hallway. [Dr. C's] talking to you. [Dr. C] goes out to external things like the stroke walk with [family members] there, and Dr. C's talking to people.

The participants noted one outcome of Dr. B's behavior was turnover of executives responsible for reducing hospital-acquired conditions, which led to an increase in hospital-acquired conditions, specifically infections. As A13 stated, "When Dr. B came in, we lost our vice president of quality and our chief nursing executive. So, our scores started to suffer because we lost our voices, our champions of quality." The data supported A13's statement. As Figure 1 shows, according to the 4 years of data reported in the medical center's quality assurance plans, the medical center recorded the highest number of hospital-acquired conditions at the end of Dr. B's 1-year term as COO in 2014.

The participants described Dr. B's effect on frontline staff. A2 noted, "I think people felt the way [Dr. B] led was inappropriate in many ways, in terms of dealing with people, which significantly adversely affected patient care. So after less than a year, [Dr.

B] was out." Participant A2 further described how Dr. B's behaviors affected the medical center's efforts to reduce hospital-acquired conditions, specifically infections. Participant A2 said, "So, I don't think you can bully people into reducing infections. That's just not going to work." Participant A3 stated Dr. B had a "total disregard for human connections, as though they were not important."

In contrast, the administrators spoke highly of Dr. C when they described [Dr. C's] leadership style and [Dr. C's] impact on the frontline staff. As A9 noted, "Dr. C's a very approachable leader. And so, I think people want to do the right thing for [Dr. C]. I think people feel empowered to have a conversation with [Dr. C]." Participant A2 described the importance of the way Dr. C, who spent 15 years working as a staff physician in the medical center, had built a reputation based on respect and understanding: "[Dr. C's] very well-respected as a clinician, so I think people have a different feeling toward [Dr. C], a different degree of respect. They feel [Dr. C] understands the challenges associated with reducing infections to zero." Participant A3 emphasized how Dr. C, "thinks about the effects of [Dr. C's] actions on patient care and the staff."

Dr. B and Dr. C differed in terms of experience in senior hospital executive roles. Dr. B had prior experience as a COO, while Dr. C had no prior experience as the top operational leader of a hospital. However, participants noted the leadership styles were more important than experience in the role. Participant A3 stated,

> Dr. B brought a wealth of experience. Dr. C brings a wealth of emotional intelligence. Dr. C has the ability to transmit a vision to those around him, so they

> want to go accomplish that vision. Dr. C does not lead through charisma; [Dr. C] leads through compassion. People know he cares about them.

In contrast, Dr. B directed people without describing a vision or relating to their circumstances. Participant A1 noted this by saying,

> It is not about power over someone. It is about a relationship with them so you can help them see the way forward. Not tell them what to do by decree. And I think that is where Dr. B had trouble.

Correlation to conceptual framework. Senior leaders might play an important role in a hospital's efforts to develop a high-reliability organization for staff and patients. Interview participants agreed on the need for their COO to lead efforts to reduce hospital-acquired conditions. McMillian and McEldowney (2014) emphasized that strong leadership at the top is an important ingredient in a high-reliability organization. However, the interviewees brought to light how the different leadership styles of the COOs affected staff's ability to reduce the number of hospital-acquired conditions at the medical center during the most recent 4 years. The participants described how senior leaders' behaviors affected the staff's willingness to participate in efforts to reduce hospital-acquired conditions. The participants believed the medical center's performance related to hospital-acquired conditions varied as a result of the different COOs' behaviors and leadership styles.

The directive behaviors the participants described for Dr. B are indicative of a transactional leader. Saint et al. (2010) noted transactional leaders use rewards and punishment to motivate people. Smith (2015) noted transactional leaders also use their

formal authority to persuade people to change. In contrast, Dr. C's use of vision and collaboration indicated Dr. C had a transformational leadership style. Clarke and Ward (2006) described transformational leaders' use of inspirational appeals and organizational values to motivate people to change. Yang, Wang, Chang, Guo, and Huang (2009) noted authoritarian leaders are effective only when they are in the room with followers. In contrast, democratic leaders empower their followers (Yang et al., 2009). McFadden et al. (2009) studied transformational, transactional, and laissez-faire leadership styles and their effectiveness in creating a high-reliability organization. McFadden et al. found that leaders of high-reliability organizations used passion, inspiration, motivation, and leading by example. Further, McMillian and McEldowney (2014) described the importance of a supportive environment, characterized by respectful interactions, to a high-reliability organization.

The participants' responses correlated with findings from the literature through their descriptions of Dr. B's inability to connect with frontline staff by creating an environment where people were afraid to speak up. In the literature, Woods (2015) described this response as organizational brittleness. In contrast, participants described how Dr. C cared about how everyone in the organization felt about their work. As A8 noted, "Dr. C has sincere compassion. [Dr. C] puts the patients first and is recognized throughout the organization." However, not all published researchers agreed that one leadership style is more effective than the other. Some researchers noted both transformational and transactional leaders could effectively lead efforts to reduce errors and sustain high reliability. For example, Parand et al. (2014) noted transactional leaders

could reduce hospital-acquired infections by mandating policies and procedures to improve safety.

By discussing their different behaviors, participants illustrated the different leadership styles between Dr. B and Dr. C. Though some researchers indicated both transactional and transformational leaders might help an organization achieve high reliability, the participants compared the positive impact of Dr. C's leadership style to the negative impact of Dr. B's leadership style. This study finding revealed that leaders' behavior, specifically their treatment of subordinates, is an important factor in reducing hospital-acquired conditions. According to the participants, positive behaviors include being approachable, being visible, and engaging with people in a caring manner. Negative behaviors include threatening subordinates, instilling fear in subordinates, and bullying.

