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Relationship Between Hospital Performance and Medicare Reimbursement Penalties

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This is to certify that the doctoral study by

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Walden University
2021

Abstract

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by

Ashley D. Bays

MBA, Liberty University, 2010

BS, East Tennessee State University, 2008

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

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Abstract

Medicare reimbursement penalties are a financial concern for health care leaders when hospitals underperform in the specific measures of hospital performance defined by the Hospital Value-Based Purchasing Program. Grounded in the general contingency theory, the purpose of this correlational study was to determine the relationship between the measures of hospital performance, clinical care, person and community engagement, safety, efficiency and cost reduction, and Medicare reimbursement penalties. Secondary data from the Centers for Medicare and Medicaid Services were collected from 420 acute care urban hospitals designated as teaching facilities with a bed size between 100–299 beds for the fiscal year 2019. The results from the multiple linear regression analysis indicated the model as a whole was able to predict Medicare reimbursement penalties, $F(4, 415) = 141.8$, $p < .001$, $R^2 = .58$. In the final model, all 4 independent variables significantly predicted Medicare reimbursement penalties. Efficiency and cost reduction ($\beta = .453$, $t = 13.965$, $p < .001$) accounted for the highest contribution to the model, followed by clinical care ($\beta = .379$, $t = 11.709$, $p < .001$), person and community engagement ($\beta = .309$, $t = 9.435$, $p < .001$), and safety ($\beta = .195$, $t = 6.071$, $p < .001$). Health care leaders must ensure that their management approach reflects a strong commitment to high quality health care delivered to patients. The implications for positive social change include the potential for health care leaders to develop effective approaches to improve access to health care for patients, improve the quality of health care delivered to patients, and reduce their overall health care costs while maximizing Medicare reimbursements for health care organizations.

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Section 1: Foundation of the Study

As the U.S. health care system transforms, health care leaders must develop new models to improve the delivery of care that will focus on the quality and cost containment while maximizing Medicare reimbursements. The health care industry has made limited progress toward quality improvements due to various factors including, lack of alignment in measurements, lack of electronic systems for reporting measures, and the overall fragmentation of the health care system (Burstin, Leatherman, & Goldmann, 2016). The 2010 implementation of the Affordable Care Act (ACA) was the most recent attempt to realign health care systems for the improvement of health care quality and design. However, the ACA created uncertainty regarding hospital performance in the quality domains identified by the Centers for Medicare and Medicaid Services (CMS). In this study, I used a correlational approach to provide additional information on the relationship between measures of hospital performance (scores of each CMS measured domain including clinical care, person and community engagement, safety, and efficiency and cost reduction), and Medicare reimbursement penalties (the percentage change of Medicare reimbursement penalties up to 2% withheld from each participating hospital's Medicare payment). This may provide a framework for an innovative health care strategy amongst all hospitals to offer higher quality and affordable health care to all Americans.

Background of the Problem

There have been numerous attempts to repair the U.S. health care system, including the ACA in 2010. The ACA includes many provisions to extend coverage to millions of uninsured Americans and implemented measures to lower health care costs

while improving efficiency. As health care quality and costs are at the forefront, CMS implemented a program under the ACA known as the Hospital Value-Based Purchasing Program (VBP). VBP is a CMS initiative linking Medicare payment to the quality of care hospitals provide to Medicare beneficiaries in the inpatient setting. The VBP program affects reimbursement payments to 3,000 hospitals across the United States, accounting for the largest share of Medicare spending in efforts to improve health care quality (CMS, 2019b). Before the VBP program, acute-care hospitals and physicians received Medicare incentives for increasing their patient volumes and cost of services that created concerns such as excessive treatments, increased readmissions, low quality of care at higher costs (Guo, Tang, Wang, & Zhao, 2017). Currently, under the VBP program, CMS evaluates individual hospital performance annually based on defined quality domains including, quality, efficiency, person and community engagement, and patient safety (Francis & Clancy, 2016). Based on a hospital's performance for the domains, CMS has increased Medicare reimbursement penalties from 0.5% to 2% for the lower performing hospitals (Kittinger, Matejicka, & Mahabir, 2016).

Health care leaders must align their objectives to the quality and delivery of care and address the rising costs based on the shift to a value-based model. The shift to a value-based program and the transparency of health data available, allows the patients to drive hospital reimbursements. Information and findings from this study may be used in the development of strategies and improve business practices to maintain sustainability in this challenging health care industry.

Problem Statement

The Medicare program covers most of the United States aged population with over 55 million beneficiaries currently enrolled (Tu, 2018). Medicare spending grew 6% in 2018, up from 4% in 2017 to represent approximately 18% of the total gross domestic product (Sisko et al., 2019). The U.S. health care system spends twice as much on health care as other countries and has poorer health outcomes (Papanicolas, Woskie, & Jha, 2018). The general business problem is the financial implications from Medicare penalties hospitals face by underperforming hospital performance measures within the VBP program. The specific business problem is that health care leaders do not know the relationship between measures of hospital performance (clinical care, person and community engagement, safety, efficiency and cost reduction), and Medicare reimbursement penalties to align business strategies to provide high-quality health care at a lower cost to Medicare.

Purpose Statement

The purpose of this quantitative correlational study was to examine the relationship between measures of hospital performance and Medicare reimbursement penalties. I examined the relationship between the hospital performance measures of clinical care, person and community engagement, safety, efficiency and cost reduction, and Medicare reimbursement penalties. The independent variables were clinical care domain score, person and community engagement domain score, safety domain score, and efficiency and cost reduction domain score. The dependent variable was the VBP Medicare reimbursement penalties (the percentage payment adjustment applied to

Medicare reimbursement payments to penalize or reward each participating hospital based on the quality of care that they provide to patients). The targeted population consisted of U.S. acute care hospitals participating in the VBP program. Specific criteria included: (a) urban hospital designation, (b) teaching hospital designation, and (c) bed size between 100–299 beds. The implications for positive social change include the potential for health care leaders to develop effective approaches to improve access to health care for patients, improve the quality of health care delivered to patients, and reduce their overall health care costs while maximizing Medicare reimbursements for health care organizations.

Nature of the Study

I chose a quantitative methodology for this study. Researchers use quantitative research to adopt structured procedures for collecting quantifiable measures of variables and inferences from samples of a population while relying on statistical software to analyze the numerical data (Queirós, Faria, & Almeida, 2017). The quantitative method was appropriate for this study, as the purpose of the study was to analyze numerical data and infer the results to a larger population. I did not use qualitative or mixed methods for this study because these methods would not have served the purpose of this research or provided answers to the initial research question. Qualitative researchers use words and descriptions of experiences that they then evaluate in their own context (Levitt et al., 2018). The qualitative method only provides opinions from the participants and is not used to assess a statistical correlation to answer the research question. The mixed-methods approach was not appropriate for the business problem in this study. The

mixed-methods approach integrates both qualitative and quantitative elements into one study (Halcomb, 2018). Although a mixed-methods study has advantages when exploring complex research questions, McCusker and Gunaydin (2015) implied the research design requires more time, resources, and finances to incorporate both approaches. Due to the study's business problem and the qualitative component, I did not consider the mixed methods approach.

The design that I chose for this study was the correlational design. Curtis, Comiskey, and Dempsey (2016) stated the correlational design determines relationships among variables; therefore, this design was appropriate for the study. Other designs, such as experimental and quasi-experimental designs, are used to seek cause and effect relationships either by random or non-random assignment (Cook, 2015). My goal for this study was to determine relationships rather than a causal experiment, making experimental and quasi-experimental designs not appropriate.

Research Question

What is the relationship between hospital performance measures (clinical care, person and community engagement, safety, and efficiency and cost reduction), and Medicare reimbursement penalties?

Hypothesis

Null Hypothesis (H_0): There is no statistically significant predictive relationship between hospital performance measures (clinical care, person and community engagement, safety, and efficiency and cost reduction), and Medicare reimbursement penalties.

Alternate Hypothesis (H_a): There is a statistically significant predictive relationship between hospital performance measures (clinical care, person and community engagement, safety, and efficiency and cost reduction), and Medicare

Theoretical Framework

Luthans and Stewart (1977) developed the general contingency theory (GCT) of management that integrates process and behavioral management approaches along with incorporating the environment. The foundation of the GCT includes a set of defined variables that interact and produce system performance. Luthans and Stewart (1977) identified the following constructs contributing to system performance under the GCT: (a) situational variables such as culture, technology, education, suppliers, competitors, etc.; (b) resource variables such as human resources, attitudes, group dynamics, raw materials, capital, etc.; (c) management variables; and (d) performance variables. The interaction amongst variables resulted in effective management and contribute to optimizing system performance (Longenecker and Pringle, 1978). However, system performance may be limited if health care leaders rely on a standard approach. As the health care industry and contingency factors continually change, leaders may need to alter their preferred method of leading away from a standard approach (Olden, 2016).

A challenge for health care leaders is to understand how internal and external contingency variables interact and impact the structure and leadership of their organizations (Birken et al., 2017). Therefore, I used this framework for this study to examine how contingency theories may promote better organizational performance when incorporating the GCT variables in the decision-making process. I used the GCT of

management characteristics to create a systematic view to understand the relationship of the measures of hospital performance and Medicare reimbursement penalties under the VBP program.

