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# Hospital Leaders' Strategies for Reducing Expenditures of a Hospital Supply Chain

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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2022

Abstract

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## Abstract

Hospital leaders are challenged to reduce expenditures that contribute to the overall care for patients. Ineffective strategies to manage medical supply expenditures can increase costs for patient care. Guided by social cognitive theory, the purpose of this qualitative multiple case study was to explore strategies hospital leaders used to reduce medical supply expenditures to sustain the rising costs of overall healthcare in the United States. The participants comprised six hospital leaders in the United States who implemented successful strategies to reduce expenditures on medical supplies. Data were collected from documents and through semistructured interviews. Three themes emerged from a five-step analysis process: (a) effective mentoring, (b) improved training, and (c) incentive-driven motivation. A key recommendation is to advance leadership training to address and sustain the overall scope of reducing medical supply expenditures. The implications for positive social change include the potential for enhancing the quality of patient care by reducing medical supply expenditures.

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# Dedication

I want to dedicate this study to my late wife, Cindy. Thank you for being my biggest supporter when I began this journey. To my mom, I could not have done completed this journey without your support and patience. My children, I love you very much and I wanted to show you that you can do anything when you want it. My late dad, you've always told to me that if anything were easy then everyone would have it. Finally, I thank God for allowing me to complete this journey and move on to the next chapter of my life.

# Acknowledgments

I am very thankful for the unwavering support of my committee. My chair, Dr. Ify Diala-Nettles, encouraged and inspired me to overcome and rise above through challenges of this journey and stay focused. To Dr. Shanker Menon and Dr. Robert Banasik, thank you for your guidance and feedback to develop and improve my academic voice and writing. Finally, I would like to thank the Walden faculty, staff, and fellow scholars who have been an encouraging positive support system. I am humbly grateful for the support of everyone who has mentored my in this academic journey.

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# Section 1: Foundation of the Study

Medical supply chain expenditures are progressively increasing in the United States (Abdulsalam & Schneller, 2019). Increasing costs for medical supplies affect the overall quality of patient care (Nabelsi & Gagnon, 2017). The purpose of this qualitative multiple case study was to explore strategies hospital leaders use to reduce medical supply expenditures.

## Background of the Problem

According to the Centers for Medicare and Medicaid Services (CMS, 2018), in 2017, the U.S. healthcare expenditures reached 17.9% of gross domestic product (GDP) and are projected to increase 5.5% per year until 2027. Hospital care in the United States represents the largest component of healthcare spending at 33% in 2017 (CMS, 2018). Beyond labor, medical supplies comprise the second highest expenditure for hospitals (Abdulsalam & Schneller, 2019). Consequently, hospital leaders are experiencing pressure to reduce financial costs in their business operations (Scanlon, 2020).

The complexity of the medical supply chain process requires a high-level strategy of leadership best practices and the ability to communicate through the entire hospital supply chain (Nabelsi & Gagnon, 2017). Accordingly, the need to effectively manage medical supply chains involves leaders developing strategies to reduce costs (Abdulsalam & Schneller, 2019). For this study, I explored strategies that leaders use to reduce medical supply chain expenditures in hospitals.

## Problem Statement

Inefficient performance strategies to reduce the cost of medical supplies contribute to rising expenses in healthcare (Abdulsalam & Schneller, 2019). In the United States, expenditures in the hospital supply chains will influence the overall cost (Gwynne & Agha, 2019) of healthcare by almost $6 trillion by 2027 (CMS, 2018). The general business problem was that leaders are not efficiently managing strategies to control medical supply costs. The specific business problem was that some hospital leaders lack strategies to reduce medical supply expenditures.

## Purpose Statement

The purpose of this qualitative multiple case study was to explore strategies hospital leaders use to reduce medical supply expenditures. The participants were leaders in the medical supply chain department from six different hospitals located in Texas. Data from this study may contribute to social change by advancing leadership behaviors that could enhance the quality of patient care. Improved patient care might benefit society by reducing the cost of healthcare and encouraging the quality, safety, and coordination of healthcare services.

## Nature of the Study

I used a qualitative method for this study. Researchers use the qualitative method to engage in natural settings with participants in a given phenomenon (Yin, 2016). My approach was that I collected data in a natural setting to explore the strategies hospital leaders use to reduce medical supply chain costs; therefore, a qualitative method was appropriate for this study. A quantitative method involves collecting and analyzing

numerical data to test a hypothesis (Moser & Korstjens, 2017). Because I did not collect numerical data to test a hypothesis, a quantitative method would not have been appropriate for this study. Researchers use a mixed-method to combine the subjectivity of qualitative research and statistical data for quantitative research to explore a phenomenon (Almalki, 2016). This study does not include a combination of qualitative and quantitative data, so a mixed method approach would not have been appropriate for this study.

Phenomenological researchers explore the meaning of participants' lived experiences from their recollections and explanations recollections (Moustakas, 1994). Because I did not explore the meaning of participants' lived experiences, a phenomenological design was not applicable to this study. Ethnographic researchers immerse themselves in a culture to study a phenomenon (Heale & Twycross, 2018). However, this study did not involve cultural immersion, so the ethnographic design would not have been suitable. Researchers use a case study design to perform in-depth exploration using multiple sources of data to understand a phenomenon (Yin, 2016). Multiple case study design allows researchers to collect data from multiple sources and organizations (Mason-Bish, 2018), whereas researchers of single-case design collect data from a single source (Yin, 2018). A multiple case study was appropriate for this study because I collected data from multiple hospitals to explore strategies that leaders use to reduce the expenditures of a supply chain.

## Research Question

The overarching research question for this qualitative study was: What strategies do hospital leaders use to reduce medical supply expenditures?

## Interview Questions

1. What strategies do you use to reduce expenditures for medical supplies?
2. What strategies work best to reduce medical supply expenditures?
3. What challenges have you experienced in implementing your strategies to reduce supply chain expenditures?
4. What type of training have you received for reducing medical supply expenditures?
5. What strategies did you modify to reduce medical supply expenditures?
6. How have you assessed your strategic initiative for reducing expenditures on medical supplies?
7. What additional information would you like to add to this study regarding the strategies you developed to reduce medical supply expenditures?

## Conceptual Framework

I used the social cognitive theory (SCT) for this study. Bandura (1972) developed SCT as a foundation that individuals can develop new behaviors by observation and engagement from direct involvement (Bandura, 1977a). The fundamental reasoning to SCT is that individuals learn by focusing and emulating the attitudes, values, and behaviors of a person's internal and external environments (Bandura, 1972).

Furthermore, experience learned through the perception that affects a person's attitudes and behaviors can lead to effective or ineffective performance (Bandura, 1977a).

Hospital leaders can influence business results from positive or negative behaviors (Chen et al., 2019). Moreover, the application of SCT within a healthcare environment may garner effective results to manage the supply chain to control expenditures. Assessing and analyzing strategies of a hospital's supply chain strategies (Speer et al., 2020) are important to leadership effectiveness and operational performance improvement within a hospital (Chen et al., 2019). A leader's use of SCT within a business environment may prove essential to understanding the strategies needed to reduce expenditures of medical supplies.

## Operational Definitions

*Employee self-efficacy*: An individual's perception of their ability to execute their job task (Bandura, 1977a).

*Healthcare leader*: An individual as the focal point to fulfill the organization's mission and goal and address health care challenges (Lee et al., 2019).

*Social cognitive theory*: An individual's societal interactions, experiences, societal practices, and environmental impact on behavior (Bandura, 1989).

## Assumptions, Limitations, and Delimitations

### Assumptions

According to Marshall and Rossman (2016), stated assumptions are situations outside of the researchers' control. There were three assumptions for this study on strategies to reduce expenditures in a medical supply chain. The first was that the

participants of this study would have relevant information regarding the research question. A second assumption was that participants would be able to articulate their experiences, and that themes and patterns would emerge from responses. The third and final assumption was the participants would be open and honest during the interview process.

**Limitations**

Research limitations are potential weaknesses beyond a researcher's control (Queirós et al., 2017). The first limitation in this study was that responses to the interview questions may be biased or subjective. A second limitation was that the research study results may be limited by the hospital leaders' experiences and knowledge of implementing strategies to reduce medical supply chain expenditures. Thirdly, participants had the choice to withdraw from the study at any time. In the case of the participant withdrawing from the interview, I would have searched for other prospective participants to replace the withdrawn participant. However, no participant withdrew from this study.

**Delimitations**

Delimitations are the boundaries and parameters of a study (Wolgemuth et al., 2017). The first delimitation was the target population of hospital leaders in a medical supply chain. A second delimitation was that the hospitals under study are all located in Texas. The third delimitation was that participants had to have a minimum of 2 years in a leadership role.

## Significance of the Study

### Contribution to Business Practice

The study results may be valuable for hospital leaders to identify key strategies to reduce medical supply expenditures. Exploring expenditure reduction strategies might allow hospital leaders to transform and reduce costs for medical supply chains due to inefficient strategies. Supply chain expenditures remain the second-highest cost in a hospital and continue to rise from inefficient strategies (Nabelsi & Gagnon, 2017). Leaders have a significant role in the development of a work environment that fosters engagement to improve the quality of life for patients and their families (Mirchandani, 2020). Exploring the strategies that hospital leaders use to reduce expenditures for medical supplies may contribute to the existing literature of rising costs of U.S. healthcare.

### Implications for Social Change

Hospital business leaders have a fiduciary responsibility to manage finances and operations intelligently, effectively, and profitably (Kaiser et al., 2020). The medical supply chain operational procedures are characteristically complex, and leaders have an array of challenges to effectively control expenditures of supplies (Nabelsi & Gagnon, 2017). Patients may indirectly pay for the rising costs of an ineffective supply chain (In et al., 2019). Society benefits when patients receive efficient and effective medical care without adding costs of supplies (In et al., 2019). Furthermore, social change may manifest among hospital leaders by promoting effective strategies to reduce expenditures for medical supplies. The implications for positive social change include that this study

may improve the well-being of patients from the reduced cost of medical care and improve economic health.

## A Review of the Professional and Academic Literature

The purpose of this qualitative single case study was to explore the strategies hospital leaders use to control costs for medical supplies. This literature review includes a wide-ranging list of databases and resources to address the specific business problem and address the research question on the topic of the cost of hospital medical supply chains. I retrieved the articles and resources from the following databases: Academic Search Complete, Business Source Complete, Health Technology Assessments, Medline, and PsycINFO. The following keyword searches were performed either alone or in combination: *hospital*, *supply chain*, *social learning theory economics*, *information technology*, *value chain*, *corporate culture*, *healthcare*, *operations planning*, *standardized procurement*, *procurement planning*, *social responsibility*, *cost containment*, *leadership*, and *patient care.* The literature review contains 239 resources, of which 222 (93%) were published between 2017 and 2022.

This literature review is grounded in the SCT. I chose this theory because of the construct of assessing and guiding behavior that a person learns. SCT is generalizable in various industries and leadership disciplines and may be applied to different work environments. The results of this study may contribute to the strategies of the reduction to control costs of medical supply chain expenses, which may improve hospital business performance. In this literature review, I discuss SCT and compare it to other theories, namely, transformational leadership theory and expectancy theory. I also discuss the

theory of constraints and contingency theory as contrasting theories. Next, I explore the overview of the healthcare and hospital supply chains, the evolution of supply chain management and behaviors, the economic impact of medical supply chains, value chain, leadership behaviors within the continuous improvement, and the leadership of corporate responsibility.

**SCT**

SCT began as social learning theory (SLT) developed by Bandura (Bandura, 1972). SLT includes three constructs that facilitate a person's behavior: (a) cognitive factors, (b) environmental factors, and (c) behavioral factors. Subsequently, Bandura (1986) posited that SLT did not effectively describe the subjectivity, self-awareness, and human cognition necessary to analyze a person's behavior. Consequently, renamed and changed SLT to SCT and centered on cognitive learning and behavior change. The objective of SCT is to explain how a person develops a behavior from cognitive factors of their environment and societal experience through their observations (Bandura, 1986).

As explained by Bandura (1986), SCT is a person's behavior that is influenced by observational learning within internal and external environments to accomplish a goal. According to Wilroy and Turner (2016), reciprocating interaction plays an essential role in SCT. Moreover, a person's behavior is formed by repetitive interaction of behavior and environmental influences stem from observations and the influence of the role of the SCT to accomplish a goal (Lieke et al., 2016).