Theme 3: Accountability

The third theme was accountability. Accountability relates to how leaders hold subordinate accountable for performance. In addition, in this case, accountability also described how individuals depend on, support, and evaluate the performance of coworkers. Strategies to promote a high-reliability culture must include management accountability (Parand et al., 2014). The findings indicate the importance of all individuals in the medical center, no matter their role, playing an important part in the goal to reduce hospital-acquired conditions. Everyone takes ownership of the medical center's performance, and individual performance relates directly to organizational

performance. The theme of accountability includes the role leaders play in creating an environment that is free of blame for errors.

Presentation of findings. The medical center's quality assurance plans are part of the archival documents I used to augment the interview data. Each plan I reviewed contained the following statement: "We commit to safety as a foundational value for which all are accountable." QAP-4 lists accountability as a key principle for the medical center's strategy for improving quality and reducing hospital-acquired conditions. QAP-4 also indicates the nature of accountability in the following statement: "The medical center commits to implementing an accountability structure based on a model that emphasizes clear expectations and equitable definable reactions to poor performance." Interview participants described how individuals uphold the principle of accountability within the medical center. They also noted the importance of each individual holding other members of the team accountable for their actions. Participant A5 described the medical center as a place where anyone at any level of authority feels free to stop the line and speak up, even to people in positions of authority. Participant A5 said everyone has an equal opportunity and an equal obligation to help reduce hospital-acquired conditions. Participant A4 explained how individual accountability plays a role in reducing hospital-acquired conditions:

> So, all the charge nurses got to take ownership of that. So, today maybe perhaps it was my duty to do that, and I would say, "Hey, you know what, the lines weren't labeled, or I observed you changing this and you forgot to change your gloves. And, because you know what, next week it's gonna be your turn and you're going

> to be observing me." So, it became more of, I'm holding you accountable; I need you to hold me accountable. And at the end of the day, it's not "I'm calling you out." We need to do this because we want to do the right things for the patients. So, it's not big brother watching us, it's *us* controlling *our* practice. So, I think that that's really been the best thing we did this time versus the time before.

Individuals might not hold each other accountable if leaders fail to hold subordinates accountable. Participants emphasized the role leaders play in developing a culture of accountability. As A12 noted,

> As leaders, we are holding people accountable and also being the coach to make sure that's happening, to make people aware of what the metrics are. And we've gone, again, almost a year without one [hospital-acquired condition], and then we had one or two. So, our rates are still low, but it's not good enough because we know we can achieve zero. So, I think that is a big piece also for a leader.

The senior administrators who participated in the interviews expected people at every level to assume responsibility for reducing hospital-acquired conditions. Participant A6 explained, "The main issue is getting buy-in from people at all levels and all areas." A4 noted reducing hospital-acquired conditions depends on everyone understanding the importance of their individual contribution. Participant A12 described the importance of involving frontline staff:

> And we had champions on different shifts. Some of the nursing aides in the unit were just as engaged as anybody else. They had a culture of, "You can't come into the unit with a lab coat on. You've gotta be bare below the elbows—no

> jewelry; proper hand washing when you come in," and they really policed that and just . . . people knew. You don't come into the PICU [pediatric intensive care unit] without doing these things.

Study participants emphasized how individual accountability relates to the success of the entire team. Though they did not use the term, the participants were discussing the concept of prosocial motivation described in the literature. Prosocial motivation allows individuals to focus on the whole organization (Vogus et al., 2014). In addition, Battie and Steelman (2014) called the concept of individuals holding each other accountable for the team's performance *shared accountability*. Participant A12 touched on the concept of shared accountability when stating, "They [employees] created very strict behavior guidelines. And they were each empowered to approach anybody regardless of who they were to make sure they adhered to them." Participant A9 noted accountability between frontline staff and physicians was a key to performance improvement. In addition, A7 said the key to improving quality and reducing the number of hospital-acquired conditions "all comes down to your ability to collaborate." Participant A4 described how diverse groups of people who hold each other accountable have helped reduce hospital-acquired conditions in the medical center's pediatric intensive care units:

> So, there are teams within both of these areas now that are comprised of the people at the point of care. And they include their medical leaders within those units as well. And you cannot have success unless you have the physician providers arm-in-arm with this, or it will fail every time.

Study participants indicated leaders should create an environment of accountability by emphasizing learning over blame when employees make mistakes. Edwards (2017) noted the principle of no blame for error is critical for high-reliability organizations. However, avoiding the temptation to blame rather than educate is challenging for leaders (Edwards, 2017). Study participants described how medical center leadership is making progress in emphasizing accountability over blame. Participant A4 said, "Holding each other accountable is the biggest thing we did better this time than before." However, A13 also critically noted the presence of too much blame:

> I still think there is too much blame assignment as opposed to how [to] make a system that prevents problems. If something bad happens, some leaders want to figure out who screwed up. The "who" instead of the "why" attitude gets in the way of being the best we can be.

Correlation to conceptual framework. The theme of accountability might enable individuals and teams to achieve high levels of reliability. In a high-reliability organization, every member of a team must know his or her role, as well as the roles of other team members (Autrey & Moss, 2006). Leaders' enforcement of accountability might make every individual responsible for participating in efforts to reduce hospital-acquired conditions. Battie and Steelman (2014) noted accountability is important for reducing hospital-acquired conditions. Individual and team accountability reflect the high reliability principle of preoccupation with failure (Battie & Steelman, 2014). Preoccupation with failure involves people within the hospital constantly searching for ways to reduce hospital-acquired conditions (Weaver, 2015). When leaders follow the

principle of preoccupation with failure, they might ensure that employees understand expectations. Leaders' expectations set a frame of reference for employees to know what deviations from the norm require further review (Weick & Sutcliffe, 2015). When employees understand expectations, they feel both empowered and accountable (Wachter, 2013). And when things go wrong, even when employees meet expectations, they understand how and why people will hold them accountable (Wachter, 2013).