Operational Definitions

I used the following terms in this study:

Acute care hospitals: Facilities that provide short-term treatment for illnesses, injuries, and urgent medical conditions (Neumeier, Butler, & Fuqua, 2016).

Affordable Care Act (ACA): Effective March 2010. Intended to lower the rate of uninsured Americans, expand state Medicare programs, provide minimum benefits to consumers with pre-existing conditions, and control or limit health care inflation costs (Freeman, Millar, Mannion, & Davies, 2016).

Centers for Medicaid and Medicare Services (CMS): A federal agency under the Department of Human and Health Services that administers insurance to 100 million people through Medicare, Medicaid, and other insurance programs to achieve a higher quality lower-cost health care system (CMS, 2019a).

Hospital Compare Data: Official datasets provided by CMS that compares the quality of care for over 3,000 Medicare-certified hospitals across the US (U.S. Department of Health & Human Services, 2016).

Medicare reimbursement penalty: The actual percentage of Medicare payment adjustment under the Hospital VBP program by year (CMS, 2018b).

Total Performance Score: Includes scores from four domains (1) clinical care domain, (2) person and community engagement domain, (3) safety domain, and (4) efficiency and cost reduction domain (Medicare.gov, 2018).

Value-Based Purchasing (VBP): Payment models and programs designed by the Department of Human and Health Services to improve the quality of health care while reducing the cost (Nowak, 2016).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are generally known facts that researchers assume to be true without proof (Niven & Boorman, 2016). I assumed that the selected data sample is representative of the population. I also assumed that public data are accurate and that the quality domains are reliable indicators of hospital performance.

Limitations

Limitations are the weaknesses of the study that may impact the ability to generalize findings from the study (Astroth & Chung, 2018). A limitation of this study was the use of secondary data. Secondary data limits the researcher's participation in the collection of data, and researchers may not know how the data were collected or if specific variables are better suited for the research questions (Hien et al., 2015). Another limitation was using hospital reported data from the Hospital Compare database and CMS.gov. Hospital reported data increases the likelihood of incorrect data entry that may affect hospital performance scores (Rajaram, Chung, & Kinnier, 2016). The last

limitation was that VBP data are reported by hospitals with an approximate 1-year delay, creating a gap between results and current practices.

Delimitations

Delimitations are the boundaries set by the researcher, so the study's objectives are achievable (Theofanidis & Fountouki, 2018). The first delimitation was that the sample was limited to acute care hospitals located in the United States that participate in the VBP program with specific hospital criteria including: (a) urban hospital designation, (b) teaching hospital designation, and (c) bed size between 100–299 beds. Second, other variables such as organizational size determined by the number of beds below 100 and above 300 beds, rural hospital designation, hospital ownership (public, private, government, and non-teaching), and market competition could affect hospital performance; however, these potential variables were not within the scope of this study.

Significance of the Study

In this section, I will discuss the following: (a) potential value to health care organizations influencing hospitals performance for the delivery of high quality and cost-efficient health care to Medicare patients, (b) contribution to improving effective business practices for maximizing Medicare reimbursements, and (c) contribution and effectiveness in filling the gaps in understanding the improvement of effective business practices in health care organizations. The findings of this study may provide strategies for improving care and maximizing Medicare reimbursements for other health care organizations such as physician group practices, ambulatory centers, and long-term care practices.

Contribution to Business Practice

A better understanding of a hospital's performance under the defined guidelines of the VBP may assist health care organizations in controlling costs and improving the quality and outcomes of patients. The purpose of this study was to examine the relationship between the measures of hospital performance and Medicare reimbursement penalties under the VBP program. Understanding the importance of the performance of hospitals and contingency theories may influence leaders in health care organizations to adjust strategy to deliver higher quality and most efficient health care.

Health care leaders may consider this study valuable to current health care industry trends because the findings may motivate the lower scored hospitals identified by CMS to improve quality delivered at those hospitals and allow health care leaders to make informed decisions when adjusting strategy to avoid Medicare penalties. This research study will promote effective business practices and address the gaps in current literature regarding the ACA and VBP for health care organizations in the struggling U.S. economy. There has been limited literature providing an in-depth analysis of the ACA and VBP because health care organizations have implemented the programs within the previous 10 years.

Implications for Social Change

The VBP program was implemented to reward health care organizations for the quality of care provided to Medicare patients. Politicians and health care leaders have publicized the improvements made in the quality of health care (Robbins, 2017). The ACA of 2010 was meant to expand health insurance coverage to many uninsured

Americans; however, the success of improving affordability and quality remains unclear (Carrasquillo & Mueller, 2018). A better understanding of how hospitals perform under the quality domains measured by the VBP program provides the framework for an innovative health care strategy to deliver affordable health care that may be accessible by all communities (Byrnes, 2015).

A Review of the Professional and Academic Literature

In this literature review, I will focus on the business problem of financial implications hospitals face due to underperformance within the VBP program. The purpose of this quantitative correlational study was to examine the relationship between measures of hospital performance (clinical care, person and community engagement, safety, and efficiency and cost reduction), and Medicare reimbursement penalties under the VBP program. I will begin the section with a historical review of peer-reviewed studies that will explore the foundation and development of the contingency theory, additional supporting theories, and additional contrasting theories. In the next section, I will address the health care reform and the ACA. The following section will include an analysis of relevant literature on the independent variables (clinical care domain score, person and community engagement domain score, safety domain score, and efficiency and cost reduction domain score) and the dependent variable (Medicare reimbursement penalties). Next, I will address aspects of the ACA and VBP program. Lastly, I will compare previous research findings related to this study.

The review of the literature included 151 peer-reviewed sources and approximately 95% of the sources were published within the past 5 years. The review

encompassed information from various sources including, journal articles, literature reviews, government websites, dissertations, and reports. I used the following online databases: EBSCO, Business Source Complete, Social Sciences Citation Index, Science Direct, ProQuest, Academic Search Complete, Medline Journal, and ECONIS for the research included in this review of the literature. The online database searches included the following key phrases: *general contingency theory, transformational leadership theory, situational leadership theory, expectancy-value theory, resource dependence theory, general systems theory, agency theory, motivation theory, service profit chain theory, Affordable Care Act, Accountable Care Organizations, value-based purchasing, hospital value-based purchasing, clinical care domain, person and community engagement domain, patient and caregiver centered experience of care, care coordination domain, HCAHPS, safety domain, efficiency and cost reduction domain, hospital performance,* and *Medicare reimbursement penalty.*

General Contingency Theory

Since the implementation of the ACA in 2010, the health care industry has faced many challenges, such as improving health care quality, increasing patient satisfaction, and diminishing health care costs. CMS developed the VBP program to improve these challenges by rewarding incentive payments to acute-care hospitals for the quality of care provided. CMS measures a hospital's performance based on defined quality measures. In addition, leading an organization and decision making depends on additional factors such as organizational size, organizational scope, and environmental uncertainty to contribute to performance improvement (Larson & Foropon, 2018). As the U.S. health

care system changes, health care leaders need to determine how to maximize their organizations' performance while remaining financially viable in the industry. Grounded by the GCT, Luthans and Stewart (1977) identified that the interaction among primary system variables (i.e., environmental, resource, and management) would result in effective management and optimal system performance. The primary system variables related to the health care industry discussed in the subsequent section are environmental, resource, and management.

Environmental variables. Environmental variables consist of two types of variables: external and internal. External environmental variables such as the economy, politics, and consumers influence an organization's performance. First, the economy affects a health care system's financial situation due to the uncertainty of ACA reform and the unknown of health care affordability. Verma and Singh (2019) stated that individuals of lower economic status are disadvantaged in receiving good quality health care because of the perceived higher costs. As of 2018, the ACA expanded Medicaid coverage in 36 states allowing more Americans to have health insurance coverage (Quadagno & Lanford, 2018).

Another external environmental variable that plays a role in health system performance is politics. Since the implementation of ACA, political parties have differed on how the healthcare system may be improved. Scott, Blendon, and Benson (2016) found that regardless of each political parties' view on health care, individuals shared similar experiences with the quality of care provided by a hospital. Further

improvements in the quality of care in the health care system will depend on how the political parties will work together to resolve national issues (Scott et al., 2016).

The last external environmental variable that may affect health care management and system performance is consumers. Gaynor, Ho, and Town (2014) suggested that health care leaders should invest in their quality of care provided to create competition. By creating competition, consumers will have the ability to influence the price of services and the availability of specialized providers (Gaynor et al., 2014). In addition, Liao and Tsai (2015) stated that organizations develop strategies in multiple areas to secure consumers and build market sustainability. Organizations may also invest in products and technology to react to the environment changes and improve the organization's value (Nurein, Din, & Halim, 2017).

External environmental factors are not the only environmental variables that can affect a hospital system. One internal environmental variable is the organization structure in response to the industry. McAdam, Miller, and McSorley (2016) explained that stable environments tend to have a standardized organizational management structure, whereas dynamic environments have a more complex organizational management structure with an emphasis on adaptability to the environment. Ostler and Csaszar (2017) advised the complexity may depend on the manager's knowledge about the environment and organizational structure rather than the actual complexity of the environment. Lucianetti, Jabbour, Gunasekaran, and Latan (2018) concluded that organizational decentralization would affect an organization's performance and competitiveness, specifically in a turbulent industry. Organizations tend to delay or avoid

adaptability and structural alignment in a turbulent industry until leaders can assist in the realignment of the organization to the environment (Karim, Carroll, & Long, 2016). Although internal environmental variables may be difficult for leaders to control, the GCT states that leaders have more control through resource variables to adapt to change and optimize performance.