Bandura (2006) stated that self-efficacy is the main concept of SCT. According to Bandura (1977b), self-efficacy is a person's confidence to organize and perform the

actions necessary to accomplish a particular goal. Goal setting and accomplishment through self-efficiency are the keys to motivating a person to complete a task (Sharma, 2017). Moreover, Muslichah (2018) stated that a person's self-efficacy is correlated to the self-confidence of a person to perform a task. Consequently, a person with high self-efficacy focuses on mastering a task from motivation and a sense of accomplishment (Sharma, 2017).

The use of SCT may emphasize that leaders should become role models to develop appropriate behavior (Ghazi et al., 2018). Leaders have developed a mindset that promotes employee engagement by providing the right work environment, proper leadership, and when needed, employee training in self-efficacy and a sense of value within the work environment (Veshne & Munshi, 2020). According to Walumbwa et al. (2017), leaders should observe that employees learn acceptable social behaviors by distinguishing a leader's interaction with other employees in a variety of situations. Moreover, Liu et al. (2020) stated that influential leaders affect learning through empowerment to achieve or strengthen a behavior.

The process by which behaviors are learned is role modeling. An important feature of an organization's socialization for new staff members was the role modeling process (Brissette et al., 2017). Exposure to ethical role models earlier in life helped individuals to learn ethical behavior and to grow into ethical persons and leaders in a work environment (Passi & Johnson, 2016). Role modeling allows individuals to learn by paying attention to and emulating attitudes, behaviors, values, and the credibility of the

model person (Passi & Johnson, 2016). The role modeling process also enhanced the acquisition of morals and other types of behavior (Passi & Johnson, 2016).

Motivation is a modern concept to SCT. A person's self-efficacy is driven by the motivation to accomplish a goal (Oyibo et al., 2018). According to Klassen and Klassen (2018), motivation is essential to self-efficacy that drives the development of knowledge, skills, and the ability to complete goals. When people are motivated to learn when their beliefs and feelings are positive to complete a task (Ozyilmaz et al., 2017)

## Comparative Conceptual Framework

### *Transformational Leadership Theory*

A comparative framework for this study is the transformational leadership theory. As defined by Burns (1978), transformational leadership theory is a concept that leaders utilize to motivate and foster the engagement of employees. This theory is about a leader's character, the ability to promote a teamwork environment, manage expectations and responsibilities, and share the vision for the growth of the organization (Zhang et al., 2018). Furthermore, Burns stated that transformational leadership theory may create a positive change within employees and effectively improve a person's work performance and organizational performance.

Transformational leaders' primary focus is to consistently and effectively share the organizational vision with employees and discuss the importance of their contribution to achieving organizational goals (Tse et al., 2017). According to Choi et al. (2016) leaders who employ transformational leadership theory can motivate employees to exceed target performance that may inspire employees to experience a high level of

accomplishment and a sense of involvement in the organization. Moreover, Andersen et al. (2017) stated that leaders who demonstrate a transformational leadership style encourage employees to achieve goals and allow employees to feel a sense of value to the organization by encouraging trust and respect in the workplace. Transformational leaders inspire employees to be open-minded, which may create a culture of trust and allow the workforce to engage for the betterment of the organization. Furthermore, transformational leadership positively affects employee satisfaction, performance, and effectiveness (Andersen et al., 2017).

### *Expectancy Theory*

Another comparing theory for this study is the expectancy theory. Vroom established this theory in 1964 to describe how a person's actions may lead them to behave in a specific way (Vroom, 1964). According to Lloyd and Mertens (2018), expectancy theory explains that a person will make decisions that will lead to the best outcome. Moreover, Barba-Sánchez and Atienza-Sahuquillo (2017) posited that a person's action will have desirable outcomes based on their actions. Employees are generally motivated to perform at a high level when they believe the efforts will be positively reflected (Furlich, 2016)

SCT and expectancy theory have similarities in that they both focus on the relationship between observation and motivation. Self-efficacy is an essential characteristic of self-reflection (Bandura, 1989). The common thread between SCT and expectancy theory is *self-efficacy*, which is an individual's ability to perform a behavior from observations and motivation to complete a task (Bandura, 1977b). According to

Caldwell and Hayes (2016), having a high level of self-efficacy has a direct correlation to a positive impact on a person's behavior. Moreover, Antoncic et al. (2016) stated that internal perception is a state of mind that a person will be successful. Drive and determination to overcome setbacks or failure is a factor of self-efficacy (Caldwell & Hayes, 2016).

## Contrasting Theories

### *Theory of Constraints*

The theory of constraints is a contrasting theory to the conceptual framework of this study. In 1980, the theory of constraints was introduced in the United States (Goldratt, 1990). This theory is a concept to identify, address, and remove constraints in a business or manufacturing process (Kuruvilla, 2017). The theory of constraints is a repeatable five-step process to highlight disruptions and bottlenecks by (a) identifying constraints, (b) exploiting how to undercover constraints, (c) employing resources for steps a and b, (d) elevating constraints, then (e) repeating current actions for improvement.

Unlike SCT, the theory of constraints involves identifying constraints and making decisions based on information gathered from a process (Kadhim et al., 2020). Whereas SCT involves observations and behavior from cognitive learning (Bandura, 1989). As a tool for leaders, the theory of constraints addresses the interruption of the constraint of the flow in a process or system environment (Goldratt, 1990). A disruption or constraint is anything impeding progress to the next step of a process or system, such as a bottleneck typically found in a manufacturing environment (Goldratt, 1990). A bottleneck

can be from not having the proper information within a process. Along with information, acquiring materials is important to keep processes flowing smoothly, applying the steps of the theory of constraints can aid in identifying bottlenecks to maximize efficiency in the delivery of products (Dasgupta et al., 2019).

The theory of constraints is used to improve process performance by highlighting manufacturing inefficiencies that hindered the ability to meet promised delivery dates (Goldratt, 1990). According to Dasgupta et al. (2019), reducing or removing constraints and disruptions is a fundamental part of improving the process, which in theory may boost revenue performance. One way to improve revenue from the theory of constraints is by capturing disruptions in inventory levels, controlling operating expenses by identifying bottlenecks in the manufacturing process and improving the delivery of the product to the customer (Dasgupta et al., 2019). The theory of constraints applies to any process for goods or services that includes a supply chain (Modi et al., 2019).

The application of the theory of constraints is to address and reduce constraints to improve the efficiency of production and service delivery (Goldratt, 1990). According to Goldratt (1990), reducing or eliminating constraints will decrease waste, increase production volume, and improve quality by addressing the variations of the production process. Moreover, Goldratt's research highlighted that organizations need to recognize that system constraints limit the performance of a system. Organizations should begin by assessing the constraint because every business or system has a constraint preventing it from reaching its full operating potential, which potentially may be a weakness that limits its performance and output (Dasgupta et al., 2019; Goldratt, 1990).

### *Contingency Theory*

Contingency theory is a contrasting theory to SCT. Developed in 1967 by Fiedler, contingency theory is the principle that a leaders' success is dependent on the style of leadership to make decisions (Fiedler, 1967). Moreover, Williams et al. (2017) stated that a contingency theory is a tool to evaluate situational leadership and style. The fundamental contrast between SCT and contingency theory is the approach and method of learning from observations by individuals compared to how leaders adjust to situations.

The application of contingency theory is that leaders should conceptualize and internalize innovative strategies and the ability to make decisions to be competitive in business (Oyewobi et al., 2016). A leaders' ability to innovate strategies that potentially can improve organizational performance is a primary application of expectancy theory (McAdam et al., 2019). According to Wilbur and Cameron (2020), contingency theory can be used to gauge a leader's ability to implement innovative strategies to reduce costs, operational efficiency, and be competitive. Moreover, Prasad and Junni (2017) stated that a key element of contingency theory is how a leader influences the innovation of strategies to maintain organizational competitiveness.

Contingency theory can be used as a tool to assess a leaders' ability and effectiveness to manage organizational efforts to be competitive and improve performance (McAdam et al., 2019). Moreover, contingency theory can be used on how a leaders' effectiveness on influence fosters innovation and remain competitive (Prasad & Junni, 2017). Organizational effectiveness on planning and execution strategies and

performance can be measured with contingency theory (Fiedler, 1971). The capacity that a leader may lead an organization can represent organizational traits, which should correlate with the effectiveness of competitive advantage.

## Overview of Healthcare and Hospital Supply Chains

### *Economic Significance of Healthcare and Hospital Systems*

The healthcare industry contributes a portion of the U.S. economy. According to the CMS (2018), healthcare-related expenditures reached 17.9% of GDP in 2017. Moreover, expenditures are projected to increase on average 5.5% every year until 2027. The United States spends more on health care per capita than other countries, which is primarily driven by income and employment and the shifting from private insurance to Medicare (World Health Organization, 2018). There is a direct correlation between healthcare expenditures and a GDP that has captured the interest of economists of healthcare systems (Lee et al., 2019).

Healthcare is developing into one of the fastest-growing industries (Srivastava et al., 2020). Effectively, the healthcare system in the United States is inherently complex compared to other industries that have a supply chain function (Srivastava et al., 2020). According to Blackmore and Kaplan (2017), to operate a healthcare system several activities are interconnected simultaneously in a continuous motion. This continuous motion creates complexity within the healthcare system. As a result of the complexity, healthcare costs are on the rise and increasing year-over-year (Moraros et al., 2016).

In the United States, hospital care represents 33% of healthcare expenditures increased to 5.3% reaching $3.1 trillion that equates to over $9,000 per patient (CMS,

2018). According to Sisko et al. (2019), healthcare expenditures are expected to rise at 5.5% annually until 2027 as a result of more spending among enrolled Medicare and Medicaid recipient. In a study conducted by Hung et al. (2020), healthcare expenditures to include dental care increased from $838 billion to $1.62 trillion in 10 years, from 1996 to 2016. Moreover, in a study conducted by Abdulsalam and Schneller (2019), supply expenses on average accounted for 15% of a hospital's total expenses, which is second behind labor. As stated by Speer et al. (2020), researchers estimate waste from unwarranted treatment exceeded $250 billion. The U.S. healthcare system experienced unnecessary prices and price increases as well as the disproportionate establishment of costly services (Lindsay et al., 2018). Both price and quantities were serious concerns.

The U.S. healthcare administrative costs are estimated at 31% of total U.S. healthcare costs, which are on average 50% higher than in comparable countries with mixed public and private healthcare systems (Tran et al., 2017). The amount of time and money devoted to administrative tasks is one of the most frustrating aspects of modern medicine (Erickson et al., 2017). Undeniably, in the healthcare system, administrative duties are incredibly costly (Siddiqi et al., 2017). According to the Institute of Medicine (IOM), healthcare providers in the United States spend $361 billion annually on healthcare administration (Erickson et al., 2017). For a perspective, the United States spends more than twice its total spending on research and treatment of heart disease. Moreover, researching, treating, and caring for breast cancer-affected patients is the largest spend among all types of cancer (Eaglehouse et al., 2019) Also, according to the

IOM, half of the healthcare expenditures are unnecessary costs and should be reduced to control the rise in healthcare costs (McCullough et al., 2020).

### *Barriers to Hospital Operations*

Business pressure might increase the chances of errors, incidents, and chaotic work environments (Erickson et al., 2017). Inefficient priority setting may originate from the lack of knowledge and skills in the areas of information alignment, innovation management, budgeting, or ethical leadership dilemmas (Hussain, et al., 2019). According to Žutautienė et al. (2020), fostering a collaboration hospital culture may be difficult because most hospital practitioners work under pressure of reaction to address ongoing priorities. Moreover, Wu et al. (2020) posited that stress arises due to limited resources that are essential to maintain and sustain the effective performance of hospital services. The logic of limited resource methodology highlights the organization's ability to remain competitive and must obtain resources from outside services to meet hospital performance goals. The disruption of the supply chain may lead to different information processing needs and limited responses that may contribute to the organization's management crisis (Zimmermann, et al., 2016).