Study participants talked about the importance of team members holding each other accountable. Baker, Day, and Salas (2006) identified immediate feedback among team members as a characteristic of a high-reliability organization. Birk (2015) noted high-reliability organizations encourage coworkers to look out for each other and to speak to each other in respectful ways that encourage teamwork. Healthcare teams fail when members of the team assume they work in an environment that is free from medical errors (Miller, Riley, & Davis, 2009). Members of teams must receive training in the concepts of high reliability so they know when to recognize situations that cause harm (Miller et al., 2009). One health system in the southwest educated its entire 20,000-member workforce, including nurses, pharmacists, food service workers, and housekeepers, on high-reliability concepts (Birk, 2015). Involvement and accountability of everyone in the organization helped the system receive national recognition for reducing hospital-acquired conditions (Birk, 2015).

Planning and strong communication practices might help leaders and employees hold each other accountable. For example, to support transparent communication, Pronovost et al. (2015) highlighted one hospital in which the leaders created a formal

accountability plan to enable the reduction of hospital-acquired conditions. The accountability plan required leaders from four levels within the hospital to intervene any time the number of hospital-acquired conditions rose above established targets (Pronovost et al., 2015). Leaders should not confuse accountability with blame, and accountability should not result in fear (Battie & Steelman, 2014). To avoid creating a fearful environment, leaders should hold employees accountable by speaking to them in a respectful and assertive manner that emphasizes education, not blame (Battie & Steelman, 2014).

Theme 4: Communication Practices

The fourth theme, communication practices, refers to the specific useful communication practices and content that helped employees understand and implement strategies to reduce hospital-acquired infections. Frankel et al. (2006) noted leaders have an obligation to support honest, open, and transparent communication. The importance of effective communication across all levels of the hospital was a consistent theme among the participants. In summary, participants said when communication is frequent and understandable, staff members know what they should prioritize, how they should act, and how leaders will judge their performance. When communication is infrequent and confusing, people in the hospital might fail to work together and achieve their goals. In addition, participants described how the different COO's communication styles and content appeared consistent with their personalities and leadership styles.

Presentation of findings. According to the participants, the sole focus of Dr. A, the first COO, was quality. Participants credited Dr. A with starting the hospital's journey

toward high reliability. In contrast, participants noted how Dr. B interrupted the journey by focusing on and communicating almost exclusively about finances. Dr. C, the current COO, prioritized and communicated about both priorities.

One of the main tools of communication the current COO used was the daily safety check-in, or huddle. Although a previous vice-president started the check-in during Dr. B's tenure, Dr. C prioritized it by making a habit of attending every day. Participants indicated Dr. C said the check-in is mutually beneficial. Dr. C's attendance reinforced the importance of the meeting, and it kept Dr. C connected to his leaders and to the operations of the hospital. As A1 stated, "I don't know how anyone could run a hospital without going to a daily safety check-in." Participant A9 echoed the value of the huddles: "You tend to have a representative from every department, and I think that's probably the most wonderful thing we've ever instituted in this organization." Participant A8 articulated why the daily check-in is so important:

> The check-in is a daily event that is held every single day of the year. We invite managers and supervisors to participate and report concerns, events, or needs. The environment for the check-in is transparent and honest. It is an opportunity to deal with challenges.

Some participants noted the need to extend the value of the daily check-in to the frontline staff in the hospital. Regarding the daily check-in, A1 said, "I think it's a very strong attribute here, but I think we need to try to get the information transmitted to the next group and the next group to get it throughout the organization. It's a constant

struggle." Participant A13 was critical of the lack of sharing information to the frontline staff:

> Every day we do a safety check-in, but it's really the same 80 to 100 people that show up all the time. I can tell you the information shared at the check-in does not permeate throughout the organization as much as leadership thinks it does.

Participant A12 emphasized the role of middle management in constantly sharing information:

> Any leader has to push the information to the point of care, meaning I think there needs to be a person on each shift, whether it's a charge nurse, a physician, whoever, who is living and breathing quality, and asking what we can do to improve care for our patients.

Participant A11 highlighted how using additional tools helps leaders communicate specific ways to reduce hospital-acquired conditions:

> We now have a quality and safety newsletter that we're putting out, but it's not as specific as I'd like. We need to communicate the detail about what happened and how we can prevent it. And that's a big change.

Leaders of hospitals aiming to reduce hospital-acquired conditions may improve performance by constantly communicating the importance of quality as a priority. As A5 noted:

> I think you keep it front and center. Your leaders keep talking about it, even during tough financial situations. Dr. B went through one, and we're about to go

> through another one. We don't say we'll put the quality stuff on hold for a little while so we can try and make a margin. You just can't do that.

Participants described how safety coaches help communicate information about reducing hospital-acquired infections to frontline staff. According to A9, safety coaches are nurses, pharmacists, housekeepers, and representatives of every department who received specific training on methods to improve safety and communicate with their peers. Participant A8 described their role:

> Safety coaches all meet monthly to compare notes. They then communicate by rounding with staff. The safety coaches speak at all the department meetings. Some safety coaches created games for the staff to play as a way to elevate the priority of safety.

Another strategy is converting the rates of hospital-acquired conditions into the number of lives affected. Participants noted how talking about people, or the number of patients harmed by hospital-acquired conditions, creates a more powerful message than communicating a rate of hospital-acquired conditions per 1,000 patient days. Participant A11 stated,

> So in our presentations, we try to point out how many lives we can save by reducing hospital-acquired conditions. On my mortality slide, I show figures to represent people, and I gray out the number of people who we harmed by a hospital-acquired condition. It is a powerful thing to see.