Resource variables. As defined under the GCT, knowledge and skills are key characteristics of resource variables (Luthans & Stewart, 1977). Shao (2018) claimed managers should consider the GCT when refining leadership skills to improve culture, strategies, policies, and resources that will contribute to an optimal fit for their organizations. Tang (2017) suggested that knowledge management enhances organizational performance by strengthening education and training for health care professionals and creating channels for the sharing of new and existing skills and knowledge. Repenning, Kieffer, and Repenning (2018) suggested that organizations become more flexible by relying on training and collaboration in an unstable environment. Although a few researchers found that additional training may assist in the implementation of plans for better performance, the efforts may not be effective without leader support, communication, and commitment (Stelson, Hille, Eseonu, & Doolen, 2017). For resources to produce positive change for an organization, the manager must be able to coordinate interaction between the resource and environmental variables.

Management variables. Management variables are concepts and techniques expressed by leaders' policies, practices, and procedures to accomplish system goals and performance (Luthans & Stewart, 1977). Traditional management applies one approach

to every situation; however, under the GCT, approaches should be contingent on the situation. Theorists grounded the GCT by the belief that there is no universal solution to problems. Maletič, Maletič, and Gomišček (2018) added that leaders should not rely on a universal way to view an organization's performance and suggested that leaders with similar performance and activity should develop customized approaches to manage businesses. Otley (2016) suggested that it is unlikely that an overall contingency model could address all circumstances. Due to the complexity of contingencies, management must implement a more dynamic approach. In health care organizations, the success of the organization relies on the leader's development of multiple ways to lead, motivate, and make decisions and apply an appropriate approach based on the situation (Olden, 2016). Senot, Chandrasekaran, and Ward (2016) suggested a systematic involvement of all levels of decision making, including frontline employees and top-level management, to positively affect the organization's performance. Lam, O'Donnell, and Robertson (2015) proved that employees who participate in leadership programs commit to the success of the organization while improving their ability to influence their employees and build positive relationships. Multiple management strategies will positively influence the success of the organization; however, the GCT suggests that there is no single management approach or strategy that will fit every situation, which allows management to develop the best approach that will positively influence the success of the organization.

Supporting Theories

Transformational leadership theory. Transformational leadership theory is an approach where leaders positively influence their followers to support organizational

change (Faupel & Süß, 2018). Various aspects of transformational leadership, including follower's performance, satisfaction, commitment, and trust, promote positive organizational change needed in the health care industry. Health care leaders should understand the changes in the industry and prepare their followers to adapt to change for the benefit of the organization. Transformational leaders may also affect a follower's job performance and satisfaction. Masa'deh, Obeidat, and Tarhini (2016) found a significantly positive relationship between transformation leadership and job performance attributed to the motivation of followers and the development of necessary skills and knowledge, thus boosting individual job performance.

Additionally, Lin, MacLennan, Hunt, and Cox (2015) identified correlations between job satisfaction and commitment to the organization, which were predictors of an individual's performance. Boamah, Spence Laschinger, Wong, and Clarke (2018) discovered another positive relationship between transformational leadership and job satisfaction when health care leaders develop a supportive work environment allowing nurses to feel empowered, resulting in work effectiveness and job satisfaction. In addition, Vaismoradi, Griffiths, Turunen, and Jordan (2016) concluded that leaders who further developed an individual's abilities and creativity created a supportive and ethical culture and were more prepared to make positive organizational change. As health care leaders develop methods to provide a higher quality of care, leaders must also positively influence their followers and build trust to transform the U.S. health care industry.

Situational leadership theory. In situational leadership theory, leaders apply various leadership approaches for different employees. Van der Wal, Scheele,

Schönrock-Adema, Jaarsma, and Cohen-Schotanus (2015) identified two situational leadership approaches: relation-orientated (two-way communication between leader and individual or leader makes a mutual decision with the individual) and task-orientated (leader tells individual how to perform task or leader gives direction on the task). Strömgren, Eriksson, Ahlstrom, Bergman, and Dellve (2017) identified that a relation-oriented leadership approach positively affects employee's job satisfaction, development, and engagement. In contrast, Ruzgar (2018) discovered that a task-oriented leadership approach negatively affects an employee's creativity and moral. Leaders have the flexibility to manage situations by using appropriate skills under the situational leadership theory, as similarly demonstrated in the GCT. As health care leaders apply situational leadership methods, leaders need to identify what approach or behavior will improve the team or organization's performance.

Expectancy value theory. The expectancy-value theory relates expectations for success and perceived task value. Individuals are motivated to perform tasks based on the belief that effort leads to performance, and performance leads to rewards (De Simone, 2015). Shweiki et al. (2015) suggested that applying the expectancy-value theory to the educational training of health care employees provided innovative opportunities and increase employee motivation. However, Eskreis-Winkler et al. (2016) discovered that practices presented to individuals without a motivational aspect did not improve their behavior or achieved performance. Zhu, Rodgers, and Melia (2014) discussed the importance of understanding the link between motivation and job satisfaction and how job satisfaction is attached to the safety and quality of health care delivered to patients.

Health care leaders should evaluate their employees to determine their perception of motivation to ensure the highest level of job performance.

Resource dependence theory. Resource dependence theorists study how an organization's external resources and environments influence organizational behavior. Similarity exists between resource dependence theory and the GCT as environmental factors affect organizations and organizations can affect the external environments in which they function. According to Mosadeghrad (2014), examples of external factors may include the various health care settings that patients can choose, medical insurance, patients' lack of trust with physicians, increasing need for specialized health care, and staff shortages and time constraints. Dongping, Heng, and Guangbin (2017) validated that external factors can contribute to a better understanding of how and why other organizations benefit differently from external factors. Schnittfeld and Busch (2015) suggested that leaders should reduce external factors to boost organizational performance. The health care industry is complex and there is minimal consensus on how to control, measure, and operationalize the environment.

General systems theory. General systems theorists focused on system structure rather than individual function. Health care system structure may include health care service delivery, health information systems, management courses for leaders, employee training, strengthening of the supply chain for medical supplies, and financial budgets. Health care leaders must focus on the interaction and interdependence of the system structure to create a positive effect in the health care industry (Mutale, Balabanova, Chintu, Mwanamwenge, & Ayles, 2016). Health care leaders must understand the

industry complexities to achieve a system approach, alignment, and commitment to the health care organization (Marchildon & Fletcher, 2016). Anderson (2016) advised health care leaders to improve service delivery by studying not only the patient but rather the patient's patterns and behaviors to improve patient outcomes. In addition, Mays and Scutchfield (2015) suggested that a systems approach to the health care reform will promote industry transformation that will improve the health and safety of individuals in the US. In summary, researchers provided numerous ideas on how organizations can function as a system and improve the health and safety of patients.

Rival and Opposing Theories

Agency theory. Theorists use the agency theory to explain the relationship between principals and agents. Bendickson, Muldoon, Liguori, and Davis (2016) suggested that in the agency theory, the principal's delegate work to the agents and the agents complete the demand in the interest of the principal. Agency theory may be beneficial when assessing an underperforming health care organization and holding executives accountable for actions that influence Medicare reimbursement payments (Freeman et al., 2016). In contrast, Bosse and Phillips (2016) argued that the agency theory could uncover certain behaviors such as health care providers not delivering care in the best interests of their patients that could create losses in an organization or society. Ludwig, Van Merode, and Groot (2009) explained the difficulty of the agency theory and how the relationship between a hospital (agent) and patient (principal) relies on the health care provider's opinion about the patient's treatment; therefore, creating difficulty for a patient to measure hospital performance (Ludwig et al., 2009). The agency theory

provides an alternate lens for this study due to the uncertainty of evaluating an unbias relationship between the agent and the principal in health care organizations.

Motivation theory. The motivation theory is job-related actions that lead to job satisfaction. Kjellström, Avby, Areskoug-Josefsson, Andersson Gäre, and Andersson Bäck (2017) identified that solving challenging tasks and participating in the decision-making process to improve care delivery motivated health care providers. However, the theory lacks knowledge about employee motivation and pay (Olafsen, Halvari, Forest, & Deci, 2015). Lambrou, Kontodimopoulos, and Niakas (2010) discussed that health care professionals are motivated by doing meaningful work, building strong relationships, and obtaining respect. Although the motivation theory includes various ways to promote employee or organization motivation, I did not consider this theory as the framework for this study.

Service profit-chain theory. The service profit-chain theory provides an alternate lens for this study as the health care industry links health care employee satisfaction to patient loyalty and profitability. Kim, Eisenberger, and Baik (2016) proved employees' organizational commitment had a significant effect on the value perceived by patients. In addition, Chuang, Liu, and Chen (2015) identified an employee's commitment positively affects employee job satisfaction rather than their quality of service. Although patient satisfaction is an important domain for Medicare reimbursement payments under the ACA, it was not the primary focus of this study.