A critical component of managing resources is the ability to embrace technologies manage hospital operations services (Karim & Gide, 2018). Another issue that challenges hospital management is technological innovation (Mikhailova, 2018). According to Hansen et al., technological innovation disrupts the already existing market, leading to the formation of new opportunities to provide products and services for the underserved. The cost of technological innovation is high and needs adequate financial support to

ensure the proper maintenance of tools and services. The adoption and implementation of technological innovation into the hospital management system showed significant improvement in patient service interaction and industry performance (Mikhailova, 2018). According to Rosales et al. (2020), hospitals are investing in new technology to optimize supplies with an innovative approach of dual sourcing and joint replenishment. The rise in work-related efficiency in the hospital industry demands the need to investigate what technological innovation hospital administrators sustain patient care.

### *Cost Implication of Medical Supplies*

Intrinsically, the medical field is expensive to maintain (Pi et al., 2019). According to Sun et al. (2018), the management of medical supply might increase the cost of the product which shifts along to the patient. In the medical supply chain processes, standards, and relationships are important to deliver supplies (Peltoniemi & Suomi, 2019). In a study conducted by Ning et al. (2018), efficient utilization of medical supplies for patients directly correlated to the increased cost for treating patients. The study involved a breakdown of 11 departments using the metric of the percentage of supply utilization. The independent variable was medical supplies expense, total hospital expense, and drug expense, which highlight a holistic view of the medical supply chain. The research highlights that hospital medical supplies are costly to operate and additional research may be required to control costs.

Reduction in the cost of medical supplies is an important topic for hospital administrators (Abdulsalam & Schneller, 2020). Following labor, medical supplies are the highest cost in healthcare and hospital leaders continue to address the cost of supplies

(Nabelsi & Gagnon, 2017). Improving operational patterns of medical supplies is an important approach to reducing costs (Postacchini et al., 2016). During the 2010s, there was little improvement in cost control (Abdulsalam & Schneller, 2019). As a result of business pressure, hospital administrators attempted to create strategic, operational goals to monitor and manage the costs of medical supplies (Nabelsi & Gagnon, 2017). In the medical supply chain processes, standards, and relationships are important to deliver supplies (Peltoniemi & Suomi, 2019). Hospital leaders are addressing the increasing cost of medical supplies (Nabelsi & Gagnon, 2017).

Leaders in a hospital have the moral obligation and fiduciary responsibility to focus on the quality of care (Franco, 2018) and the volume of care to ensure a more cost-effective cost for patients (Rosales et al., 2020). The distribution of burden for healthcare expenses across all market stakeholders such as insurers, providers had been for decades the central struggle of U. S. healthcare spending (Dieleman et al., 2017). Moreover, the issue of healthcare spending had been a burden on the sharing of liability for expenses across all insurers to providers (Bichay, 2020). Current trends in healthcare expenditures were the cause for concern and had led to the ongoing discussion to address wasteful spending in the United States (McCullough et al., 2020).

## Evolution of Supply Chain Management and Behaviors

### *Supply Chain Overview*

According to Yazdani et al. (2017), a supply chain is a process with elements to accomplish the movement of materials to be formed in a final product, then delivered to customers. Furthermore, a supply chain is a connection of factors such as the type of

product, the locations of the delivery of the production, the type of systems and processes, the policies and procedures, or the involvement of organizational leadership (Anca, 2019). Many activities exist to operate a supply chain, however, effectively managing all components, factors, and elements of a supply chain are fundamental to productive supply chains (Cesar de Sousa et al., 2019). The activities may consist of raw materials, planning, procurement, manufacturing, distribution, and logistics to meet customer demand (de Matta, 2019). To connect the activities of a supply chain, strategic and tactical approaches are important to deliver requirements (M. Zhao, 2018). Equally important, understanding the customer, the environment, and current market conditions are all unique to specific industries. Moreover, a primary focus of supply chain management is to reduce the costs of supplies by improving the activities that support an effective and profitable supply chain (M. Zhao, 2018).

Throughout the history of supply chain concepts, improvements and adjustments should exist to improve supply chain strategy (Kirovska et al., 2016). The strategies should be designed to properly recognize the behaviors of people who may affect a supply chain. According to Ran et al. (2020), decision-makers affect the supply chain from start to finish and contribute to delivering a supply chain. A case study conducted by Kirovska et al. (2016), developing a synchronized approach to control the planning, implementation, and delivery of customer value by implementing innovative strategies with their supply chain. According to Musa and Dabo (2016), innovation may improve supply chain efficiency performance.

### *Supply Chain in Hospitals*

A supply chain is a complex model and the need to modernize the production, inventory, and logistics of products and services is a priority for many organizations (Li, 2017). The connection is that supply chains are complex, healthcare environments are inherently problematic to manage (Gonzalez et al., 2017). The difficulties stem from the different activities necessary to operate a supply chain at a hospital, which might result in unwarranted costs (Mandal & Jha, 2018). As with any supply chain, hospital supply chains require people, materials, machines, and financial support to operate, and all have managed to control and reduce costs. One of the highest costs for the hospital is the materials (Nabelsi & Gagnon, 2017).

Medical supply firms involved supply chain functions as part of the business strategy to deliver medical products in a timely and cost-effective manner (Herden, 2020; Nabelsi & Gagnon, 2017). The global economic downward trend required medical organizations to remain competitive in the evolution of the technical society and their related management philosophies. To understand the reduction of costs and components in the healthcare supply chain, In et al. (2019) examined how group purchasing organizations (GPOs) affect the purchasing costs for medical products. GPOs claimed to be the most cost-effective approach to source medical and pharmaceutical supplies; however, costs continue to increase with GPOs from the lack of cost controls (Saha et al., 2019). In et al. (2019) noted that GPOs fail to reduce costs in the healthcare supply chain because no cost savings exist for hospital supplies. Ahmadi et al. (2019) conducted a study on medical supply devices on operations, procurement, and the relationship of the

supply chain. Subsequently, the quality care of the patient may improve and might lower costs for healthcare.

In tandem with the cost of the supply chain, the deliveries to manufacture medical supplies harm cost reduction (Chao & Cheng, 2019). Shortages of raw materials in manufacturing medical supplies might increase the cost of the product which shifts along to the customer/patient. In the medical supply chain processes, standards, and relationships are important to deliver supplies (Nabelsi & Gagnon, 2017). Commitment among supply chain team members as a means for a successful supply chain (Abdulsalam & Schneller, 2019). A hospital supply chain is complex and having standard processes and positive relationships may improve hospital supply chain delivery (Scanlon, 2020).

### *Formation of Supply Chain Management*

Taylor (1911) indirectly contributed to the concept of supply chain management. Taylor noted that the evolution of the industrial era created the need for a variety of approaches such as planning and developing activities to execute tasks among workers. Accomplishing tasks require a development plan to complete the job at hand in the most efficient way possible. Taylor's work regarding addressing the root cause of constraints was foundational to improving supply chain efficiency (Modi et al., 2019) and the same principles remain in practice in business operations in modern manufacturing environments (Buchmeister et al., 2019). Manufacturing environments changed as organizational leaders implemented Taylor's scientific management framework for the development of processes and standards (Glover et al., 2017).

Taylor (1911) stated that the delivery of goods to customers includes military readiness and operations. From the 1940s through the 1960s, the use of logistics became popular in the military to strategize the best way to transport physical goods and to be in a state of readiness (Swanson et al., 2017). World conflicts won or lost because of logistical strategies. In the years following World War I, logistics became a discipline for colleges and universities (Chua et al., 2018). The United States might have been the first organization to identify the importance and the value of supply chains from the unrealized need for the military (Haraburda, 2017).

Supply chain management evolved into a strategic approach to managing the cost of procuring, producing, and delivering goods and services (Pettit et al., 2019). According to (Shovityakool et al., 2019), supply chain management in competitive markets is strategic and tactical by teaching real-world simulations. Organizations recognized inventory management as an important component of supply chain management (Teimoury, et al., 2017). In a study conducted by Teimoury et al., the focus was livestock inventory optimization. The focus of the study was on perishable versus non-perishable inventory to understand the level of decisions is required to work efficiently. The findings highlighted that livestock inventory should be responsive and flexible to address changing parameters (Teimoury, et al., 2017).

Between the 1990s and 2000s, organizational leaders began implementing SCM as an organizational discipline and as a strategic function to improve financial and economic performance (Onstein et al., 2019). Higher education regards the supply chain as an important topic and created discipline courses. Academic practitioners in the field

of SCM continue to develop the discipline by linking classroom environments to real-world applications (Kayvanfar et al., 2018). Universities and colleges that offer discipline in the supply chain teach students the accounting, financial, and economic importance of supply chain management. Throughout the 2000s, SCM is a standard process to control material flow and cost reduction through tactical and strategic planning (Swanson et al., 2017).

### *Information Technology in the Supply Chain*

Information is a powerful tool in any industry (Porter, 1980). Information technology (IT) is an ever-evolving business resource for firms to maintain competitive advantage (Jimenez-Jimenez et al., 2019). Firms and academic environments have distinguished the use of IT for chain management as essential to the customer and supplier in a variety of businesses (Gu, et al., 2021). Asserted by Oh, et al. (2019), IT allows firms to maximize the capabilities of supply chains. Moreover, IT is a robust platform that can track material in transit such as in Radio Frequency Identification (RFID) technology (Lei et al., 2018). RFID is a technology that uses a tag, reader, and software to track products throughout a supply chain (Yan et al., 2018). In a real-world example, the leaders at Qualcomm implemented RFID that tracks container movements across the globe with real-time updates to ensure products reach the end-user (Lei et al., 2018). RFID tracking uses medical devices for patient safety and accurate delivery to patients (Yan et al., 2018). Walmart, the largest retailer in the world, adopted RFID technology for its supply management tool (Yan et al., 2018). Walmart encouraged their vendors and suppliers to adopt RFID as well. After the implementation of RFID,

Walmart can maintain an accurate and seamless supply chain (Yan et al., 2018). IT in the supply chain supports the creation of competitive advantage (Jimenez-Jimenez et al., 2019).

RFID technology is used in several types of applications and industries. For supply chain functions, RFID has been enhanced in a variety of operating models (Musa & Dabo, 2016). One area of focus that the supply chain has a direct correlation is warehousing. According to Musa and Dabo, RFID technology used in warehousing optimized the location of the storage and movement of material. The optimization resulted from inaccurate location and tracking of materials inbound and outbound of a warehouse. Additionally, RFID complements the Internet of Things (IoT) to enhance supply chain performance (Haddud et al., 2017). IoT is a system of hardware and software integrated into the Internet and transferring information (Witkowski, 2017). RFID and IoT complement one another by improving inventory control, improve delivery, and shared information (Haddud et al., 2017). The technology of RFID is robust in concept and can be utilized in a variety of supply chain management functions.

### *Information Technology in Healthcare*

IT in the supply chain is important to manage the accuracy of materials, cost of material, and the delivery of material (Triulzi, et al., 2019). RFID has been a focus in the hospital supply chain to improve the inefficiencies by tracking material from planning to delivery to the end-user (Fu et al., 2019). One function of RFID is to facilitate reducing the cost of the supply chain that stems from lost inventory, inaccurate part numbers, incorrect pricing for materials. The trend for the hospital supply chain is likely to surpass

the GDP by 2019, and RFID is a focus to reduce the trend of increasing the cost (Triulzi, et al., 2019; Yan et al., 2018)

Information sharing requires a significant amount of trust in a supply chain (Hayrutdinov et al., 2020). According to Zhao and Zhao (2020), sharing information is an effective strategy among all parties of the supply chain, including vendors, suppliers, and team members within an organization. Moreover, the strategy to share information with all suppliers is important to improve supply chain performance (Du & Jiang, 2019). Cultivating trust between organizations and team members creates cooperation in building cooperative relationships (Ryicuk & Nazarko, 2020). According to Ryicuk and Nazarko, trust is a partnership that manifests a commitment for future cooperation of sharing knowledge and working through challenges. To highlight the importance of trust, Ryicuk and Nazarko conducted a study on the trust-based cooperative relationship. A sample of 226 companies was researched using the CATI technique. The constructs included trust, commitment, adaptation, cooperation, and partner qualities. The result of the research highlighted that all the constructs were independent components, however, each construct should have a level of involvement for a harmonious supply chain.