Participant A6 summarized the strategy of turning numbers into people by stating, "I think it is important to give your conditions a face and a name."

Participants mentioned the importance of transparency when they discussed the theme of communication and the theme of trust. Participants noted leaders should communicate honestly, both the good news and the bad news. And they should make frontline personnel feel comfortable coming forward when they identify problems or mistakes. Participant A2 commented on how the COOs affected the transparency of communication:

> I liked Dr. A, but [Dr. A] was one of those people like Dr. B, who, when [Dr. A] came in the room, the air kind of went out of the room. They were leaders, exceptionally strong leaders, not necessarily always in a positive way. A lot of people at that level are, I wouldn't say bullies, but they, when they come into a room, they take quick control of that room. They don't want you messing with them. They don't want you to necessarily feel comfortable disagreeing with them. And I'm sure you've had people like that. They come into the room and the whole atmosphere of the room changes and it's no longer a positive or open; let's have an open discussion atmosphere.

Participant A3 noted transparent communication opens the door to teamwork:

> If you create a culture where everyone is encouraged to speak up, they're going to do what it takes to be safe. Everyone knows if they say, "Hey did you notice that the floor is slick? Did you notice that mom was very worried about her kid? What does she know that we don't know; let's go figure out what that is."

Participant A3 identified a way to improve transparency:

> I think transparency is huge. I think it's the only way. We're transparent in some places while in others I think we should share all the safety events over the Internet internally. In places that do this well, any staff member can go see the mistakes others made and what they found about how to prevent them from happening again.

Participant A9 highlighted the benefit of transparency in her department:

> We do what we can to create that family environment. So, the people want to do a good job for me. They want to identify problem areas and call those out to me, so we can go make positive change.

The interview participants emphasized the need for leaders, especially their COO, to leave their office and interact with staff to reinforce strategies to reduce hospital-acquired conditions. Frankel, Leonard, and Denham (2006) indicated visible and consistent involvement of leadership is a critical component of a high-reliability organization. Participants identified rounding as a tool for leaders to use to reduce hospital-acquired conditions. As A11 noted, "You have to invest your time in quality. So, I think rounding is huge. Going out there and talking to the staff and seeing what they do at different levels and expressing to them how important it is." However, not all of the participants agreed on the effectiveness of the senior leader rounding. Participant A13 was critical of Dr. C, noting Dr. C rounds with the wrong view: "[Dr. C] doesn't round as the COO of the hospital, [Dr. C] rounds as a doctor and a member of the department of internal medicine."

Participants described the effectiveness of each of the COO's interactions with people caring for patients. Participant A8 further emphasized, "Transparency, accessibility, and commitment are the key attributes of an organizational leader focused on improving quality." Regarding Dr. C, A3 noted,

> [Dr. C] gets around and meets them. [Dr. C] can remember their name, and [Dr. C.] knows about them. [Dr. C] goes to the daily safety check-in every single day. It's really easy to delegate that, but [Dr. C's] personally there. [Dr. C's] personally listening to folks.

Participant A9 summarized the differences in accessibility between the leaders by stating, "Dr. A was not extremely approachable, but more so than Dr. B, and I think people feel empowered to have conversations with Dr. C." The comments about how Dr. C engages the frontline staff reflect the process of building respectful interactions based on trust that researchers described in the literature on high reliability.

Correlation to conceptual framework. The literature on high reliability highlights the importance of effective communication. Quigley and White (2013) noted continuous communication is a common characteristic of high-reliability organizations. Communication across all levels of an organization might also support the high-reliability principle of maintaining sensitivity to operations. A work environment that provides open access to information enhances nurses' performance and job satisfaction (Stevens, 2014). Weick and Sutcliffe (2015) described sensitivity to operations, or mindfulness, as the concept of paying close attention to the work itself.

Workers display the principle of sensitivity to operations when they realize the importance of their task and then take deliberate steps toward a purposeful conclusion (Hales & Chakravorty, 2016). Leaders support mindfulness and a sensitivity to operations by making rounds on nursing units, leading safety huddles, participating in continuous quality improvement meetings, and speaking directly with patients and staff (Birk, 2015). Frankel et al. (2006) noted rounds provide leaders with an informal opportunity to obtain useful information within the formal structure of a work unit. Leaders then have a responsibility to resolve issues they discover while rounding (Frankel et al., 2006).

The use of a daily huddle is supported by the literature on high reliability. Provost, Lanham, Leykum, McDaniel, and Pugh (2015) noted huddles support high reliability by helping employees manage their complex conversations, relationships, and culture. Huddles and effective communication also provide an opportunity for management to support the individual efforts of their workers (Provost et al., 2015). Participants in the study emphasized the importance and effectiveness of the daily safety check-in or huddle. Researchers found the daily safety huddle enhanced employees' ability to share information and increased understanding of safety risks and threats (Goldenhar, Brady, Sutcliffe, & Muething, 2013). Provost et al. noted huddles support high reliability by helping employees manage their complex conversations, relationships, and culture. Huddles and effective communication might provide an opportunity for management to support the individual efforts of their workers.

Theme 5: Trust

The fifth theme is trust. The participants talked about the importance of building a culture of trust where senior leaders listen to and believe what middle managers and frontline staff have to say. The participants said middle managers and frontline staff, including physicians, are the experts who know best what the medical center must do to reduce hospital-acquired conditions. The participants noted a culture of trust is the product of senior leaders encouraging people to speak up without fear of punishment or retribution. They also spoke about how trust helps build transparency and teamwork. As Vogus and Iacobucci (2016) noted, trust is a foundational element in creating a high-reliability organization. The participants spoke of how they realized, by looking back over the most recent 4 years, that senior leaders need to trust frontline staff when they point out that priorities are out of balance. In addition, participants noted how trust relates to the other themes, specifically effective communication practices, and accountability.