Health Care Reform and the Affordable Care Act

President Barack Obama signed the ACA on March 23, 2010, with the attempt to transform the U.S. health care system to ensure more Americans were able to get health care insurance and lower the cost of health care. Historically, inconsistencies with quality improvement initiatives, unnecessary uses of health care services, lack of communication, and data transparency attributed to poor quality and higher costs (Antos & Capretta, 2017). The major goals of the ACA are to expand health insurance coverage, shift health care delivery from treatment to prevention, reduce costs, and improve the efficiency of health care (Blumenthal, Abrams, & Nuzum, 2015).

The first major goal of the ACA was to expand Medicaid and Medicare coverage. Courtemanche, Marton, Ukert, Yelowitz, and Zapata (2017) mentioned the ACA increased health care coverage by 11.8% in 2016, which according to Oberlander (2017), was more than 20 million Americans. As a result of the expansion, Blavin (2016) studied hospitals that implemented the Medicaid expansion significantly increased Medicaid revenue, decreased uncompensated costs, and improved profit margins. In addition, the Medicaid expansion contributed to significantly better access to health care (Nguyen & Sommers, 2016), increased use of health care services (Wherry & Miller, 2016), decreased uninsured hospital stays (Nikpay, Buchmueller, & Levy, 2016), and higher quality of care ratings as compared to the quality of care ratings from uninsured individuals (Nguyen & Sommers, 2016).

Medicaid and Medicare also decreased uncompensated costs, which are services performed without payment. Dranove, Garthwaite, and Ody (2016) stated that

uncompensated costs decreased from 4.1% to 3.1% from 2013 to 2014. Health care leaders should consider the financial impact on decreasing uncompensated costs and determine a strategy to distribute excess funding to hospitals. Overall, the expansion of Medicaid and Medicare has benefited health care organizations by increasing Medicaid revenue, increasing profit margins, and decreasing uncompensated costs.

The second major goal of the ACA was to shift the health care delivery from fee-for-service to a value-based model based on quality and patient outcomes. Many industry leaders claim it was too early to provide an adequate assessment of the ACA to determine its success in terms of improved quality, cost of care reduction, and improved accessibility of care. A single delivery or model may not work for all health care organizations; therefore, Blumenthal et al. (2015) suggested many leaders should focus on creating and testing delivery models that encourage the value of care rather than fee-for-service. The ACA developed multiple delivery models that promise an improvement in health care effectiveness and efficiency. However, some integration models were associated with better care for specific health conditions but no difference or lower efficiency measured by utilization and costs (Machta, Maurer, Jones, Furukawa, & Rich, 2019).

Health care affordability was another goal of the ACA. In addition to increased insurance coverage, the ACA improved the affordability and quality of care in vulnerable populations (Sommers, Maylone, Blendon, Orav, & Epstein, 2017). Researchers found that expanding health care coverage reduced overall health care expenditures by nearly 14% for individuals age 21 to 26 (Chen, Vargas-Bustamante, & Novak, 2017). However,

the researchers did not find statistical significance in the cost of private health insurance and the costs of doctor visits (Chen et al., 2017). Ferreira and Gomes (2017) concluded that the ACA was more effective in reducing the uninsured population than all cost reductions considered. The expansion of health care coverage also decreased the number of unpaid bills, which promoted financial stability and less debt for individuals previously impacted by the financial burden (Hu, Kaestner, Mazumder, Miller, & Wong, 2016). In contrast, Mazurenko, Balio, Agarwal, Carroll, and Menachemi (2018) argued that increases in health care coverage, services, and quality led to increased health care spending. As the ACA matures, more studies need to address costs and the impact on the health care industry. Generally, the ACA has helped to slow down spending growth, but health insurance and medical care remain unaffordable for many Americans (Oberlander, 2018).

The ACA has helped millions of Americans gain health insurance coverage, shift health care delivery from treatment to prevention, reduce costs, and improve the efficiency of health care. Politicians and health care leaders questioned the future of the ACA after the 2016 presidential election. President-elect Donald Trump emphasized efforts to repeal, replace, or modify the ACA by improving access to coverage and promoting innovation in higher risked patients to develop more efficient delivery of care models (McClellan & Japinga, 2018). In contrast, other industry leaders suggested that more Americas will likely be uninsured, comprehensive benefits will diminish, and Americans with pre-existing conditions will lose protection and become at risk (Eltorai & Eltorai, 2017). Many experts concluded that any modification to the ACA could affect

health care coverage for Americans and jeopardize any quality improvement initiatives (Glied & Jackson, 2017). Obama (2017) stated there was room for improvements under the ACA, such as providing more options in certain health insurance markets, implementing premiums that are affordable to most families, and decreasing costs of prescription drugs. Moreover, Collins, Doty, and Gunja (2017) suggested that policymakers need to address the weaknesses of the ACA, data must be available to understand insurance coverage trends, reasons why Americans remain uninsured, and perceptions on insurance affordability. Moreover, the specifics of repeal, replace or modification of the ACA under the Trump administration remain unclear. Regardless, policymakers and clinicians must continue to work together on evolving the U.S. health care system and improve the delivery of care (Kuehn, 2017) since 9% of individuals in the US remain uninsured (Woolhandler & Himmelstein, 2017). The health care reform and the ACA are ongoing processes that need health care organizations to be flexible to the changes in the health care industry. The ACA has provided a foundation by expanding health insurance coverage and shifting the health care delivery model to a value-based approach to generate a more cost-efficient and higher quality health care.

Value-Based Purchasing

The VBP program went into effect in October 2012 under the ACA. Numerous value-based programs reward health care providers for the quality of care given to Medicare patients. According to CMS (2018c), valued-based programs aim to reform the care for individuals, improve health for populations, and lower the cost of health care.

The value-based programs are important because they intend to shift the health care focus to the quality of service rather than the quantity of service.

The VBP program encourages health care providers to improve the quality of care delivered to patients by reducing patient harm, improving patient outcomes, improving patient experiences, and increasing care transparency (CMS, 2018c). Organizations may also use various value-based programs to gain a competitive advantage and create additional value for consumers (Kienzler, 2018). The VBP withholds participating hospital's Medicare payments up to 2%, which funds the incentive payments based on the performance of hospitals in the program. CMS applies the net of the payment reduction and incentive as a claim-by-claim adjustment to Medicare severity diagnosis-related group (MS-DRG) in the year associated with the performance measurement period (CMS, 2018c).

Coordination of the VBP program. Health care providers struggle with designing, implementing, and measuring the success of the VBP program. Designing successful programs are difficult for health care providers because there is no guidance or methods for performance comparisons or measurements of improvements (Cress, Revere, Mikhail, Pompeii, & Simmons, 2017). For health care providers to prepare for the implementation of value-based programs, Howrigon (2016) suggested getting started sooner rather than later, prepare for data analysis to influence decisions, integrate physician input, and develop a continuous method to track performance. Reid (2018) developed initiatives that aligned physicians and staff with the organization's vision to assist in the implementation of value-based care programs. Howrigon (2016) noted that

physicians play a major role in health care quality and costs, while Salmond and Echevarria (2017) observed that nurses have an integral role to lead the health care transformation. Tracking performance and outcomes will require collaboration between various roles and departments to affect the delivery of patient care (Salmond & Echevarria, 2017). Salmond and Echevarria (2017) also recommended gaining awareness for available resources within value-based programs to assist with connecting the patients with the care and support needed for improved outcomes. Appropriate coordination and tracking of patient care across providers will ultimately improve patient quality and outcomes to succeed in value-based programs.

Management of the VBP program. The effectiveness of a health care organization's management team may also contribute to the implementation and success of value-based programs. Tsai et al. (2015) suggested that hospital management teams that focused heavily on clinical quality measures monitored quality performance more effectively. However, De Harlez and Malagueño (2016) noted that managers and administrators with a clinical background, rather an administrative background, tend to enforce and monitor hospital performance measures. Involving clinicians and physicians along with administrators in the process of implementing and monitoring hospital performance may also create efficiencies while improving patient outcomes. A key to improving patient outcomes and producing a higher quality of care may be dependent on effective management practices and an appropriate mix of administrators and clinicians leading the transformation.

Quality strategy of the VBP program. Hospitals should develop and implement a quality strategy with processes and guidelines to improve the quality of health care and promote better patient outcomes. Stub et al. (2015) found that adherence to the hospital's processes and guidelines was associated with better patient outcomes. However, Chui et al. (2017) found that not all disease states and treatments following clinical guidelines have an opportunity for improvement, which may affect a hospital's performance. Efforts to measure and improve hospital quality should focus on both process and outcome measures (Chui et al., 2017). To implement best practice strategy and improve outcomes, health care leaders should consider measuring, reporting, and improving hospital adherence to guideline-based performance measures (Stub et al., 2015).

CMS designed value-based programs to incentivize organizations to improve patient outcomes. Robbins (2017) and Bonfrer, Figueroa, Zheng, Orav, and Jha (2018) discovered that many hospitals that implemented quality improvement measures might have limited or no impact on improved patient outcomes and lower health care costs. Turner, Broom, and Counte (2015) found that the reimbursement payments for these health care quality measures were minimal and did not significantly impact a health care provider's financial performance. Other researchers advised that health care providers decreased spending to improve financial performance but jeopardized the quality of health care (Ryan & Rodgers, 2018). Papanicolas, Figueroa, Orav, and Jha (2017) suggested that policymakers need to understand better how to improve the quality of health care by increasing incentives or having more focused measures. Researchers proved that current value-based programs misrepresent the meaning of health care quality

and more importantly the benefits to patients (Henry et al., 2018). Since the inception of the VBP program, CMS adapts to the health care industry by adding new measures or removing measures each year.