## Value Chain

### *Porter's Value Chain*

Michael Porter coined the term value chain, which entails a holistic approach and method for a supply chain to produce goods, including the planning, procuring, and delivering of raw materials; manufacturing; distributing, and promoting competitive advantage through providing information. Information is the foundation for implementing

a successful value chain (Koc & Bozdag, 2017). The value chain model has two overarching activities: (a) primary activities, and (b) support activities. The primary activities include inbound logistics, operations, outbound logistics, marketing and sales, and service. Primary activities support activities including procurement, technology development, human resource (HR) management, and firm infrastructure. To illustrate how a firm's value chain functions in business decisions, one can compare it to how the human brain works. The brain (primary) receives input from external elements and makes decisions for the rest of the body. The organs (secondary) value chain receives input from inbound parts and processes the input with support activities. The outcome is profit (Porter, 1980).

Porter's value chain model was designed for the manufacturing industry (Sun et al., 2018). With the advancement of emerging technologies and globalization, competition evolved. According to Viltard (2017), operational efficiency has set in motion the competitive advantage for organizations to focus on emerging technologies and globalization, in which embracing technology is a component needed to achieve and remain competitive. For example, Ulmer and Streng (2019) described logistics organizations harness the functions of the value chain and IT to constantly improve customer service and remain competitive.

### *Value Chain in Hospitals*

The topic of hospital supply chain management continues to evolve into strategic business processes. Hospital supply chain costs account for 38% of operating expenses within hospitals (Nabelsi & Gagnon, 2017). According to W. Zhao et al. (2020), supply

chain leaders are primary to address the cost reduction of the supply chain that may improve the overall operational cost when accurate and reliable information is available. Information is an essential resource to make positive decisions in any supply chain (Zhang et al., 2019).

Information for medical supplies has disconnects when creating a view of demand and availability to deliver supplies (Zhang et al., 2019). According to Nabelsi and Gagnon (2017), hospital leaders use the integration of the value chain and hospital supply chain concepts to build, sustain, and improve shareholder value. The benefits of this combination include having an effective operational framework and leveraging information. The relevancy of the value chain model in a hospital supply chain is the ability to create an efficient, seamless flow of processing information throughout the entire supply chain (Nabelsi & Gagnon, 2017). To gain a comprehensive understanding of how information is critical to managing the value chain's support activities in a hospital supply chain requires controlling supplies.

## Leadership Behaviors Within Continuous Improvement

### *Lean*

The lean philosophy arose out of a need for efficient processes in automobile manufacturing, developed, and popularized in Japan by Toyota Production Systems (Chiarini et al., 2018). According to Pakdil and Leonard (2017), lean is a tool that aids in operational performance by eliminating or reducing waste in a work environment. Dhiravidamani et al. (2018) conducted a study in the automobile component industry to explore areas of waste and recommendations for lean implementation. The study

highlighted that waste was present in the form of quality and as a result, parts were rejected. The recommendation is to implement a lean audit to evaluate the quality of each step in the manufacturing process to eliminate and reduce rejections of parts. In a comparable study in automotive, Jasti et al. (2020) conducted a study and focused on value stream mapping to explore waste in a single workstation versus the entire production line. The findings highlighted that implementation of continuous improvement to improve quality, reduce cost, and deliver on time was recommended.

Lean philosophy refers to reducing inventory transactions, reducing the physical movement of material, and improving the flow of information (Mentzer et al., 2007). The approach of lean philosophy is an effective concept and practice that links to the successful financial performance of a firm's operations (Chetthamrongchai & Jermsittiparsert, 2019). In a study by Chetthamrongchai and Jermsittiparsert, the association of lean philosophy and financial performance in the pharmaceutical industry highlighted that a direct correlation between adopting lean principles to positive business performance. However, not all lean practices were effective to sustain financial performance (Chetthamrongchai & Jermsittiparsert, 2019).

Measuring operational performance in a manufacturing environment is an important component for a lean environment (Santos & Tontini, 2018). Moreover, to realize the theory of lean is equally important as the implementation of lean concepts (Fournier & Jobin, 2018). According to (Rafique et al., 2019), the implementation approach varies with every situation. Furthermore, proper implementation is essential for alignment within employee support (Rafique et al., 2019). Essential to the

implementation success of lean is the acceptance of all employees involved, which includes top-level managers to front-line members (Fournier & Jobin, 2018). In a case study by Hassanain (2017), a manufacturing facility and found that only mid-levels of the hospital engaged and had no support from c-level leaders and senior management to implement lean. Intrinsically, behavior and engagement of lean are important for successful implementation (Fournier & Jobin). Moreover, Mogaramedi et al. (2020) reported that lean entails developing all levels of management to be involved and engaged in the implementation of lean concepts. Lean is a cultural makeover and involves all employees that effect change as a team (Berlec, et al., 2017).

### *Lean in Healthcare*

According to a report by the IOM (1999), one cause of increased costs in hospitals in the United States is inefficient and ineffective processes. One way to address the challenges of inefficient and ineffective processes is to continuously improve the processes in the medical supply chain. Continuous improvement involves an ongoing effort to streamline processes and behaviors by understanding lean philosophy, the theory of constraints, and the value stream (Aij & Rapsaniotis, 2017).

The healthcare industry has slow to embrace lean and is a new development in the industry (Hassanain, 2017). Moreover, Hassanain stated that the healthcare environment, but still maturing to develop a lean culture. The Organization of Economic and Co-operations and Development stated that the cost of healthcare per capita is forecasted on average $230 in 2030 and $775 by 2040 in the United States (McCullough et al., 2020), which suggests a need to explore methods to address the rising costs (Hassanain, 2017).

Moreover, as an onset of healthcare, hospitals continue to implement lean by applying manufacturing ideologies and concepts that may address the uncontrolled spending of medical supplies (Hassanain, 2017). To highlight lean in healthcare, Prado-Prado et al. (2020) researched the implementation of lean principles. The study was conducted in two phases of conceptual and applied. The study highlighted that productivity and quality were directly correlated utilizing lean concepts of removing waste and measuring metrics with key performance indicators is essential for success.

### *Value Stream*

The value stream is a model that highlights a process that visually maps the flow of activities to focus on business and industrial operations (Sremcev et al., 2019). A value stream tool can identify where to reduce waste (Trebuna et al., 2019). Boronat et al. (2018) asserted that for a value stream to be successful, one must know the details of processes and continually improve as part of the process. The benefits of a value stream in the supply chain environment offer a structured methodology and application to daily activities (Hayden & Schwerha, 2019). According to Lakhoua (2019) stated that one method of gaining positive results is to encourage a flexible and motivated culture among organizational structures. The waste was a consequence of not implementing proper planning tools, the understanding of patient needs, and lack of communication among supply chain staff (Durur & Akbulut, 2019).

According to Hayden and Schwerha (2019), a value stream can be utilized as a tool to improve the financial performance of an organization. identify waste produced from defects, overproduction, inventory, waiting, overprocessing, transportation, and

extra movement. Inherently, waste is difficult to eliminate; waste exists in any industry Trebuna et al., 2019).

## The Leadership in Corporate Social Responsibility

### *Evolution of Corporate Social Responsibility*

Several definitions exist for corporate social responsibility (CSR). As described by Carroll (Carroll, 1999), CSR involves four responsibilities of (a) economic, (b) legal, (c) ethical, and (d) philanthropic. Financial responsibility means that firms produce goods or provide a service that is suitable for society. Legal responsibility involves following the law and meeting the legitimate expectations of society (Mishra, 2017). Ethical responsibility means following the code of conduct expected by the firm and society (Carroll, 1999). Philanthropic responsibility has to do with the firm's active involvement in the community. Hildebrand et al. (2017) reported that firms continue to focus more on CSR when making business decisions to maintain positive engagement within their communities.

Mishra (2017) asserted that the information for a supply chain is broad, but CSR involves defining a fundamental responsibility, which is economic. CSR affects a firm's ability to be a positive corporate citizen (Nuryaman & Mohd Saudi, 2020) through relationships from inbound and outbound operations to improve supply chains (Shin-Clayton, 2018). The literature highlights the need for CSR implementation. According to Wang et al. (2020), the costs stem from the inefficient supply chain process that exists in current hospital supply chains. The literature on CSR also includes an organizational gap

that links operational patterns and costs in healthcare supply chains and CSR (Lerro et al., 2018).

CSR can be linked back to the 1950s. The initial focus of CSR was a public expectation of deeds from business leaders working within the communities. According to Hardy and Pearson (2017), stakeholder value is the key to relationships and social welfare issues leading to CSR. Because of the many financial scandals in large corporations in the 1990s and 2000s, firms are implementing objectives related to acting responsibly in for-profit organizations (Wirawan et al., 2020). The model of corporate social responsibility is the obligation of corporations to follow policies that affect a firm's economic, financial, legal, and ethical responsibilities (Nuryaman & Mohd Saudi, 2020). In comparison to for-profit organizations, Mishra (2017) researched organizations with a mandate of CSR. Furthermore, Mishra focused on how nonprofit senior leaders can incorporate successful innovation and plan for success while seeking higher CSR performance post-innovation to develop valuable reputational resources and reduce capital constraints. Mishra developed strategies to help nonprofit leaders in identifying that more innovative firms demonstrate high CSR performance after a successful innovation, which increases the companies' innovation intensity. Mishra's research included funding strategies for nonprofit leaders in the sense that CSR implementation is one of the charitable leaders' critical strategic devices for developing reputational resources and reducing capital constraints through transparency and stakeholder engagement. Nonprofit leaders should consider the benefits of incorporating CSR

performance into their strategies by promoting social responsibility to enhance the valuation effect of any creative efforts.

According to Clifton and Friedman (2016), a firm's legal requirement to act responsibly beyond the financial influence should be fundamental to daily operations. Firms seek to implement CSR for market trends, branding, or internal processes as part of their societal perception to improve margins (Ocasio & Radoynovska, 2016). The model of CSR because of the correlation with social and financial aspects that have flaws Ajagunna et al., 2017). Flaws are from individual departments such as research and development neutral to the objective of CSR. The opponents of CSR claim that money dispersed to economic, legal, ethical, and philanthropic responsibilities is not generating new monies for research. Yang et al. (2020) reported that a correlation exists between CSR and financial performance: firms with a strong CSR culture have sound financial performance. Data is available regarding CSR and its relationship with economic performance and responsibility. Stekelorum (2020) maintained that supply chain corporations should implement ethical behavior training to understand the value of CSR. Although much information on CSR and supply chains exists, little literature on CSR relates to supply chain management in a hospital.

## Transition

In Section 1, I presented a comprehensive discussion on the background of the study, the problem statement on the topic of the lack of strategies for reducing expenditures for medical supply chains. Additionally, I included the purpose statement, nature of the study, the research question, conceptual framework, and an extensive

literature review. The literature review focused on peer-reviewed articles relevant to the conceptual framework of SCT and compared it to other conceptual framework theories. Furthermore, I described the potential business outcomes and implications of social change in Section 1.

The objective of Section 2 is the restatement of the purpose statement and how I conducted this study to address the research question. In addition, Section 2 includes information on the participants in the study, the research method and design, the population and sampling, data collection, data analysis, and reliability and validity.

Section 3 includes the presentation of findings from the interviews and discussion of strategies for reducing expenditures study participants used for their medical supply chain in a hospital. Furthermore, my recommendations will include future research, improve how to mitigate bias, assumptions, and delimitations. I also reflect on my doctoral research process and contribute a conclusive statement to address the research question and findings of the study.

## Section 2: The Project

Section 2 includes the role of the researcher to explore the reduction of costs. The reduction of medical supplies is an important topic in roundtable discussions (Nabelsi & Gagnon, 2017). The specific business problem for this study was that some hospital leaders lack strategies to reduce the cost of medical supplies. This section, which includes an explanation of the overall data gathering for the operational patterns and reduction of expenditures for medical supplies, comprises the following sections: (a) Purpose Statement, (b) Role of the Researcher, (c) Participants, (d) Research Method and Design, (e) Population and Sampling, (f) Ethical Research, (g) Data Collection Instruments, (h) Data Collection Technique, (i) Data Organization Technique, (j) Data Analysis, (k) Reliability and Validity, and (l) Transition and Summary.