Presentation of findings. Participant A3 described how trusting the experts might mean the difference between success and failure in reducing hospital-acquired conditions:

> We actually failed because we violated some high-reliability principles in the beginning. We failed to defer to expertise. We had people who knew at the front lines—they were not the people in charge of things—we had people at the ground level who knew this was not the right way to do it. We failed to defer to expertise, we would not do it. We would not hold a mirror up to ourselves and accept the

reality that we were facing, which was that we were not good enough at basic things.

The experts might feel empowered to achieve the medical center's goal to reduce hospital-acquired conditions when leaders trust them. The hospital's quality assurance plans document the importance of empowering employees. Document QAP-4 lists development of the full potential of the workforce as an objective. In addition, objectives in QAP-4 include maintaining an environment conducive to staff empowerment and full participation, and requiring the staff to be problem solvers and decision makers within the scope of their responsibilities. As A4 noted, "We did it [reduced hospital-acquired conditions] by empowering people who were at the bedside. Empowerment of people who make the decisions at the bedside is critical."

Participants highlighted transparency within the theme of trust. Participant A1 noted the connection between transparency and the theme of trust, stating, "Sustaining improvements is really hard. So, to do that, transparency is key and we are still working on it. We want a just culture where people feel empowered, and where they are also expected to speak up." To illustrate, A1 described a compliance problem with federal requirements related to billing of certain tests. Participant A1 noted how frontline personnel brought the problem, which ultimately led to sanctions by Medicare, to the attention of leadership. Participant A1 also noted, "The event was triggered by the residents [staff] coming to us. Not only did we make sure no one was punished; in fact, we gave them our Hero Award for raising the problem, even though it cost us millions."

Participant A3 described the hospital's *culture of virtuous intent* and noted that leaders create the culture by assuming everyone comes to work with the intention of doing the right thing. Participant A3 noted, "In the healthcare environment, this presumption of virtuous intent is very real. That is a part of culture you can build. You build it by creating a sense that you can trust the people around you." The hospital's quality assurance plans, which describe the approach to reducing hospital-acquired conditions, support the concept of a trusting work environment.

The culture of virtuous intent is consistent with the concept of promoting a nonpunitive environment that Smorti et al. (2014) described in the literature. Under goals and objectives, QAP-4 lists the following statement: "We promote a culture of quality and safety by encouraging a non-punitive approach to occurrence reporting to identify system gaps and/or errors." The statement in the quality assurance plan reinforces senior leaders' belief in the strategy of creating a trusting, non-punitive environment to reduce hospital-acquired conditions.

Participant A2 noted the importance of the relationship between trust and teamwork and said, "Now, I think, the team is feeling more cohesive, more open to speaking up about issues. And so we're seeing better results." Participant A7 further noted, "It all comes down to relationships, and your ability to collaborate and have trustful relationships with the members of your team." Participant A5 noted how a trusting environment supports an engaged team and said,

> I'm just very impressed that people feel free to air their ideas. And so, I would say 75 to 90% of the time, they find a solution right there on the spot, or at least

> connect the people who could find a solution. I'm very impressed with just that willingness of everybody to come together and report what they see. I think that's really, really good.

Participant A12 described how trusting experts helps leaders balance organizational priorities. Participant A12 noted how, by listening to frontline people and believing what they say, leaders receive feedback about how to allocate resources. A12 said, "I think there is a point you hit where you just have to trust the point-of-care providers. And when they say they need more help, we need to believe that." The hospital's quality assurance plans address the importance of developing a trusting environment to encourage open communication. The participants discussed how their *just culture* supports the reduction of hospital-acquired conditions. Document QAP-4 defines a *just culture* as follows:

> A *just culture* acknowledges that human error occurs, and expects and encourages open communication about such errors with the goal to improve the organizational structures that support work that is as error-free as possible. The focus is on the systems that result in error, rather than the errors themselves. A just culture provides support for caregivers whose error-prone behaviors are a result of shortcuts, and zero tolerance for caregivers who exhibit reckless behavior.

Participant A11 described an example of how physicians and frontline staff are still adjusting to an open, trusting, and nonpunitive environment that is conducive to discovering and fixing problems. Participant A11 stated,

> We had a physician who was frantic because he thought we were reporting his infection to the board of trustees, and all we were doing was trying to find out how the system set his patient up to become infected.

Participant A13 described how Dr. C was still building a trusting organization:

> But then, Dr. C's also very friendly, and [Dr. C's] approachable, and [Dr. C] doesn't punish people if they make mistakes. So, I do think that the rebuilding of trust—and the people are more comfortable to bring things forward and not feel like they're gonna get reprimanded—and that probably easily took a year or two to get that healing back again.

Correlation to conceptual framework. Participant A8 described how the theme of leaders trusting the experts to achieve results relates to the conceptual framework of high reliability:

> The organization employs the principles of high reliability by emphasizing deference to expertise and getting frontline people involved. The influence of high reliability depends on the safety coaches, how engaged they are, how active they are, and how well they communicate information about safety to their coworkers.

Participants in the study noted the importance of turning frontline staff into experts who direct strategies to reduce hospital-acquired conditions. The principle of deference to expertise means leaders push decision making down to the frontline personnel, and everyone listens to others, regardless of their rank (Saetren & Laumann, 2015). Weick and Sutcliffe (2015) expanded the principle of deference to expertise to include anyone who may have knowledge about the event. In healthcare, deference to

expertise includes involving patients in their care. Birk (2015) noted caregivers' efforts to actively involve patients in decisions affecting their care promote a safe environment.