Effectiveness of the VBP program. Health care providers are currently validating if the improvements are from the VBP program. It remains unclear if the Medicare payment incentives were the result of improved quality of care from the VBP programs or the result of other factors before the adoption of the VBP program (Ryan, Burgess, Pesko, Borden, & Dimick, 2015). Also, the effectiveness of the VBP program remains unclear because of the inconsistencies in tracking multiple measures. As industry leaders continue to debate the impact of the VBP program on health care quality, costs, and payments, further considerations should support how to measure the improvements of health care as an alternative to the amount of payment withheld and received. Cassel and Kronick (2015) advised that some health care providers are hesitant about adapting to new measures each year because measures may not be meaningful to patients and clinicians. Although uncertainties remain with the VBP purchasing structure, alignment, and measurement, the goal is to make positive improvements in the quality of health care.

VBP Domains

Health care organizations are currently rewarded based on the provided quality of care, followed the clinical practices, and patient experience enhancement (CMS, 2018c). Health care organizations are no longer incentivized for the number of services provided, but rather how organizations perform or improve performance on each measure during

the defined period. The four domains are clinical care, person and community engagement, safety, and efficiency and cost reduction by which each domain has a defined set of measures.

Clinical care domain. The clinical care domain measures the estimated number of deaths in 30 days after entering a hospital for specific conditions, including acute myocardial infarction (AMI), heart failure (HF), and pneumonia (PN). Some researchers discovered that quality improvement strategies have led to a significant quality reduction in one clinical care domain but have increased quality in other clinical care domains. For example, Khera et al. (2018) discovered that in Medicare patients, 30-day mortality rates decreased for AMI but increased for HF and PN. Though, the evidence suggested an increase in 30-day mortality rates post-discharge was not associated with the implementation of a quality improvement strategy (Khera et al., 2018). In addition, Mehtsun, Zheng, Orav, Lillemoe, and Jha (2017) was concerned with the reporting transparency of 30-day mortality and the influence on providers' timing of treatment withdrawal but found there was no evidence of an increase in 30-day mortality. Other researchers identified a weak correlation of reductions of 30-day readmission rate with reductions in mortality rate 30-days post-discharge (Dharmarajan et al., 2017). In health care improvement programs, 30-day mortality for AMI, HF, and PN has become a key measure to assess the hospital's performance. Despite this, many researchers debate whether quality strategies improved scores of the clinical care domain.

CMS measures another condition within the clinical care domain is pneumonia 30-day mortality. Pneumonia is a common illness affecting the aging population and

increasing hospital admissions. Researchers stated the current 30-day mortality in pneumonia patients was 8% and found no evidence that 30-day mortality had changed significantly over time (Cillóniz et al., 2018). In contrast, Simonetti et al. (2016) reported that increased understanding and management of the pneumonia illness lead to a decline in 30-day mortality in pneumonia patients. Other researchers identified various pneumonia treatment therapies that lowered the risk of 30-day mortality in patients (Maki et al., 2018). Moreover, other researchers identified patient characteristics such as pre-existing conditions attributed to or associated with higher rates of mortality (Nasser, Naffaa, Mashiach, Azzam, & Braun, 2018). 30-day mortality rates not changing significantly over time may imply that health care leaders have not focused on improving the quality of health care for pneumonia patients. The unchanged rates present the opportunity for health care leaders to implement improvement strategies to decrease the mortality in patients with pneumonia. A few researchers have identified factors that may increase mortality in pneumonia patients, while others have identified therapies that reduced mortality among patients.

CMS also measures HF condition 30-day mortality within the clinical care domain, where patients with a heart failure diagnosis and died within 30 days of hospitalization. Many performance improvement initiatives use hospital HF mortality measures to determine hospital reimbursement rates (Walkey, Shieh, Pekow, Lagu, & Lindenauer, 2019). Although CMS uses HF measurements in quality and performance improvement programs, Khera, Dharmarajan, and Krumholz (2018) highlight the difficulty of measuring mortality in HF patients due to the commonness of the disease,

the variation of where and how patients obtain care, and treatments provided by practitioners. That aside, researchers sought to determine the variables that affect 30-day mortality rates in HF patients. Faillace et al. (2018) found that most HF patient's mortality was caused by foregoing end-of-life care that prevented the providers from administering the appropriate therapy. Abdul-Aziz, Chakrabarti, Aaronson, and Hummel (2017) reported that HF mortality has increased in hospitals since the beginning of the VBP program because of the emphasis placed on other highly weighted readmission measures. Heidenreich (2017) expressed concerns that the measures for HF used in the VBP program may not reflect actual HF care provided by a physician or hospital. Therefore, Heidenreich (2017) argued that patients should not choose one hospital over another or make decisions on health care based on the available mortality data. Researchers expressed the difficulty in measuring the HF mortality rate of this domain and discovered that the measurement might not account for patient variables, the effect of other conflicting measures such as reducing readmissions, and the inaccurate representation of care provided to patients.

There are various strategies that health care organizations may implement to overcome the difficulty of measuring 30-day mortality. Curtis et al. (2016) identified the strategies that were associated with lower 30-day mortality in HF patients: (a) conducting frequent patient care reviews, (b) engaging in quality improvement initiatives to reduce mortality, (c) using a proactive method of quality improvement, (d) retaining high-quality staff, and (e) using evidence-based practices. Conversely, Cho et al. (2015) concluded that increasing nursing staff by 10% decreased patient mortality by 9%. There are many

unknowns within the clinical care domain measurements and further research is needed to determine if organizational or environmental variables better predict mortality rates for the clinical care domain. Hospitals must assess specific HF practices and variables to ensure they are providing the best level of care while maintaining compliance for reimbursement programs.

The last condition that CMS measures within the clinical care domain are AMI 30-day mortality. Recent efforts have focused on improving the quality and value of AMI care while improving 30-day mortality. Some researchers suggested various strategies such as hospitals' spending, patient safety performance, and timing of patients' admission may affect 30-day mortality in AMI patients. Wadhera et al. (2018) found that higher hospital spending for AMI care was associated with lower AMI 30-day mortality among Medicare beneficiaries after discharge. Hospitals that spend more on AMI patients to improve 30-day AMI mortality may cause implications for those hospitals participating in value-based programs that target decreased spending with increased quality of care. Regardless of spending, Wang et al. (2016) concluded that AMI patients in hospitals with poor patient safety performance tend to have poorer 30-day mortality rates and unplanned readmissions. Moreover, Wang et al. (2016) identified the following opportunities to improve patient safety performance and mortality measures: (a) promoting transparent discussions to prevent errors, (b) using electronic health records, (c) implementing patient safety strategies, and (d) enhancing patient safety culture within the hospital. In contrast, one researcher argued that the day of the week the patient was admitted contributes to increased AMI patient mortality (Shah et al., 2017). Although

patients admitted on the weekend may have greater severity of illness, the patients' health care outcomes may be constrained because of the lesser resources available on the weekends (Shah et al., 2017). In addition, Noad, Stevenson, and Herity (2017) studied mortality rates of patients admitted on the weekend versus weekdays and found no conclusive evidence that patients admitted during the weekend have a higher AMI mortality rate than those patients admitted during the week. As health care leaders increase their focus on 30-day mortality rates in AMI patients, they may be able to adopt strategies to improve the performance and prevent mortality. However, there may be circumstances, for instance, a patient's comorbidities that are out of control of health care leaders.

Person and community engagement domain. The person and community engagement domain includes the HCAHPS (Hospital Consumer Assessment of Health care Providers and Systems) survey. The HCAHPS is a national survey that asks adult patients about their experience during a recent hospital stay. The domain score encompasses eight important dimensions of hospital quality, including communication with nurses, communication with doctors, the responsiveness of hospital staff, communication about medications, hospital cleanliness and quietness, discharge information, care transition, and overall rating of the hospital (CMS, 2018c). The influences that affect the eight dimensions are organizational influences, treatment of patients, and communication techniques.

First, McFarland, Johnson Shen, and Holcombe (2016) studied how organizational influences such as college educations, language, and the number of

hospital beds predict favorable or unfavorable patient outcomes. Education predicted favorable satisfaction scores with doctor and nurse communication (McFarland et al., 2016). While, language and number of hospital beds contributed to unfavorable patient-reported satisfaction with the doctor and nurse communication (McFarland et al., 2016). Similarly, Al-Amin, Makarem, and Rosko (2016) concluded that hospital size had lower physician communication scores because of larger hospitals focusing on operational efficiency rather than patient satisfaction.

Second, researchers discovered that patient treatment by health care personnel play a significant role in higher patient scores. Carter and Silverman (2016) found that improving nurse's courtesy, respect, good listening, and explanations of treatments to patients impacted quality scores. Furthermore, Modarresi, Qureshi, Aguilar, Anderson, and Cheung (2018) found nurse treatment and doctor's listening capabilities had the highest impact on patient's overall satisfaction and the likelihood of recommending the doctors to their relatives or friends.