### Purpose Statement

The purpose of this qualitative multiple case study was to explore strategies hospital leaders use to reduce medical supply expenditures. The participants were leaders in the medical supply chain department from five different hospitals located in Texas. Data from this study may contribute to social change by advancing leadership behaviors that could enhance the quality of patient care. Improved patient care might benefit society by reducing the cost of healthcare and encouraging the quality, safety, and coordination of healthcare services.

### Role of the Researcher

My role as a qualitative researcher was the primary data collection instrument. I have (a) selected a research method and design, (b) identified qualified participants to

share their experiences, (c) collected and managed data from the participants, (d) analyzed and interpreted the participants' responses, and (e) presented the study findings. My role in this study included collecting data from the responses, analyzing, and applying a suitable research and design method. I adhered to privacy regulations throughout this study for the selected appropriate participants. Furthermore, I presented the findings and concluded the recommendations of the research topic.

The role of the researcher in case studies becomes part of the process in data collection (Marshall & Rossman, 2016). Researchers might use professional and personal experiences that are closely associated with the topic and may have a significant impact during the research process (Marshall & Rossman, 2016). Listening and observing are invaluable skills that complement data collection. My experience spans 20 years as a manager and consultant in operations and supply chain management in various industries, including experience as an advisor, business partner, and military servicemember. I had no personal or professional connection with the prospective participants. I served as the lone source for data collection and analysis.

I adhered to the *Belmont Report* principles, which is an approach for the ethical and legal protection of humans in research. The *Belmont Report* (U.S. Department of Health and Human Services, 1979) is the ethical foundation for people and integrity to protect human rights in research. I ensured that I had a working knowledge of legal and ethical protection for participants and completed training from the National Institutes of Health while *Protecting Human Research Participants* (certificate #2086456).

Bias is the influence of specific experiences, cultures, and backgrounds (Marshall & Rossman, 2016). To exclude potential biases in my research, I extended respect to all participants by explaining the nature of the study and reviewing findings. I behaved in a relaxed manner and remained open to the findings and mitigated bias. According to Yin (2018), a researcher may test potential bias by determining how open the participants are to the results that may contradict their predetermined beliefs.

I used an interview protocol (see Appendix A) to ensure data reliability and validity. The rationale for an interview protocol is to allow the researcher to conduct consistent and organized communication throughout the interview (McCrae & Purssell, 2016). The interview protocol is designed to focus on the research topic (Yeong et al., 2018). Employing an interview protocol for qualitative research increases the reliability of the study (Heydon & Powell, 2018). My protocol (a) added to the reliability of the research process, (b) provided a structure of the interview format to maintain consistency, and (c) guided the researcher in developing themes.

## Participants

Participant selection criteria should align with and reflect the overarching research question and interview questions (Yin, 2018). To be considered for this study, participants had to have a minimum of 2 years in a leadership role and have implemented strategies to reduce expenditures for medical supplies. The participants were from six different hospitals in Texas that have implemented successful strategies that focused on reducing expenditures in a medical supply chain. Leaders who met the selection criteria

were invited to answer interview questions (see Appendix B) on managing a hospital supply chain to reduce expenditures.

To gain a list of hospitals and hospital leaders in Texas, I searched online portals in a public domain directory via Texas Health and Human Services. Researchers may obtain access to public data and locate potential participants through sources such as *e-government* portals. Additionally, I used the networking platform LinkedIn as another source for the public portal. After I gained a list of potential participants, I emailed each potential participant explaining the purpose of the study with a letter of intent of the research and requesting authorization to conduct academic research. After the response granting permission to conduct research, I requested that the representative email the leader for medical supplies and explain the nature of the study and the criteria to be part of the study, as well as to gain a potential list of participants. After I received an email response from a potential participant, the participant received an informed consent by email. After the participants agreed to the interview, they emailed me back the informed consent with their electronic signature or agreement to participate in the study.

Researchers should attempt to set a positive rapport with the participant (Celestina, 2018). To set a positive rapport, I shared my academic and professional career to establish a positive rapport with the participants. My approach to establishing a comfortable environment was to create a relaxing environment throughout the research process through consistency and open communication to include describing the research study. Sharing a researcher's personal and professional history establishes trust and helps to maintain a positive relationship for a robust dialog (Celestina, 2018).

# Research Method and Design

## Research Method

I used a qualitative method for this study. The most common research methods are qualitative, quantitative, and mixed methods (Almalki, 2016). Qualitative researchers conduct real-life context by expanding "why" and "how" questions from the overarching research question (Roger et al., 2018). Moreover, qualitative researchers focus on investigating complex human topics to obtain experiences directly from the participants (Zolfagharian & Yazdanparast, 2017). A qualitative method was the most appropriate method to obtain rich data in participants' experience.

A quantitative study involves collecting and analyzing statistical data to test a hypothesis (Clark, 2017). According to Leppink (2017), researchers of quantitative methods use frequency, intensity, or numbers to derive broad concepts into specific conclusions and to substantiate research findings. Moreover, quantitative research involves the use of statistical data and impartiality to confirm the findings of a study (Yin, 2018). Because I explored participants' points of view and perceptions and did not collect statistical data to test a hypothesis, a quantitative method would not have been appropriate for this study.

Mixed method studies involve a combination of quantitative and qualitative methods (Tosuncuoglu, 2019). A mixed method approach is a collective analysis of exploratory and statistical data (Johnson, 2019). According to Leppink (2017), mixed method researchers combine qualitative and quantitative data to explore people's perceptions with statistical data to address the research question. Furthermore, mixed

method researchers verify the findings of qualitative data with the statistical outcomes of the quantitative data to highlight the findings of a study (Johnson, 2019). Because I did not compare statistical research with exploratory data, a mixed method would not have met the needs of this study.

**Research Design**

Researchers use case study design to answer questions of "what" and "how" (Mason-Bish, 2018). According to Mason-Bish (2018), researchers use a case study to perform in-depth exploration using multiple sources of data to understand a phenomenon. Case studies typically consist of a small sample of participants, allowing the researcher to investigate using multiple data sources on multidimensional and interactive experience to answer the research question (Harrison et al., 2017). Researchers using single case design collect data from a single source (Yin, 2018). Multiple case study design allows researchers to collect data from multiple sources and organizations (Mason-Bish, 2018). Because I explored multiple data sources to address the research question, a multiple case study design was appropriate.

Phenomenological researchers explore the meaning of participants' lived experiences from their recollections and explanations recollections (Moustakas, 1994). According to Green and Salkind (2017), phenomenological researchers explore participants' perspectives and experiences of an event to gain insight into cultural matters. However, I did not explore the meaning of participants' lived experiences, so a phenomenological design was not applicable to this study.

Ethnographic researchers study culture through immersion (Atkinson & Morriss, 2017). Researchers of ethnographic design observe and immerse themselves within a culture to understand the values, attitudes, and behaviors and develop an understanding of the phenomena under study (Moser & Korstjens, 2017). In addition, ethnographic researchers utilize 100% of the sample population (Serban & Roberts, 2016). Because my study did not include immersion in a specific culture or 100% of the population, an ethnographic design was inappropriate.

Researchers should continue recruiting participant responses until data saturation is achieved (Hennink et al., 2019). Data saturation is imperative for qualitative studies to establish the trustworthiness of the data and analysis (Hagaman & Wutich, 2017). Moreover, researchers reach data saturation when data repeats, and no new themes appear (Hennink et al., 2019). I ensured data saturation by continuing to collect data until no new themes emerged.

## Population and Sampling

Purposeful sampling is appropriate for this study to target supply chain leaders in multiple hospitals located in Texas. Researchers use purposeful to ask intentional questions to the sample population to understand a phenomenon regarding the research question (Moser & Korstjens, 2017). Furthermore, purposeful sampling involves the ability of a researcher to identify participants that may connect with the research topic (Benoot et al., 2016). By using purposeful sampling, I identified leaders in multiple hospitals who could provide relevant information regarding the research topic.

The criteria for participants in this study are to (a) be a leader in a hospital supply chain, (b) have a minimum of 2 years of leadership experience in hospital medical supplies, and (c) have implemented strategies to reduce expenditures for medical supplies. Moreover, researchers should include a participant's direct experience with the business problem and exclude individuals who do not fit the study criteria (Marshall & Rossman, 2016). Selecting participants with the key criteria assisted me in exploring strategies that leaders use to reduce expenditures of medical supplies in multiple hospitals.

After the selection of participants, I conducted the interviews virtually. Location is an important factor in the interview process (Schmidt et al., 2018). Furthermore, Feigean et al. (2018) suggested the interview should be comfortable and non-biased to enable participants to feel relaxed. A safe and comfortable environment is necessary to ensure that the participant can speak freely and clarify their experiences in response to the interview questions. The interviews did not last over 45 minutes.

The number of interviewees must be sufficient to drive awareness for a study. The sample size originally proposed for this study was a minimum of eight participants. Advocated by Yin (2016), a sample size of at least six participants for a case study. In contrast, Abbott et al. (2015) postulated that 10 participants may be sufficient for a qualitative study and to address the research question. This study included six participants.

The COVID-19 pandemic of 2020 has forced a global lockdown (Sah et al., 2020). According to Sah et al. (2020), doctoral students are experiencing challenges to

collect data and are forced to reevaluate data collection from face-to-face meetings. However, virtual meetings are a practical option for conducting interviews to collect data (Farooq & de Villiers, 2017). I used the virtual meeting application Zoom (https://zoom.us) to conduct online interviews at a time that was suitable for the participant. I also ensured that the participant could download the Zoom application for the interview.

I ensured data saturation by continuing to interview participants until no new themes emerged. The number of interviews to achieve data saturation is determined when no new themes, evidence, or patterns develop (Constantinou et al., 2017). Moreover, Hennink et al. (2019) posited that researchers reach data saturation when data repeat and no new themes appear. I continued to interview until no new information appeared.

## Ethical Research

Informed consent serves as a form and process to legitimize the permission from an individual to participate in a study (Dankar et al., 2019). I communicated the intent of the study, risks and benefits, interview protocol procedures, and the privacy and confidentiality measures in the informed consent form. After the participant agreed to contribute to the study, they replied in an email with the words, “I consent,” and the interview commenced at an agreed-upon time in a virtual setting. According to Dankar et al. (2019), an informed consent is important to ensure an ethical study and the participant understands the nature of the research. Participants’ names were not identifiable in the final study to preserve their confidentiality.

The participants had an opportunity to withdraw from the study. If any participant decided to withdraw from the study, the participant could do so by submitting a formal request to me via email up until member checking is complete. The interviews were voluntary, and no compensation was available to participate in the study.

The *Belmont Report* is a report establishing the ethical foundation for people and integrity to protect human rights in research (U.S. Department of Health and Human Services, 1979). To ensure the ethical protection of participants, I followed the Walden University Institutional Review Board (IRB) guidelines in combination with the *Belmont Report* for selecting participants. To ensure proper protocols, I completed the National Institutes of Health (NIH) Protecting Human Research Participants training course (Certification #: 2086456). Once the Walden University IRB sent me approval (#0429210044279) to conduct research, I began the selection process and interview.

Participants contribute information to a study with the understanding that the researcher will protect their privacy (Bengtsson, 2016). To protect the names of the participants, I assigned each participant a unique identifier that I used on documents and electronic files to avoid disclosing participants' identities. These identifiers begin with a P followed by a sequential number. The first randomly selected participant will have a code of P1, followed by P2 and so on. I did not list the participants' personal information on any documents or electronic files.

The data for this study (both hardcopy and electronic forms) are stored in a safe in my home office, secured with a combination entry for 5 years. I will maintain sole access to all electronic data, which will be password-protected on a removable disk that is only

accessible by me. After 5 years, I will destroy all hard copies by shredding all documents and deleting any electronic data on the removable disk.

## Data Collection Instruments

I served as the primary data collection instrument for this study. The researcher is the primary data collection instrument in qualitative studies (Karagiozis & Ottawa, 2018). Furthermore, the primary data collector can gain a rich understanding through direct interaction (Skillman et al., 2019). Additionally, qualitative researchers have an important role in exploring the perceptions of participants (Skillman et al., 2019).