Participants in the study reinforced the concept of mindful organizing described in the literature on high reliability. Mindful organizing occurs when employees work together to proactively share information that might prevent errors (Vogus & Iacobucci, 2016). To share information with each other, they need to trust one another. As A2 said,

> You need buy-in. People have to believe what you're saying is right, and they need to feel you are partnering with them. It's a team thing where people know their whole team, and everyone is committed to each other, and appreciating what they do.

Transparency is another foundational element of a high-reliability organization (Saunders, 2015). Participants discussed the importance of transparent communication. Participant A1 emphasized how leaders should treat frontline people as experts and trust what they say, regardless of the consequences. Kim and Lee (2018) noted transparency creates positive organizational characteristics, including trust, collaboration, and commitment. Transparency allows people to speak up about legally available information, even if it is negative (Kim & Lee, 2018). Regarding the serious regulatory problem frontline staff identified, A1 stated, "We thanked the personnel in our department for raising these issues. Encouraging people to speak up is the right thing to do, even though it might trigger adverse consequences. We want this to happen."

Leaders should create a trusting environment for their employees if they want them to feel free to speak and act as experts. Birk (2015) noted how high-reliability

organization leaders must encourage caregivers to openly talk about mistakes without fear of punishment. Chassin and Loeb (2013) emphasized how leaders establish trust when they eliminate behavior that intimidates people from reporting mistakes. Colquitt, LePine, Zapata, and Wild (2011) noted leaders build a trusting environment by encouraging employees to stick to their word, act on sound principles, and treat others fairly. Godlock, Miltner, and Sullivan (2017) noted how implementation of the principle of deference to expertise challenges leaders. To create a group of people who support this principle, leaders must model the principle and reward those who exhibit it (Godlock et al., 2017). Participant A11 acknowledged the challenge by saying, "I think we're getting there, and I think people are open to it, but it's a big change." The participants discussed the importance of trust and the need for leaders to trust employees when they speak up.

Application to Professional Practice

Hospital administrators face a business challenge of avoiding financial penalties for incurring too many hospital-acquired conditions. Participant A13 noted for the most recent federal fiscal year, the medical center received the full 1% penalty from Medicare for hospital-acquired conditions, which represented $6.8 million. As A13 noted, achieving the medical center's target for the number of hospital-acquired conditions would increase revenues by the same amount. The medical center's experience illustrates the economic impact of high numbers of hospital-acquired conditions. Therefore, the findings of this study provided insight into strategies hospital administrators may use to improve financial performance.

The findings of this study provided insight into the importance of hospital administrators prioritizing quality and financial objectives simultaneously. The findings also indicated senior leaders' behaviors and style of leadership will affect the way staff engages in efforts to reduce hospital-acquired conditions. Positive behaviors include getting to know the frontline staff in a personal way and promoting teamwork and engagement. Negative behaviors, such as limiting the ability of frontline staff to speak up without fear of retribution, create disengagement. This study also highlighted the importance of visible communication practices, such as rounding and conducting daily safety briefings, to help hospital personnel understand ways to reduce hospital-acquired conditions. Finally, the findings of this study document the advantages of hospital administrators allowing frontline hospital personnel to serve as experts who feel free to speak up in a trusting environment.

The study findings might relate to other industries, just as the theory of high reliability relates to the military, nuclear power, and aviation. Insights from this case study into leadership style and behaviors, prioritization, communication, accountability, and trust are generic, and leaders may transfer them to any industry. For example, senior leaders' behaviors affect frontline staff engagement with organizational priorities. Leaders of industries outside of healthcare could use the findings from this case study to assess how behaviors, including rounding and meeting with frontline staff, enhance teamwork. Similarly, the study revealed a relationship between the pursuit of improved profitability and quality, and indicated hospital administrators should pursue them simultaneously. Finally, the concept of deference to expertise, which in healthcare might

mean deferring to the advice of the housekeeper or patient, might apply to any industry where frontline personnel or the customer might know more than senior leaders. Therefore, the study findings may provide guidance to leaders of any business planning to reduce errors and improve quality and safety.

Implications for Social Change

Studies show that high numbers of hospital-acquired conditions negatively affect a hospital's profitability. In addition, they contribute to higher healthcare costs and mortality in the United States. Bysshe et al. (2017) estimated 10 hospital-acquired conditions (depending on the specific hospital-acquired condition) increased hospital costs ranging from $600 per case to $48,000 per case. In addition, hospital-acquired conditions increase mortality in U.S. hospitals. Excess deaths range from five deaths per 1,000 admissions to 150 deaths per 1,000 admissions, depending on the specific hospital-acquired condition. In total, Bysshe et al. noted reduction in the number of hospital-acquired conditions across all U.S. hospitals over a 4-year period saved 87,000 patient lives and $19.9 billion in total healthcare costs. The related deaths and additional healthcare costs have led insurers to incentivize hospitals to reduce the number of hospital-acquired conditions (Lavigne, Brown, & Matzke, 2017).

By reducing the number of hospital-acquired conditions, hospital administrators can save lives and reduce the cost of healthcare. Reduction of hospital costs could lead to a reduction in the cost of health insurance, which would increase access to care, reduce government expenditures, and support the overall economy (Zimlichman et al., 2013). In addition, hospital administrators can build trust in the U.S. hospital industry by reducing

the incidence of patient harm related to hospital-acquired conditions. People fear becoming patients in U.S. hospitals due to the publicity about medical errors and patient harm (Pannick et al., 2014). Patients may feel less anxious if hospital administrators can demonstrate they have created a safer environment by reducing the number of hospital-acquired conditions.