Lastly, communication techniques tend to improve patient satisfaction scores and physician responsiveness (Boissy et al., 2016). In addition, communication transparency between the patient and provider ultimately improved satisfaction scores (Birkelien, 2017). Bumpers, Dearmon, and Dycus (2019) suggested implementing a communication bundle including nurse shift reports at the bedside, use of whiteboards, and employment of scripting are evidence-based strategies for improving communication. As many researchers concluded, health care leaders must develop a multifaceted strategy that

considers organizational influences, patient treatment by health care providers, and various communication techniques to improve patient satisfaction scores.

Safety domain. Safety domain measure contains the Agency for Health Research and Quality (AHRQ) patient safety measures that provide information on potential complications after surgeries and childbirth. These measures include central line-associated bloodstream infection (CLABSI), catheter-associated urinary tract infection (CAUTI), surgical site infection (SSI), methicillin-resistant staphylococcus aureus (MRSA), clostridium difficile infection (CDI), and the percent of mothers who elected to deliver before 39 completed weeks of gestation. The safety domain measures are important measurements for hospitals to maintain compliance with the VBP program; however, many researchers debate how the inaccuracies of reported measures impact patient outcomes and hospital reimbursements.

Although AHRQ designed patient safety measures to enable transparent reporting and identify patient safety improvement efforts, several researchers have concerns about the validity of the reported measures. Winters et al. (2016) reported that PSIs in their current state might misinform patients and potentially cause reputational harm to hospitals. According to Hota et al. (2016), inaccurate PSI scores commonly occurred in larger hospitals and hospitals that had a higher patient transfer rate between hospitals. Nguyen, Moffatt-Bruce, Van Buren, Gonsenhauser, and Eiferman (2018) also agreed that validity issues exist with PSIs and suggest hospitals should conduct daily reviews, continuously refine reporting measures, and standardize the reporting process to ensure accurate Medicare reimbursements. However, Barclay, Dixon-Woods, and

Lyratzopoulos (2018) identified that hospitals need transparent reporting guidelines to improve the validity of the PSI scores.

Inaccurate measures also affect health care improvement efforts and VBP reimbursements. Chen, Rosen, Borzecki, and Shwartz, 2016 stated that PSIs could significantly impact reimbursements for quality-based performance programs. Nguyen et al. (2018) demonstrated that implementing a process to adapt to a quality-based performance program, including data management and physician reviews, costs approximately $173,000 per year. Despite the hospital's initial financial investment, Nguyen et al. (2018) informed hospitals that quality-based programs are financially feasible. Moreover, the goal of any quality domain measure should be accurate measures and valid benchmarks to align reimbursement with patient care (Sebastian et al., 2017)

Gray, Hefner, Nguyen, Eiferman, and Moffatt-Bruce (2016) demonstrated a strong relationship between PSIs and patient outcomes when clinicians initiated an extensive clinical validation process to reduce inaccurate scores. Conversely, Kubasiak, Francescatti, Behal, and Myers (2016) confirmed that PSIs were not clinically significant to patient outcomes because inaccurate reporting was not reliable. Health care organizations need accurate reporting of safety measures and a process to validate scores and reimbursement payments or penalties. Patients who received high-quality care during their hospitalizations will likely have improved outcomes, reduced risk of healthcare-associated infections, and improved quality of life.

Efficiency and cost reduction domain. The efficiency and cost reduction domain provides transparency to patients by identifying hospitals that provide high-

quality health care at a low cost. The measurement is based on Medicare beneficiary spending per episode three days before an inpatient hospital admission through 30 days post-discharge from admission. Researchers sought to discover if industry trends such as physician ownership, physician practice size, dually enrolled Medicare and Medicaid patients, and specific patient conditions contribute to high-cost spending.

Researchers examined the relationship of physician ownership versus hospital ownership of physician practices with spending and utilization of care. Pesko et al. (2017) found that Medicare patients associated with hospital-owned physician practices had a 6.4% higher total spending than those Medicare patients associated with physician-owned practices. Furthermore, researchers found other characteristics that affect spending per Medicare beneficiary that include physician association and the size of the physician's practice. Landon et al. (2018) identified increased spending in Medicare patients of physicians with connections to other physicians and lower spending for patients of physicians in communities with more primary care physicians. Casalino, Ramsay, Baker, Pesko, and Shortell (2018) concluded that larger physician practices with more than 100 physicians had higher spending than smaller practices, especially for high-need beneficiaries. However, Baker, Pesko, Ramsay, Casalino, and Shortell (2018) only found minimal evidence of Medicare spending with physician practice size and ownership. In conclusion, the type of physician ownership and the size of the physician practice may affect Medicare beneficiaries and health care leaders should consider these characteristics to maximize reimbursements.

Larger physician networks potentially have higher spending trends due to patients who are dual-enrolled in Medicaid and Medicare. Samson, Chen, Epstein, and Maddox (2018) concluded that dually enrolled patients generally do not impact VBP payments. However, Keohane et al. (2018) found that the increased spending for dual-enrolled beneficiaries over the age of 65 and long-term nursing home users will have implications on VBP payments. Dual-enrolled beneficiaries are financially complicated for each Medicaid and Medicare programs and an expensive population to insure. The cost reduction efforts by the VBP program have highlighted issues with dual enrolled beneficiaries and policymakers should develop approaches to eliminate dual-enrolled beneficiaries and find one program that benefits the beneficiary the most.

Researchers suggested various programs that may reduce high spending for Medicare beneficiaries. Toth et al. (2017) explored care programs with early follow-up care reduced Medicare expenditures. While, Lam, Burke, Orav, and Jha (2018) suggested exclusive programs for high-cost diagnosis such as cancer. Figueroa, Zhou, and Jha (2019) suggested programs for outpatient care and medication as those are factors that contribute to high spending for Medicare beneficiaries. Though, the location of the health care organization may impact the success of these programs as Kranker et al. (2018) concluded that these programs did not significantly improve patient outcomes or reduce spending in one rural health care organization.

As the dynamics of physician ownership, physician practice size, dual-enrolled Medicare and Medicaid patients continue to evolve, and health care leaders must consider the effects these conditions have on VBP program participation. In addition, health care

organizations and policymakers can use this information to better target spending reductions and further research specific care programs that will provide better patient care and outcomes.

Hospital Performance

As defined by CMS, total hospital performance is the score from four domains that reflect health care quality by each hospital. The four domains include clinical care, person and community engagement, safety, and efficiency and cost reduction. Each of the four domains is weighed at an equivalent 25% contributing to the overall total performance score out of 100 points. The overall total hospital performance score then determines if a hospital is financially rewarded or penalized through increasing or decreasing their Medicare reimbursements. Researchers have found that factors that influence hospital performance are the scores of each quality domain and hospital competition.

The scores of each measure within the four quality domains affect hospital reimbursements and the effectiveness of the VBP program. The scores of each measure within the four quality domains affect hospital reimbursements and the effectiveness of the VBP program. Ramirez et al. (2016) observed that the VBP program should influence hospitals to focus on quality domain scores that drive the total hospital performance, reduce costs, and improve quality. Carter and Silverman (2016) studied VBP quality domain scores and found a moderate correlation between the improvement of scores and higher Medicare reimbursements. Research has not indicated which domain measure impacts patient outcomes and Medicare reimbursements (Figueroa,

Tsugawa, Zheng, Orav, & Jha, 2016). Conversely, Izón and Pardini (2018) found that higher performance scores associated with improved quality of care resulted in increased costs. Health care organizations must evaluate their domain scores to determine which VBP domain needs attention to improve health care quality. Moreover, the quality domain scores may impact the effectiveness of the VBP program. Figueroa et al. (2016) concluded that some quality domain scores did not improve after the adoption of the VBP program. In addition, Spaulding, Edwardson, and Zhao (2018) identified that the hospital performance score did not correlate to other quality measures, indicating that hospital performance may not measure what it was intended to measure. Overall, there are inconclusive findings regarding the effect of hospital performance scores on Medicare reimbursements and the effectiveness of the VBP program. Although the studies provided important recommendations, health care organizations need a better understanding and a framework for improving the delivery of health care under the VBP program. Carter and Silverman (2016) advised health care providers to focus on the most productive and cost-efficient methods to improve quality and increase Medicare reimbursements.

Health care providers use publicly available hospital performance data to generate competition amongst other providers. Hospitals located in more competitive markets tend to be more competitive in quality and patient outcomes (Haley et al., 2016). In a competitive market, a driver for improving hospital performance is the scores on the measured domains within the VBP program (Reid, 2018). Colla, Bynum, Austin, and Skinner (2016) stated health care organizations should emphasize increasing the quality

of care for the most profitable diseases such as cardiac and orthopedics to remain market competitive. In contrast, Chang, Chiao, and Tsai (2017) suggested hospitals that adopt competitive strategies to improve performance may incur relative costs. As researchers debate hospital competition and the quality of care, policymakers should encourage competition to provide patients with more transparent health care to improve patient outcomes.

Medicare Reimbursement Penalties

CMS designed the Quality Strategy to assist in the transformation of the health care industry and continue to provide health care that is better, smarter, and healthier (CMS, 2018a). Four value-based programs that link hospital performance of quality measures to provider payment are Hospital Value-Based Purchasing Program (VBP), Hospital Readmission Reduction Program, Value Modifier Program (Physician Value-Based Modifier), and Hospital-Acquired Conditions Program. The CMS Quality Strategy focuses on using incentives to improve the delivery of care and transparency of health care information (CMS, 2018a). However, the strategy does not address the importance of socioeconomic factors.