Researchers use an interview protocol (see Appendix A) to (a) address the research question, (b) ensure the interview questions are thorough and remain neutral with the interviewee, and (c) predict questions that may arise during the interview (Yin, 2018). Further, an interview protocol method aids the data gathering for consistency and thoroughness (Castillo-Montoya, 2016). The use of an interview protocol during research enhances the dependability of study findings (Kallio et al., 2016). I used an interview protocol to maintain interview dependability and enhance the consistency of the research process.

I collected data using semistructured interviews with leaders of a hospital supply chain. Semistructured interviews are an effective data collection procedure to discover a multifaceted view of the phenomenon from participants' responses (Kaliber, 2019). Conducting semistructured interviews may enhance the researcher's ability to anticipate new and unforeseen data (Yin, 2016). I addressed the overarching research question by using a semistructured interview format for this study.

Researchers may include archival records as an invaluable method for data gathering in case of study research (Yin, 2018). Exploring archival data can be an intricate data collecting practice for case study researchers (Queirós et al., 2017). For case studies, the essential use of documents is for corroboration and reinforcement of evidence from other sources (Queirós et al., 2017). I used archival files as a secondary source to address the research question.

Open-ended interview questions (Appendix B) are an effective way to obtain participants' experiences and perceptions (Yin, 2018). Moreover, researchers use open-ended questions to elicit detailed responses from participants (Kallio et al., 2016). Researchers use open-ended questions as an effective method for collecting information because participants have the opportunity to provide in-depth answers (Kallio et al., 2016). I employed open-ended questions to gather information from participants.

To enhance objectivity and attempt to mitigate potential bias, researchers should identify their bias and be truthful about their perspectives (Young & MacPhail, 2015). Consequently, a drawback of utilizing semistructured interviews is that the participants may become acquainted with the researcher (Saunder et al.). Therefore, the researcher must be cognizant not to project a personal viewpoint onto the participants (Wolcott, 1999). I maintained a neutral perspective during the interviews and did not portray any bias about the study.

To increase the reliability and validity of the data collected, I used member checking. Member checking enables the participants to recount their original responses to the interview (Thirusha & Neil, 2018). To complete member checking, I emailed my

summary of the responses to the participants to confirm reliability and validity. To strengthen the reliability and validity of the participant's responses, sharing a summary of the interview is valuable (Birt et al., 2016). Member checking enhances the reliability and validity of the research (Birt et al., 2016). Furthermore, Simpson and Quigley (2016) affirmed member checking increases the truthfulness of the research. Member checking was my approach for data interpretation and transcript review.

My approach for this study was to maintain consistency in the interviewing instrument until data saturation exists, at which time the goal was to be able to gain a deeper understanding of the problem. During the interview, I asked seven open-ended questions designed to provide rich, meaningful data related to the overarching research question. The interviews lasted no more than 45 minutes.

## Data Collection Technique

After IRB approval from Walden University, I began to search for prospective participants and set up virtual interviews. The interview is the most commonly used data collection technique for qualitative research (Wilson et al., 2016). Rich descriptions responses may evolve from allowing the individual to speak without restrictions during the interview (Rosenthal, 2016). Throughout the interview, researchers should remain neutral and avoid leading questions by using a semistructured process (Yin, 2018). I remained neutral during the interviews.

I used an interview protocol to conduct virtual interviews. Researchers use an interview protocol to (a) address the research question, (b) ensure the interview questions are thorough and remain neutral with the interviewee, and (c) predict questions that may

arise during the interview (Castillo-Montoya, 2016). Further, an interview protocol method aids the data gathering for consistency and thoroughness (Castillo-Montoya, 2016). The use of an interview protocol during research enhances the dependability of study findings (Kallio et al., 2016). I used an interview protocol to maintain interview dependability and enhance the consistency of the research process.

Participants received an email copy of the interview questions before the interview. Allowing participants to review the questions before the interview creates a positive setting (Castillo-Montoya, 2016). Furthermore, the sharing of the interview questions before the meeting opens a trusting relationship with the participant and offers robust responses (Oye et al., 2016).

Researchers can collect data from additional resources such as archival documents (Paradis et al., 2016). Archival documents are beneficial to researchers in collecting in-depth data to address the research question (Yin, 2018). Additionally, archival documents are a vital source of evidence to address the research question (Yin, 2018). I asked the participant to review archival documents as a source to collect data.

Archival files are a source to address the research question (Kallio et al., 2016). There are advantages and disadvantages of using archival documents for research (Yin, 2016). The advantage of using archival documents is having a secondary source for data collection (Yin, 2016). Conversely, a disadvantage of using archival documents is that that data may be unreliable and not to the researcher's standard (Kallio et al.). I reviewed archival documents to address the research question.

Using member checking allows the participants to review if the researchers accurately captured their responses to the interview questions (Cypress, 2017). When researchers utilize member checking, participants can confirm, clarify, or augment the accuracy of the data captured during the interview process (Rosenthal, 2016). Researchers certify the correctness of their data by utilizing member checking (Cypress, 2017). Furthermore, Kirilova and Karcher (2017) concluded that utilizing member checking enhances the truthfulness of research data. I sent the participants a summary of my interpretation of their interview to ensure the information is accurate and asked the participants to verify the summary to confirm accuracy by member checking.

## Data Organization Technique

Researchers can use a variety of techniques to organize research data (Meyer & Willis, 2018). After the interviews, I transcribed the data in a Microsoft Word document and transfer it into HyperResearch software. HyperResearch is software that researchers use to keep track and organize information from qualitative research data. Moreover, researchers utilize software to improve the process of transcribing, categorizing, and organizing data (Houghton et al., 2017). I used HyperResearch software to organize my data.

Researchers use logs to capture rich data that potentially leads to deeper insight and the identification of themes and patterns during analysis (Meyer & Willis, 2018). Using a research log enables scholars to recognize sentiments and feelings that may form biases when addressing the research problem (Meyer & Willis, 2018). Moreover, the use of a research log may add thoroughness and allow the researcher to interpret and theorize

the participants' responses (Meyer & Willis, 2018). I used a research log to organize the data to address the research problem.

To organize the data collected, I assigned the letter "P" to represent the participant. My approach was using the following numerical identifier based on the sequence of the interview. Effectively, the naming file is an alphanumerical identifier (i.e., P1, P2). Subsequently, all data for this study is on a password-protected cloud drive only accessible by me. After 5 years, I will destroy and discard all documents.

## Data Analysis

I used methodological triangulation to analyze the data from the participant's responses. Methodological triangulation provides the researcher the opportunity to collect rich data (McAbee et al., 2017). According to Yin (2016), methodological triangulation allows the researcher to collect data using multiple sources to validate research findings. Using multiple data sources may strengthen the findings of the study (Denzin, 2006). Methodological triangulation is appropriate for data analysis because I analyzed the data from multiple sources. My approach to data analysis will be to (a) compile, (b) disassemble (c) reassemble, (d) interpret, and (e) conclude the collected data. In addition, using multiple data sources may strengthen the findings of the study (Moon & Wolf, 2019). I used methodological triangulation for data analysis.

My first approach is data analysis to compile the data. Researchers organize data by compiling it into categories (Yin, 2018). After collecting data, I reviewed transcripts and archival documents, then compile the data into meaningful themes and patterns to

address the research question. Once themes and patterns emerge, they will correlate to the literature review on strategies to reduce expenditure on medical supplies.

Once I compiled the data, I disassembled the data to explore patterns. Disassembling data involves a formal process of coding data (Yin, 2018). Coding is a method of classifying data with category names with descriptive words and grouping (Sutton & Austin, 2015). I used HyperResearch software to identify thematic patterns from the participant's responses to generate codes to compile the data.

After I disassembled the data, I reassembled the data. Reassembling is a process involving arranging data until themes emerge (Castleberry & Nolen, 2018). Researchers compare data to distinguish the similarities from the variations (Yin, 2018). I conducted a deep analysis of the data to distinguish differences to identify themes and relationships. Successful reassembling will be evident for the development of themes in data analysis (Yin, 2018). I rejected irrelevant data and retained relevant data to address the research question.

According to Marshall and Rossman (2016), interpreting data involves the researcher providing the meaning of the data from the responses from the participants. I interpreted the meaning of the data after reassembling. Furthermore, I explained the meaning of the data. the researcher's ability to comprehend and explain the data is vital for interpretation (Yin, 2018). To address the research questions, the approach was to articulate my understanding of the data from the data collected.

The final step in data analysis was to conclude the data. Concluding data is developing statements from the data (Yin, 2018). Researchers use data analysis software

to aid in creating themes (Sutton & Austin, 2015). I employed a coding process to analyze the data for themes. Coding is the primary process to analyze and organize information into intelligible meaning (Adom et al., 2016). Additionally, using a coding process allows researchers to collect meaningful sections of data and facilitates the conceptual framework (Adom et al., 2016). Completing the data was my final step in data analysis.

I used HyperResearch software to input, store, code, and explore themes. HyperResearch is a software program that enables a qualitative researcher to collect, organize, analyze data. To conclude the data analysis, my approach was to utilize HyperResearch to develop themes to address the research question.

A master list was created to develop distinct categories during the coding process. The color-coding system allowed me to track and manage the data to understand the relevance to the research. Moreover, assigning a color code to designate transitional stages of the research assisted in the coding process (Forero et al., 2018). After reviewing and analyzing the data, I will color-code the information as red (critical), yellow (possibly critical), or green (not critical). Color-coding indicates the stages of the data analysis while discovering themes during the process (Forero et al., 2018). I employed a color-coding system.

After I completed the data analysis phase, themes and subthemes may emerge to assist me in identifying the cost control strategies for reducing medical expenditures of medical supplies relating to the business problem. The process for identifying key themes requires the organization of data sets, classifying information, coding, and interpretation

of data. Moreover, after collecting, coding data, and member-checked interviews, researchers should identify themes and patterns (Birt et al., 2016). I grouped the data into distinct categories relevant to themes based on the participant's responses.

Researchers use SCT to focus on learning the behaviors of a social framework and how individuals learn from one another (Bandura, 1986). With SCT, employees may learn the behaviors from leaders to control costs and then demonstrate the same conduct. Individuals learn acceptable and inappropriate ways of behavior through role modeling and by observing the conduct of others (Bandura, 1986).

## Reliability and Validity

### Reliability

There are multiple approaches to assess the reliability of the data (Mohajan, 2017). Reliability occurs when the researcher authenticates the data and evidence from different sources and perspectives (Mohajan, 2017). Researchers achieve study reliability through consistent data collection instruments, data collection techniques, data analysis, and coding (Yin, 2018). Furthermore, to assess the reliability of the data, researchers focus on the dependability of the study (Yin). I ensured reliability by confirming the data.

#### *Member Checking for Reliability*

Researchers use member checking for reliability (Korstjens & Moser, 2018). Through member checking, researchers increase reliability by removing bias and increasing data accuracy (Yüksel, 2017). Accuracy and interpretation strengthen the reliability of research findings (Yüksel, 2017). According to Birt et al. (2016), achieving member checking for reliability depends on the researcher's competency to explain the

findings are organic and transparent. I ensured reliability by incorporating member checking as a method to enhance the accuracy of the interpretation of data.

The robustness of data collection is an indication of reliability (Morse, 2015). To ensure member checking, I summarized my understandings of the participant's responses and ask the individual to review my summary. Allowing the participant to review the summary of the interview contributes to the reliability of the study (Birt et al., 2016). Moreover, researchers use member checks to avoid interpretation mistakes and to enhance the reliability of the study (Simpson & Quigley, 2016). I emailed each participant my summary of the interview to review my accuracy of the responses for readability.

### *Dependability*

Dependability is enhanced when the research findings can be replicated by other scholars (Korstjens & Moser, 2018). Researchers should maintain consistent documentation to ensure accurate findings (Yin, 2018). Accurate and consistent data allows the researcher to drive dependability (Korstjens & Moser, 2018). To validate dependability, I maintained consistent data collections and analysis methods.

### *Member Checking for Dependability*

Member checking allows the participants to review their interview responses for accuracy (Cypress, 2017). Dependability involves showing that the findings remain consistent and repeatable (Lincoln & Guba, 1985). To ensure data collection is accurate and consistent with data gatherings, I summarized my interpretations of the findings and share them with participants for integrity.