Recommendations for Action

Hospital administrators who apply the findings from this study might avoid financial penalties and the negative implications of patient harm created by hospital-acquired conditions. Hospital leaders, health insurance executives, and consumers of healthcare might all benefit from understanding which strategies are most effective in reducing hospital-acquired conditions. The findings of the study provided specific examples of how leaders influence their employees and engage them to improve performance. In addition, the findings revealed important lessons related to communication, accountability, and trust. Upon reflection of these lessons, I identified two recommendations for action.

The first recommendation is for senior hospital leaders to conduct a confidential survey of employees to determine if their organization's culture is conducive to reducing hospital-acquired conditions. The study participants noted how, at times, employees were afraid to speak up about potential solutions. In addition, participants described how the COOs failed to trust the frontline staff members when they said they needed additional personnel to improve quality and safety. A safety culture survey could help senior leaders uncover barriers to reducing hospital-acquired conditions. Researchers at the Agency for

Healthcare Research and Quality created and validated the Hospital Survey on Patient Safety Culture, which administrators can use to assess their safety climate (Okuyama, Galvao, & Silva, 2018). The survey includes questions related to staffing, communication, teamwork, and the ability of staff to speak up freely about concerns. This case study identified challenges in each of the areas the survey covers. Therefore, the survey results may help senior leaders direct specific strategies toward reducing hospital-acquired conditions.

The second recommendation is to tie senior executives' personal compensation to a reduction in hospital-acquired conditions. Organizational incentives have helped hospitals across the United States to reduce the total number of hospital-acquired conditions (Bysshe et al., 2017). However, some hospitals, including this case study hospital, continue to pay maximum penalties to Medicare for high numbers of hospital-acquired conditions (A13). Dolan, Nesto, Ellender, and Lucchesi (2017) noted executive incentive compensation aligns leaders' compensation with the incentives hospitals receive from insurance companies. Hospital administrators' management practices directly affect the level of hospital quality (Tsai et al., 2015). Hospital administrators must incorporate new compensation models that align personal incentives with incentives to improve quality (Dolan et al., 2017). To affect significant changes in rates of hospital-acquired conditions, senior leaders should receive rewards for strong management practices that lead to significant reductions in hospital-acquired conditions. Conversely, if senior leaders' management practices fail to reduce the number of hospital-acquired conditions, they should forfeit incentive compensation.

Lazear (2018) noted incentive compensation could enhance leaders' efforts to improve teamwork in large businesses with hundreds of employees. Participants in this case study discussed the importance of their COO communicating with members of the team and encouraging everyone to accept accountability. Lazear noted incentive compensation should reward specific strategies to improve communication and engage employees. Further, Tsai et al. (2015) identified the specific relationship between incentive compensation of hospital senior leaders, improved employee relations, and quality goal achievement. Researchers have identified the need for senior hospital leaders to align their personal compensation with organizational performance. Therefore, senior hospital leaders should readily accept a risk–reward incentive compensation model aimed at reducing hospital-acquired conditions.

I intend to disseminate the results of this study through the publication of the study and by e-mailing the participants and the authorized organization official a written summary. In addition, I will speak on the topic of strategies to reduce hospital-acquired conditions at meetings with hospital administrators and other leaders responsible for improving quality and patient safety. I will seek to discuss my findings and recommendations at meetings hosted by state hospital associations, the American College of Healthcare Executives, and the College of Physician Executives.

Recommendations for Further Research

I chose a qualitative study to explore the strategies hospital administrators used to reduce hospital-acquired conditions. I limited this single case study to one large academic medical center. A larger sample may help confirm the findings and add to the

recommendations. Another limitation of this study was the use of participants' self-reported data. A quantitative study that correlates the findings from a patient safety culture survey of employees with the number of hospital-acquired conditions might help confirm specific contributing factors.

In addition, I used the conceptual framework of high reliability and discovered my case study hospital also practiced the principles of high reliability. Additional research into how hospital leaders use different frameworks, including resilience engineering and normal accident theory, to improve quality and patient safety might reveal the comparative effectiveness of high reliability. Finally, this case study focused on senior leaders in the medical center. A qualitative study with a focus on frontline personnel might reveal additional strategies to reduce hospital-acquired conditions.

Reflections

My doctoral study began with online classes, which required that I learn new computer skills and adjust to a virtual learning environment. I appreciated the content of all my classes and learned valuable lessons from each professor. The input from the faculty at the two writing intensives I attended proved invaluable in helping me identify and narrow my research question. Prior to conducting this study, I believed administrators could influence the quality of care in hospitals. Completing the study has provided me with new insights into how leaders' behaviors can influence hospital employees' focus and effect on reducing hospital-acquired conditions. Using my interview questions and protocols provided the structure I needed to avoid bias in exploring strategies to reduce hospital-acquired conditions.

The most challenging component of my study was data analysis. The transcribed interviews and documentation review of the medical center's plans and reports provided more data than I expected. The data coding and theme development process was time consuming and difficult, even when using QSR NVivo software. I was fortunate to find a cooperative study site and group of interview participants. Cooperation from interview participants made the interview and document-gathering processes easier than I expected. The most valuable part of my doctoral study was learning scholarly writing, which should prove helpful if I pursue a second career in graduate education.

Conclusion

The findings of this qualitative single case study revealed the importance of positive and trusting leadership behaviors by senior leaders planning to reduce hospital-acquired conditions. One study finding was the subordinates' belief that senior leader behavior is more important than experience in the role. Positive and trusting leadership behaviors include being visible, developing personal relationships with frontline personnel, using multiple communication tactics to engage employees, and trusting people in the organization to speak up and provide guidance, even when the news is bad. Senior leaders should develop personal relationships with frontline personnel by welcoming their input, caring about their personal lives, and maintaining visibility outside of the office. Visible communication strategies include senior leader attendance at daily safety briefings and rounding on nursing units to connect with personnel and patients. Trust is an important component of effective communication and a transparent environment.