Value-based models were intended to reduce variations in the delivery of health care by linking the quality of care to Medicare reimbursement payments. As health care leaders align with the reform changes, it is important to determine whether there are positive relationships between the quality of care and Medicare reimbursements. Venkataraman (2015) stated there is a tradeoff between costs and quality and suggested health care leaders to invest in resources to improve quality that will benefit patient

outcomes in the future. Although there may be upfront costs for the resources, the investment may lead to positive relationships between the quality of care and larger Medicare reimbursement amounts. However, Kulaylat, Jung, Hollenbeak, and Messaris (2018) argued that minority hospitals and hospitals that serve all individuals regardless of their ability to pay might uncover additional gaps in care when making financial investments in quality programs. Furthermore, higher reimbursement penalties may not significantly affect health care organizations financially (Bazzoli, Thompson, & Waters, 2018). Various domains within the VBP that need quality improvement interventions to mitigate increased reimbursement penalties (Petrick et al., 2018).

Value-based models have created the need to measure a hospital's quality and reimbursements, leading the industry to transform into an era of data transparency. Since the data are publicly available, health care leaders have uncovered data discrepancies, which have led to the loss of trust. Menger, Wolf, Kukreja, Sin, and Nanda (2015) discovered that Medicare reimbursement data might be biased in specific patient demographics and the delivery of care, which could result in misleading health care expenditures. Butala et al. (2018) expressed concerns about the domain measures and the link to reimbursement payments and whether overall hospital quality appropriately represents all populations. In addition, Nguyen et al. (2018) stated there were flaws in data measures used in value-based programs and suggested that health care leaders should develop and implement review processes to minimize data discrepancies to ensure hospital performance and reimbursements are properly displayed. Regardless of the inaccuracies of data submitted to CMS, the data are publicly available and visible by all

health care leaders and policymakers. As we continue in the data transparency era and improvements are made in the quality of data, health care leaders may take ownership to analyze and investigate the interpretations of the current data that will affect future policies and reimbursements.

Although many factors may contribute to the value-based model's measurements and reimbursements, these factors do not account for the socioeconomic factors of patients. There are concerns that patients with social risk factors such as high levels of medical risk, lifestyle challenges, and poor living conditions may impact outcomes, making it difficult for hospitals to achieve high performance on quality measures (Joynt et al., 2017). However, researchers found little evidence supporting an association between reimbursement system and socioeconomics (Tao, Agerholm, & Burström, 2016). Lepore et al. (2015) researched health care organizations that attract and provide care to higher-paying Medicare patients as a different factor influencing value-based measurements and reimbursements. However, hospitals depending on payments from paying patients is risky in the event patients stop paying as many hospitals rely on paying patients to cover the cost of any reimbursement penalties (Bazzoli et al., 2018).

These studies provide a different viewpoint on how Medicare value-based programs may act as barriers to the change in the health care reform. Analyzing specific social factors is difficult and complex and will not yield simple solutions. Medicare must assess the various factors that may contribute to future changes in value-based measurements and reimbursements to ensure that patients are experiencing optimal outcomes. To adapt the aspects, health care leaders must expect higher patient volumes,

adapt care for sicker populations, and improve patient satisfaction and outcomes to achieve greater reimbursements. There will need to be an ongoing collaboration between hospitals and policymakers to ensure these positive relationships continue between the quality of care and Medicare reimbursements.

The preceding literature review examined the important aspects of hospital performance and Medicare reimbursement penalties. The literature review provided a critical analysis and synthesis of supporting and rival theories for this study. Additional areas of analysis and synthesis included in the review of literature were the variables of clinical care, person and community engagement, safety, and efficiency and cost reduction, and Medicare reimbursement penalties. CMS defines total hospital performance by the scores from four domains that reflect health care quality by each hospital. The four domains include clinical care, person and community engagement, safety, and efficiency and cost reduction. Lastly, literature about the potential study themes included the ACA and VBP.

Transition

This section begins with a restatement of the purpose statement, followed by the role of the researcher in the data collection process and a description of how this study meets the ethical requirements. Next, there will be an expansion of the chosen research method and research design from Section 1. The latter portion of Section 2 will discuss the following topics specific to the data collection: (a) participants, (b) population, (c) sampling, (d) instrumentation, (e) techniques, (f) analysis, and (g) study validity.

Section 2: The Project

Purpose Statement

The purpose of this quantitative correlational study was to examine the relationship between measures of hospital performance and Medicare reimbursement penalties. I examined the relationship between the hospital performance measures of clinical care, person and community engagement, safety, efficiency and cost reduction, and Medicare reimbursement penalties. The independent variables were clinical care domain score, person and community engagement domain score, safety domain score, and efficiency and cost reduction domain score. The dependent variable was the VBP Medicare reimbursement penalties (the percentage payment adjustment applied to Medicare reimbursement payments to penalize or reward each participating hospital based on the quality of care that they provide to patients). The targeted population consisted of U.S. acute care hospitals participating in the VBP program. Specific criteria included: (a) urban hospital designation, (b) teaching status designation, and (c) bed size between 100–299 beds. The implications for positive social change include the potential for health care leaders to develop effective approaches to improve access to health care for patients, improve the quality of health care delivered to patients, and reduce their overall health care costs while maximizing Medicare reimbursements for health care organizations.

Role of the Researcher

Kyvik (2013) described the role of the researcher as networking, collaboration, research management, conducting research, publishing research, and evaluating the

research. However, a quantitative researcher may have a limited role in the research process as the role of the researcher is independent of the participants and discussions. Ellram and Tate (2016) suggested a quantitative researcher's role should include the acquisition and interpretation of the secondary data from the primary source. I addressed my relationship with the quality initiatives in the health care industry and with participants to mitigate bias. Lastly, I ensured adherence to the ethical guidelines related to the Belmont Report.

As a health care manager, I am familiar with the quality initiatives and programs designed to improve the quality of patient care at lower costs. I have over 10 years' experience consulting with health care organizations within the United States to improve patient outcomes, quality of patient care delivered, and costs relating to medical devices. My experience in evaluating patient outcomes and associating health care costs allowed me to understand the need to evaluate the in-depth process of reporting clinical measures and the effect on Medicare reimbursements. The research data were used for this study consist of the health care organization's quality performance measures voluntarily submitted for the CMS Hospital Quality Initiative. Although my experience enhanced my knowledge through the data collection process, I had no relationship with the participating health care organizations that provide data for this initiative.

In this study, I adhered to the guidelines of the Belmont Report, including the principles and guidelines for conducting research involving human subjects (U.S. Department of Health & Human Services, 1979). Tripathy (2013) acknowledged concerns for the use of secondary data and the potential harm to individual subjects'

privacy. However, Tene and Polonetsky (2016) stated that recent revisions to the Belmont Report simplified informed consent and excluded online surveys and publicly available information when the human subject is unidentifiable and not harmed. This study's data were publicly available and originated from a health care organization's submission to CMS. This study did not include identified organizations; therefore, the Belmont Report protocol does not apply to my study.

Participants

CMS annually evaluates hospital performance for over 3,000 Medicare registered organizations across the United States participating in the VBP program. Furthermore, CMS annually regulates Medicare reimbursement payments for each hospital based on the scores of their hospital performance data. CMS calculates hospital performance based on the participants that voluntarily submit quality and cost measures to CMS. CMS stores the data collected by the health care organizations from 2012 through the most current collection period in the Hospital Compare database. In addition, Medicare-certified hospitals are required to submit an annual Medicare Cost Report (MCR) that provides hospital information such as hospital characteristics, utilization data, total and Medicare cost and charges, Medicare settlement data, and financial statement data. The U.S. government owns both public data sets; therefore, permission is not required to use the data (Medicare.gov, 2019).

I gained access to the secondary research data through the Hospital Compare database and CMS.gov and downloaded files using Microsoft Excel. Health care systems were not identifiable and did not require a working relationship with the participants.

Based on the quality data submitted by health care organizations to the Hospital Compare database, these data aligned with the study's research questions of determining the relationship between quality measures of hospital performance and Medicare reimbursement penalties.

Research Method and Design

Research Method

Quantitative research is a scientific approach focusing on operationalizing the meaning of concepts and variables (Richard, 2013). Howlett (2013) emphasized the frequent use of quantitative research in healthcare-related research. Health care administrators, policymakers, journalists, and patients use quantitative research to facilitate patient care decisions, identify workforce issues, and provide information regarding reimbursements (Howlett, 2013). I used the quantitative methodology for this study to examine the relationship between quality measures of hospital performance and Medicare reimbursement penalties under the VBP program. Leung (2015) described the quantitative methodology as using numerical data and statistical interpretations to draw definite conclusions. Therefore, the quantitative methodology was best suited for my study.