## Validity

Validity is the trustworthiness and accuracy of a study (Morse, 2015). Researchers must establish trust and their role in the research to warrant validity (Morse, 2015). To substantiate validity, researchers must be transparent in their methods for collecting, analyzing, and organization of data (Mohajan, 2017). Moreover, the components of credibility, conformability, and transferability increase validity (Mohajan, 2017). To enhance the validity of the study, I was transparent with my techniques of collecting, analyzing, and organizing the data.

### *Credibility*

Methodological triangulation strengthens credibility (Yin, 2018). Credibility is establishing confidence in the value of the intended study (Lincoln & Guba, 1985). To ensure credibility, a researcher can exhibit discipline and rigor by documenting the research process in detail (Abalkhail, 2018). Credibility occurs when the findings are accurate as a result of the research process (Liao & Hitchcock, 2018). The findings of the study must reflect the correctness of data from the participants (Liao & Hitchcock, 2018). I used methodological triangulation from archival documents and interview transcripts to reinforce credibility.

### *Member Checking for Credibility*

Member checking is an important method to ensure credibility (Livari, 2018). I established credibility by conducting member checking, documenting the process, and recording any changes that may occur to provide a transparent assessment of the research

process. Member checking is the process of ensuring credibility through the lens of the participants (Birt et al., 2016).

### *Transferability*

The transferability of a study involves the ability to apply the data gathered from the interviews and participants into other contexts (Marshall & Rossman, 2016). Qualitative transferability entails the applicability of the research findings and the competence of the researcher to use them in future settings (Gill et al., 2018). The alignment of factors, methods, and processes is to continuously progress from the beginning to the completion of qualitative research (Gill et al., 2018). I acknowledged the assumptions, limitations, and delimitations to allow other qualitative researchers to determine the transferability of the study. Researchers could achieve the transferability of the research results if the construct of the study design is methodologically complete (Gill et al., 2018). To aid in transferability, I documented and describe the research process and present a detailed description of the research method to allow other readers to transfer the procedure to a different setting.

### *Confirmability*

Confirmability is the process of considering the study from different viewpoints (Lincoln & Guba, 1985). Confirmability is established when the research findings can be replicated in future studies (Gill et al., 2018). The purpose of validity in a case study is to achieve acceptance and applicability of the research (Yin, 2018). To ensure confirmability, I transcribed the interviews based on the participants' responses to maintain bias-free research.

Member checking is the process that researchers use to ensure the alignment of the participant's interview and the accuracy of data (Birt et al., 2016). I will address the study confirmability by adhering to the qualitative indicators and processes outlined in this study (e.g., interview protocol, member checking and, triangulation). Researchers who seek to ensure study results are confirmable should carefully follow their predetermined data analysis methods so that no bias or preconceived notions impact the results (Yin, 2016). I carefully followed the data analysis method to ensure that the study results were derived from an accurate analysis of data, reflecting clarity.

### *Data Saturation*

Data saturation occurs when data or themes develop within the study (Constantinou et al., 2017). There is a greater probability of data saturation when the data collection is focused to address the overarching research question (Hennink et al., 2019). Data saturation is a continuance of interviewing participants until no new information emerges (Hagaman & Wutich, 2017). I ensured data saturation by continuing to interview participants until no new information emerges.

## Transition and Summary

Section 2 includes an overview of this qualitative study. The purpose of this qualitative multiple case study was to explore strategies hospital leaders use to reduce medical supply expenditures at multiple hospitals in Texas. In Section 2, I reviewed the problem statement, examine the role as a researcher, and the process of selecting the participants for the study highlights the researcher's approach and how the researcher will select participants. Section 2 also covers adhering to ethical principles and this study is

voluntary for participants described in this section. A description of the design and methods of this qualitative study is in Section 2. In addition, Section 2 includes the process and strategy of data collection and analysis, along with reliability and validity.

Section 3 will begin with an introduction, followed by presenting the research findings, the application of the professional practice, and the significance and implication for social change. Furthermore, my contribution will be to identify strategies for leaders to control expenditure in a medical supply chain is included in Section 3. Also, I provide a recommendation for further research and actions to address the research question.

Section 3: Application to Professional Practice and Implications for Change

## Introduction

The purpose of this qualitative multiple case study was to explore the strategies that leaders use to reduce expenditures in a hospital supply chain. The research question that guided this study was: What strategies do hospital leaders use to reduce supply chain expenditures? I collected data from six hospital leaders in the state of Texas. The requirement to participate in this study was a minimum of 2 years in a leadership role in a hospital supply chain who have implemented successful strategies to reduce expenditures.

Data were collected using semistructured interviews while adhering to an interview protocol (see Appendix A). The interviews were conducted via virtual meetings and recorded while asking seven interview questions. I transcribed the recorded the interviews using Microsoft Word. Methodological triangulation and member checking increased the validity of the data. I analyzed the data by employing Yin's five-step process utilizing Researchware's HyperRESEARCH software (http://www.researchware.com/products/hyperresearch.html). The analysis revealed three major themes: (a) effective mentoring, (b) training in department and other, and (c) incentives (see Table 1).

**Table 1**

*Emergent Themes*

| Central themes | Number of respondents | Number of occurrences |
|---|---|---|
| Effective mentoring by leading | 6 | 60 |
| Shared training practices | 6 | 42 |
| Incentives for motivation | 6 | 21 |

## Presentation of the Findings

The research question for this qualitative study was: What strategies do hospital leaders use to reduce medical supply expenditures? The data collected were from leaders of the hospital medical supply chain who have successfully implemented expense reduction strategies. In addition, archival documents were reviewed that included strategies to reduce expenditures.

The interviews were recorded using Zoom virtual meetings on my computer for protection from the COVID-19 virus. I conducted semistructured interviews to address the questions to gain additional participants. The interviews lasted no more than 45 minutes. I ensured member checking by emailing the summarized responses to participants for them to review for discrepancies and any modifications. According to Korstjens and Moser (2018), member checking allows the participants to review their interview transcripts to offer the opportunities to confirm, clarify, or augment the data captured by the researcher.

Once each participant approved the summary, I utilized HyperResearch to assist in organizing the research data analysis to determine the following major themes: (a)

mentoring, (b) training, and (c) incentives. Moreover, to protect the identity of the participants I replaced the names with unique identifiers with P1, P2, P3, P4, P5, and P6. The three themes aligned with the conceptual framework of SCT. Bandura (1977a) postulated that employee self-efficacy is a motivating element for goal achievements.

Data saturation was attained after the sixth participant because no new information was collected. According to Constantinou et al. (2017), the number of interviews to achieve data saturation is determined when no new themes, evidence, or patterns develop.

**Theme 1: Effective Mentoring by Leading**

The first theme to emerge was mentoring. All six participants emphasized that mentoring was important in reducing expenditures. According to Bandura (1977b), leaders can increase self-efficacy by displaying and demonstrating effective work. Creating a mentoring relationship, the participants experienced positive results with implementing strategies. Moreover, each participant agreed that leaders who develop employee skills build confidence and motivation through mentoring. Specifically, P1 stated, “Mentoring our employees is key to having positive results by developing their confidence.” Additionally, P1 and P3 shared that being in a leadership role you should be flexible. P3 stated,

> Mentoring is fluid, not a process. When I mentor my staff, not everyone accepts mentoring the same. I assess each person differently by getting to know their personality, then I try my best to be flexible and adjust how to positively motivate

> them. Also, I will perform the same task along them to provide my experiences to demonstrate there are different approaches to reduce cost with the same result.

To reinforce my analysis of mentoring with methodological triangulation, I reviewed documents associated with performance evaluation. P2, P4, and P6 noted that being able to effectively mentor resulted in both professional and personal success. P2 and P5 shared 360-degree assessments for leaders and employees. One evaluation criterion for leaders is the ability to mentor successfully within their scope of responsibility. Specifically, P2 stated, "mentoring is not a formal process, but the ability to organically encourage people in a way that complement their personality within the work environment." According to Jones et al. (2018), cultivating naturally is a form of mentoring without a formal process or approach. P5 revealed,

> I have been through several types of formal leadership programs required by the hospital. Nearly every program requires assessing job-specific evaluation and rate with a Likert scale. There are areas within rating for comments to address why the employee earned a specific rating. With the 360-degree assessment, the employees are provided a set of questions for their leaders. Nearly all my employees stated that having a mentor is important for my professional development in this role. Also, personally helps them manage their mentoring ability with their personal lives.

**Correlation to Conceptual Framework: SCT**

The mentoring theme aligned with SCT. One way that employees learn is through the sharing of experience from leaders, which may facilitate their motivation to

effectively perform observed tasks (Bandura, 1986). Moreover, to gain self-efficacy motivation by observing, employees may have the desire to emulate their leaders. In a note about motivation, P1 stated,

> I had a planner that was very detailed-oriented and had been shown one way to do this job before I got there. His way was effective and accurate, but he was not seeing the bigger picture of what our department is trying to do with reducing costs. He did not understand how his job (task) was part of the overall cost reduction for supplies helped to gain a better understanding of managing supplies for patients. So, I showed what I did in a scenario and my course of action to completion. I did this for 2 weeks with him and since [then] he has modified his approach to align with the bigger picture to reduce costs.

High self-efficacy enhances a person's motivation to complete a task (Sharma, 2017). Furthermore, a person with high self-efficacy focuses on mastering a task from motivation and a sense of accomplishment (Sharma, 2017). The conceptual framework for this study emphasizes that leaders should effectively mentor employees to develop appropriate behaviors.

**Correlation to the Literature**

The findings of this study align with the current literature. Mentoring can affect an employee's self-efficacy in their ability to set goals (McGee & Peterson, 2019). P1 and P3 indicated that being open-minded when mentoring helps to build confidence within the employee. Specifically, P4 stated, "As a leader, you should be able to mentor, but being mentored as well. If you have an understanding of your employees, you'll be

able to set goals and have a greater chance of completing them." According to Bandura (1986), verbal persuasion can increase self-efficacy to complete tasks. P3 explained,

> I found that it is important when speaking to my employees in a tone and delivery makes all the difference. My experience is if I speak in a positive tone to a mentor I typically will have better responses from my staff. Of course, everyone is different and my approach to mentoring will be adjusted. My thoughts on mentoring are the ability to connect with people using your delivery in a conversation.

As posited by Moradkhani and Haghi (2017), positive persuasion can increase self-efficacy for employee performance. Moreover, McAdam et al. (2019) stated that a leaders' ability to innovate strategies can improve organizational performance. In the medical supply chain processes, standards, and relationships are important to deliver supplies that can be correlated to managing expenditures (Nabelsi & Gagnon, 2017; Peltoniemi & Suomi, 2019). P6 shared, "The leaders of this hospital have a responsibility to reduce the expenses of all the departments. Supplies are costly and we have to lead our staff to understand the importance of managing our spending."

**Theme 2: Share Training Practices**

Training was the second most common theme. All four participants summarized that training is essential to effectively understand how to reduce expenditures in a medical supply chain. P5 said, "Training is important in the healthcare field, especially with having the correct supplies for doctors. Also, when you're responsible to manage expenses another layer of training is important as well." According to Lejeune et al.,

(2021), leaders who provide training have increased employee performance. P4 stated, "When I have a new employee starts in my department, training begins from day 1. I found this approach has been successful for my staff." To strengthen my analysis of training, I reviewed training documents associated with the medical supply chain department. P5 asserted,

> My training regime involves having steps and goals for each aspect of our supply chain. I have a training plan on medical supplies and how they are grouped. This initial training is planned for 1 month depending on the employee. Next, I have a background in accounting and finance, and trained on how to read a profit & loss statement and balance sheet. The reason I train on this is because of our cost structure and spending for the department. I don't expect everyone to be an accountant, just able to understand if we're making an impact on our strategies for reducing costs.