Another finding was the confirmation that hospital administrators can and should prioritize quality and financial improvement simultaneously. Senior leaders should discuss quality performance and challenges as often as they discuss financial performance and challenges. The study findings illustrate how efforts to improve profitability at the expense of adequate staffing harm employee morale and ultimately contribute to increased numbers of hospital-acquired conditions. The study findings included the notion that frontline personnel know when they lack adequate help, and senior leaders should trust them and respond by providing the necessary resources. These conclusions and recommendations might help administrators employ new strategies to reduce hospital-acquired conditions in their hospitals.

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Appendix A: Interview Protocol

Participant Information

Date: _____

Participant code: _____

Introduction

1. I will introduce myself to the participant and review the purpose of my study and their participation.
2. I will begin the interview with the following statement: Thank you for participating in this interview to explore strategies to reduce hospital-acquired conditions. I will audio record and transcribe your responses to my questions. I may ask probing questions after each initial question. Your identity and answers will remain confidential, and you have the option of skipping any of the questions or terminating the interview at any time. Do you have any questions before we start?
3. I will start the audio recording.
4. I will watch for nonverbal cues and asking follow-up probing questions to get more in-depth information.

Interview Questions

1. Describe your role related to reducing hospital-acquired conditions in your organization.
2. Describe your hospital's performance related to hospital-acquired conditions compared to your expectations and goals.

3. What strategies have you used to reduce hospital-acquired conditions?
4. What methods did you find worked best to help your employees and medical staff reduce hospital-acquired conditions?
5. What methods did you find most challenging in helping your employees and medical staff reduce hospital-acquired conditions?
6. How did you overcome any challenges your employees and medical staff faced while attempting to reduce hospital-acquired conditions?
7. What additional information can you share about the strategies health care administrators should use to reduce the number of hospital-acquired conditions?

Conclusion

1. I will conclude the interview with the following statement: I do not have additional questions for you. I will send you an email attachment with my printed synthesis of your responses. I will then contact you by phone to conduct member-checking interviews to validate my interpretation of your responses and to obtain any information you wish to add. Thank you for your participation in this case study.

Member Checking

1. I will email the participant a synthesis of their interview and then call them to determine if my synthesis accurately represents their answers. I will ask the participant if I missed anything and if they have any information to add.
2. I will repeat the process of synthesizing the responses, emailing my printed synthesis, and conducting follow up member checking phone calls until the

participant has no additional information or feedback.

Appendix B: Introductory E-mail

Dear Dr./Mr./Mrs.

My name is Steve Littleson and I am a doctoral candidate at Walden University. I am pursuing a Doctor of Business Administration degree with specialization in healthcare. I am conducting a study entitled: *Strategies to Reduce Hospital-Acquired Conditions*. I plan to interview senior administrators who have used successful strategies incorporating the principles of high reliability to reduce hospital-acquired conditions. The implication for social change includes the potential for insights leading to improved health care quality. Moreover, hospital administrators' efforts to reduce hospital-acquired conditions may help to reduce fear and restore public trust in the U.S. health care delivery system.

I obtained your name from your COO. I invite you to participate in my study because you are a senior leader in the organization and have experience incorporating the principles of high reliability in strategies to reduce hospital-acquired conditions. If you participate, I will ask you to allow me to conduct an in-person, one-on-one interview with you that will include seven open-ended questions. I included sample questions on the attached consent form. I will follow the in-person interview with at least one, and perhaps two, 30 to 45 minute phone calls to validate my interpretation of your answers. Participation in the study is voluntary and you may discontinue participation at any time. Please note I will keep all of the information strictly confidential and I will not identify you or your organization in the final publication. I will be happy to send you a summary of my study findings following receipt of final approval.

I request that you sign a consent form if you agree to participate in the study. I have attached the consent form to this email. Please sign the consent form and attach it to an email response to me if you are willing to participate in the study. Upon receipt of your response and signed consent, I will work with your office to set up my visit and interviews. As I will be traveling from home to conduct the interviews, I will attempt to schedule all of my interviews within a 2 to 3-day period. I will call your office to schedule one hour of your time to conduct the in-person interview in a place that will ensure your comfort and confidentiality. Within two weeks after your interview, I will schedule time for a follow up phone call with you to make sure I have properly interpreted you answers. Please feel free to call me directly or email me if you wish to discuss my invitation in more detail. Thank you for your consideration!

Steven G. Littleson

Appendix C: Letter of Cooperation

July, 2017

Dear Steven Littleson,

Based on my review of your research proposal, I give permission for you to conduct the single case study entitled *Strategies to Reduce Hospital-Acquired Conditions* within the our medical center. As part of this study, I authorize you to ask the senior executives and academic department chairs on the list I will provide to you to participate in your on-site interviews and follow up member-checking interviews (by telephone). I authorize you to collect and analyze the data for the sole purpose of completing and publishing your doctoral study. Individuals' participation will be voluntary and at their own discretion. I understand your commitment to maintain the confidentiality of the individuals who participate at their own discretion in the study, each of whom may withdraw voluntarily at any time.

I understand that our organization's responsibilities include making a room available for you to interview the participants in one-on-one interviews here in our medical center, and at a time that you will schedule in advance at a mutually convenient time. I also understand our responsibility to make any data available to you to use only for this study. Our personnel assume no responsibility for supervising your research.

You will be responsible for complying with our site's research policies and requirements, if applicable. I understand that you will not be naming our organization or any of the study participants in the doctoral project report that is published in Proquest.

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

I understand you will provide the participants and me with a summary of the findings of your study. I also understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Sincerely,

Chief Operating Officer