Training is impactful for organization performance when completing goals and tasks (Chand & Markova, 2019). I used methodological triangulation by requesting to review training documents. P2 voiced, "My training plan involves setting goals and completing each task. Once they have mastered each task, I will develop a more advanced training plan based on the employee understanding and motivation." P5 and P6 contended that proper training had reduced the costs of medical supplies within their responsibilities. Both P1 and P4 shared that they were selected to educate staff in other departments on the importance of reducing costs in medical supplies and how the cost reductions were achieved. Specifically, P1 shared,

> The training plan in my department was a collective effort on everybody who works with medical supplies, this includes the nurses who use the supplies and our finance and accounting department who see invoices and purchase orders. Once a month we have a training meeting that includes the nurses so that we can gauge how we're doing with their needs when caring for their patients. Also, we meet with accounting and finance to see if we're meeting our goals for the month. Together, this approach has been successful in capturing the entire supply chain process.

**Correlation to Conceptual Framework: SCT**

The importance of training is an evident with SCT. Bandura (1977a) posited that training on tasks can improve self-efficacy and motivate employees to achieve goals. P2 stated, "My training involves not only job-specific duties but also understanding the person. I try to be innovative when training. The reason is that I have a structured training plan, but not everyone is structured the same way." Affective arousal can positively affect self-efficacy through innovative motivation. According to Intasao and Hao (2018), affective arousal facilitates innovation from employees to accomplish a task. P1 explained,

> I attempt to acknowledge that their success is based on how I interpret their ability to learn from the training. If there is something that an employee is not grasping the information to perform their duties, I try to be innovative with my approach to allow them to learn how they are wired."

All the participants noted that training is the epitome of understanding the entire supply chain process. Also, the participants recognized that training is a collective effort and not siloed only to their departments. P4 and P6 shared that their employees have been more confident in their jobs by having the training meetings. P3 stated, “After every meeting, I have one employee that always thinks of better ways we can do our jobs.” Self-efficacy stimulates new ideas when their confidence is high (Mielniczuk & Laguna, 2018)

**Correlation to Literature**

Training is a tool and method that involves providing employees with knowledge required to perform their jobs. According to Chand and Markova (2019), training increases performance for the employee and the organization. P1 shared, “training is the core to our success to reduce cost by sharing and teaching the knowledge of what we do.” Bandura (1986) and Nebocat (2017) posited that training on specific tasks and goal setting may improve employee self-efficacy through motivation.

SCT was complementary in training employees to increase self-efficacy. According to Franco (2018), hospital leaders have the moral obligation and fiduciary responsibility to focus on the quality of care. Moreover, leaders are responsible to ensure a more cost-effective treatment for patients (Rosales et al., 2020). In increasing self-efficacy for training, the sharing of goals and tasks for reducing medical supply expenses remains a focus for all participants and their employees.

**Theme 3: Incentive to Motivate**

All participants voiced that having an incentive facilitates positive performance. Having an incentive structure relates to self-efficacy theory by motivation (Bandura, 1986). The participants shared that those incentives may include public acknowledgments from C-level or higher, monetary bonuses, or plaques and honors. Moreover, the participants expressed those rewarding employees for their efforts on reducing expenditures with awards motivates their ability to perform at a high level. P3 stated, "When I introduced an incentive plan for performing quality work, I found that select employees performed at a higher level." According to Sharma (2017), having high self-efficacy focuses on mastering a task from motivation and a sense of accomplishment (Sharma, 2017). P4 shared:

> Our incentive structure was simple in the beginning since this was all new to us, including the hospital. As we improved the incentive, my employees began to perform at a high level. I asked one of my employees, *how do you feel about the incentive structure*, he mentioned that a felt accomplishment when we reached our goal which means that I reached mine.

Oyibo et al. (2018) posited that a person's self-efficacy is driven by goal setting and accomplishment from motivation. P2 and P3 said their employees are motivated to be successful and represent themselves and the department in the best they can.

**Correlation to Conceptual Framework: SCT**

SCT was complementary in motivating employees to increase self-efficacy. Wilroy and Turner (2016) stated that reciprocating communication plays an essential role

in SCT. All participants shared that when their employees understand the incentives were tied to their consistency when performing their jobs, their motivation naturally increased and was more productive. Lieke et al. (2016) stated that a person's behavior is formed by repetitive interaction of behavior and environmental motivation to accomplish a goal. P4 shared, "The incentive plan we have within our department is tied to reaching your goals. We also have stretch goals that are tied to their bonus payout, which we pay quarterly." In contrast, P1 stated, "We have an annual incentive for our employees who meet their goals. Every 6 months our president awards all departments in the hospital and have typically had a couple in that group."

**Correlation to Literature**

Participants shared that being a leader, incentives should be part of your approach to reduce expenditures. The correlation to the literature aligns with incentivizing employees through rewarding through recognition. Goal setting and accomplishment facilitate confidence by offering incentives for employees who are motivated to complete a quality task. According to Abdulsalam and Schneller (2020), medical supply expenses are an important topic for hospital administrators. P1 stated, "Our senior leaders having an obligation to reduce costs and supply chain is a major objective this year. We have an incentive to be recognized in our industry as leading the way to the overall challenges facing the healthcare spending." P4 emphasized, "Incentives are a good way to address the cost issues, and at the same time our employees are developing confidence in their day-to-day jobs to perform at a high level."

## Applications to Professional Practice

The findings of this study may provide leaders with examples of strategies they successfully used to reduce expenditures on hospital medical supplies. The participants of this study recognized that mentoring, training, and career growth are important factors to implement strategies for reducing expenditures. Hospital administrators have a moral obligation and fiduciary responsibility to offer care for patients and ensure cost-effective treatment (Abdulsalam & Schneller, 2020; Franco, 2018). Moreover, improving financial and operational patterns of medical supplies is an important approach to reducing costs.

This study provides hospital leaders with examples of strategies to improve the quality of care for patients. Physicians and staff may benefit from learning and training on successful strategies to complement their medical training to improve the overall quality of patient care and the healthcare system. Moreover, empowering physicians and staff to collectively expand the healthcare industry incorporating cost strategies as part of their training may develop enhanced patient care.

The results could be relevant across hospitals by providing examples of strategies to improve patient experience and sustain profitability. Hospitals that implement successful strategies may improve reputation, image, and competitive advantage among patients who seek medical care.

## Implications for Social Change

Society may benefit from the results of this study through improved patient care. The medical supply chain operational procedures are characteristically complex and leaders have an array of challenges to effectively control expenditures of supplies

(Nabelsi & Gagnon, 2017). Moreover, patients may indirectly pay for the rising costs of an ineffective supply chain (In et al., 2019).

Hospital business leaders have a fiduciary responsibility to manage finances and operations intelligently, effectively, and profitably (Kaiser et al., 2020). The implication for positive social change of this study may improve the well-being of patients from the reduced cost of medical care and economic health by improving strategies for reducing expenditures.

## Recommendations for Action

Hospital leaders should invest in additional training that could foster greater attention to cost controls by establishing an employee mentoring program. Implementing a mentor program can cultivate self-efficacy among employees. Leaders who employ mentoring may further develop their department by managing various strategies, improve behaviors, and increase social impact of the overall patient care within the healthcare industry.

Training provides a learning process and fundamental approach to any role. Hospital leaders should employ a leadership program training on how to train employees fundamentals on their roles and how supply chain effect patient care. The specific recommendation would be immersion for short period within business operations and selected department that utilize supplies.

Incentives provide motivation to perform at a high-level. The participants in this study responded well to monetary value when incentives were reached. Moreover, the specific recommended training is the motivating employees career advancement through

metrics by implementing key performance indicators (KPI). Employees that meet goals set within KPI goals may perform at a high level and gain more interest in learning more about their role or perhaps inspiring their career goals to other areas.

I will provide a summary of my findings with the thought that each participant may understand other participant experiences. The goal is to share successful implementation strategies to other hospital leaders and industries that aim to reduce expenditures. I plan to share the study finding to Pro Quest/UMI dissertation database and journals that can be assessed by other researchers and leaders. Moreover, I am a member of leader boards and plan to share through workshops and conferences where leadership is a key focus of the topic.

## Recommendations for Further Research

This qualitative multiple case study was to explore strategies leaders use to reduce expenditures of a medical supply chain that had three limitations. The findings of this study expanded my knowledge of different strategies that are recommended for further research. Further research may be applied to other leaders and industries.

The first limitation in this study was that responses to the interview questions may be biased or subjective. Additional research should focus leadership training. Specifically, what situation leadership training and workshops to improve mentoring and coaching to develop self-efficacy among employees. Moreover, leadership training relating to career development for employees who may seem to have traits of leadership.

A second limitation was that the research study results may be limited by the hospital leaders' experiences and knowledge of implementing strategies to reduce

medical supply chain expenditures. Additional should focus on the aspects of modern technology training of medical supplies and the effects of patient care. Particularly, experience in technical knowledge of information technology and credentials relating to business operations of healthcare industry.

## Reflections

With the combination of coursework, writing, and research, there were a few things I learned from professional and personal viewpoints. Professionally, my experience in the supply chains industry is manufacturing, warehousing, and logistics. My reflections from this study are that healthcare and supply chains are complex processes with many policies and procedures to follow with close oversight. As healthcare is tightly regulated from a patient care viewpoint, business operations are nearly equally regulated from a cost and expenditure approach. As such, there is more research required to reduce the expenditures of medical supply chains. Personally, obtaining a terminal degree was always my goal. I have experienced highs and lows during my doctoral journey. The experiences were academic writing and research, scheduling for data collection, and life changing events. However, with my family, my Chair, and other supporting people in my life, they encouraged, at times enthusiastically persuaded me to push through the tough times.

Real-world experiences and formal academic achievements have changed my view of my doctoral journey in a couple of ways. First, based on my over 15 years of professional experience, I felt some parallels would transition to the doctoral journey. However, there were moments that I found myself challenged with re-learning to remove

bias from the research. I have reflected how my leadership style before and after this academic journey and concluded that there are several ways to achieve a goal.

## Conclusion

This multicase qualitative case study was to explore strategies leaders use to reduce the expenditure of medical supplies. Healthcare spending in the United States continues to rise at a projected rate of 5.5% per year until 2027. According to Nabelsi and Gagnon (2017), leaders have a moral responsibility to provide quality care to patients and maintain financial performance. Participants of this study were selected using purposeful sampling that fit the criteria of the leadership role and has successfully implemented strategies to reduce expenditures. I used semistructured interviews and methodological triangulation for data collection. The data analysis was performed using Hyper Research, in which I identified three themes: (a) mentoring, (b) training, and (c) incentives. The themes were correlated to the conceptual framework of SCT and current literature.

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Appendix A: Interview Protocol

| What I will do | What I will say |
|---|---|
| Introduction and purpose of the study | Good morning/afternoon (participant).<br><br>First, thank you for taking the time to help with my study. This interview will last no more than 45 minutes.<br><br>Again, I will be asking you to describe the strategies you have used as a leader to control the cost of the hospital supply chain. The purpose of my study is to explore strategies leaders use to reduce medical supply expenditure. |
| Consent Form Review | (Participant), before we start the interview, I want to make sure you are still ok to answers questions.<br><br>I want to remind you this interview will be recorded to ensure that I capture your information accurately.<br><br>Also, I want to remind you that personal and organizational identities will be strictly confidential.<br><br>After 5 years I will destroy all data that I have collected regarding this study.<br><br>Do you have any questions before we begin? |
| • Watch for non-verbal cues (if a video is used)<br>• Paraphrase as needed<br>• Ask follow-up probing questions to get clarity on responses | 1. What strategies do you use to reduce expenditures for medical supplies?<br>2. What strategies work best to reduce medical supply expenditures?<br>3. What challenges have you experienced in implementing a strategy?<br>4. What type of training have you received?<br>5. What strategies did you modify?<br>6. How have you assessed your strategic initiatives?<br>7. What additional information would you like to add? |
| **Member Checking Interview** | |
| Wrap up interview thanking participant | (Participant), I genuinely appreciate your time and the responses you provide. You have given a clear explanation of how you implemented cost control strategies for the hospital supply chain. |
| Schedule follow-up member checking interview | (Participant), I can work around your schedule, I would like to have an opportunity to send you a summary of our interview to verify that I have accurately captured your responses. |

## Appendix B: Interview Questions

1. What strategies do you use to reduce expenditures for medical supplies?
2. What strategies work best to reduce medical supply expenditures?
3. What challenges have you experienced in implementing your?
4. What type of training have you?
5. What strategies did you modify?
6. How have you assessed your strategic?
7. What additional information would you like to?