I explored qualitative and mixed methods but did not use the methods for this study. Researchers use qualitative research to gain an understanding of social issues (Richard, 2013). The data gathered in qualitative research may originate from personal viewpoints and opinions (McCusker & Gunaydin, 2015). Therefore, the qualitative methodology did not support the purpose of this study. Mixed methods research

combines both qualitative and quantitative methods of data collection to provide understanding and support for multiple perspectives and outcomes (Peters, Adam, Alonge, Agyepong, & Tran, 2013). However, there is an ongoing debate for the appropriateness of combining multiple methods grounded by different models and assumptions (Venkatesh, Brown, & Bala, 2013). A mixed-methods approach can be more time consuming and may be difficult for one researcher to follow (Caruth, 2013).

Research Design

The correlational design is used to measure the relationship between variables (Razzaque, Okoro, & Wood, 2015). I used a correlational design to examine the relationship between the VBP quality measures of clinical care, person and community engagement, safety, efficiency and cost reduction, and Medicare reimbursement penalties. Hagger (2015) defined correlational research as exploring large data sets to understand relationships between variables. Therefore, I determined the correlational research design was appropriate for this study.

Research designs that were examined but not used were experimental design and quasi-experimental design. Unlike correlational design, experimental design implies that a change in one variable leads to a change in another variable (Plichta, Kelvin, & Munro, 2013). Experimental design involves the researcher randomly selecting subjects from the population and placing them into intervention and control groups (Howlett, 2013). Quasi-experimental design refers to the manipulation of variables in which researchers cannot randomly select subjects (Cokley & Awad, 2013; Howlett, 2013). Because quasi-

experimental and experimental designs assess casual relationships, these designs were not appropriate for examining relationships between variables in this study.

Population and Sampling

The targeted population for the study was U.S. Medicare-certified acute care hospitals that participated in the VBP program from October 1, 2018, through September 30, 2019. The specific hospital criteria included the following: (a) urban hospital designation, (b) teaching hospital designation, and (c) bed size between 100–299 beds. I aligned the population with the overarching research question by identifying hospitals with the specific criteria, participating in the VBP program, and submitting the required measured quality domains. I collected information from the population by downloading archived data from data.medicare.gov (Hospital Compare database) and CMS.gov websites. The targeted population did not include Medicare-certified hospitals not participating in the VBP program, below 100 beds and above 300 beds, or designated as a rural, non-teaching hospital.

Researchers with an inadequate sample size may undermine the reliability of the research findings (Griffith, 2013). In quantitative studies, researchers may use a power analysis from a probability of finding a statistically significant result within a population to calculate sample sizes (Fugard & Potts, 2015). A priori power analysis calculated the sample size needed to observe an effect of a specific size with a preset significance measure and a desired statistical power (Lakens, 2013). I conducted a power analysis using the G*Power software version 3.1.9.2 to determine the appropriate sample size for this study (Faul, Erdfelder, Buchner, & Lang, 2009). Using an a priori power analysis,

assuming a medium effect size (f^2= .15), α = .05, and four predictor variables, the calculation of a sample size of 129 hospitals is necessary to achieve a power of .95. Based on this power analysis presented in Figure 1, a sample size of n = 420 was robust for this study.

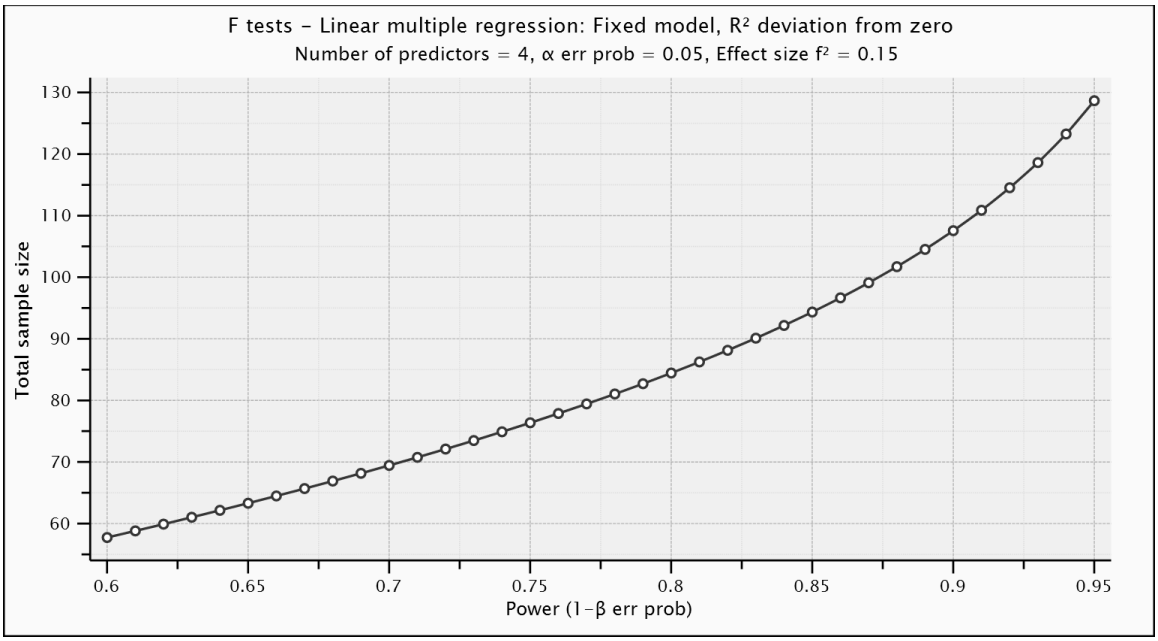

Figure 1. Power as a function of sample size.

Ethical Research

Researchers may face ethical challenges in research design, reporting, and confidentiality (Sanjari, Bahramnezhad, Fomani, Shoghi, & Cheraghi, 2014). I used secondary data that do not involve direct interaction with the participants, which minimizes ethical challenges. Although using secondary data mitigated ethical challenges, Tripathy (2013) suggests the researcher should gain further permission for the use of secondary data, if applicable, or acknowledge the ownership of the original data source.

I used data from the Hospital Compare database that houses archived data for hospitals participating in the VBP program and MCR information from CMS.gov. Informed consent protects participants or patients in a study (Kumar, 2013). Since the data in the Hospital Compare database and CMS.gov were publicly available, consent is implied and not necessary. The accessible Hospital Compare database does not include hospitals that are not participating in the VBP program. Furthermore, hospitals participating in the VBP program must submit the required data to be eligible for payment. Therefore, the withdrawing of participants does not apply to this study.

Institutional review boards (IRBs) ensure that human studies research minimizes risks to participants while maximizing the quality of the research data (Cseko & Tremaine, 2013). Although secondary data does not involve participant interactions or identification, Walden University required IRB approval to ensure the protection of the participants. The IRB approval number assigned for this study is 03-31-20-0334668. Data used for this study were stored securely in a password protected electronic folder for 5 years and then deleted after that. Individual hospital names remained confidential throughout the secondary data collection and analysis process. Participants of this study did not receive incentives for participating in this study.

Data Collection Instruments

An essential step in the research process is selecting instruments for data collection. I used secondary data and conducted secondary data analysis for the purpose of this study. Secondary data are data collected by researchers that other researchers may use for multiple projects. The primary researcher may collect large data sets; however,

secondary researchers may use a subset of the data to answer their specific research questions (Johnston, 2014). Researchers should choose an instrument that meets the goals of the study while considering ethical, budgetary, and time constraints (Bastos, Duquia, Gonzalez-Chica, Mesa, & Bonamigo, 2014).

I generated the secondary data from CMS's Hospital Compare database and the MCR from CMS.gov. CMS gathers data from hospitals that participate in the VBP program and houses the data in the Hospital Compare database. The data were used in Medicare's payment system to reward participating hospitals for the quality of care they provide to patients. For this study, secondary data from the CMS database exists for the independent variables (measures of hospital performance) and the dependent variable (Medicare reimbursement penalties) in the Hospital Compare database. The dataset contained the following information (a) CMS provider number, (b) deidentified hospital name, (c) hospital's state, (d) unweighted clinical care process domain score, (e) unweighted person and community engagement domain, (f) unweighted safety domain, (g) unweighted efficiency and cost reduction domain, (h) unweighted total performance score, (i) FY 19 VBP impact by dollar amount, and (j) FY 19 VBP adjustment factor percentage. For this study, the specific hospital criteria exist in the MCR and the dataset included the following information: (a) CMS provider number, (b) urban hospital designation, (c) teaching hospital designation, and (d) bed size between 100–299 beds.

Scales of Measurement

The scale of measurement describes the classification of the values assigned to each variable (Kirch, 2008). Altman and Royston (2006) stated that variables with a

continuous scale of measurement are common in health care to aid in the diagnosis and treatment of patients. The independent variables (clinical care, person and community engagement, safety, and efficiency and cost reduction) and the dependent variable (Medicare reimbursement penalty) had a continuous scale of measurement.

Description of Data

Clinical care. I measured the independent variable on a continuous measurement scale with a range of 0–100. Smaller scores indicate poorer hospital performance in terms of clinical care, while larger scores indicate better hospital performance in terms of clinical care. The clinical care domain score includes the measure of 30-day mortality for acute myocardial infarction, heart failure, and pneumonia.

Person and community engagement. I measured the independent variable on a continuous measurement scale with a range of 0–100. Smaller scores indicate poorer hospital performance in terms of the person and community engagement, while larger scores indicate better hospital performance in terms of the person and community engagement. The person and community engagement domain score includes results from the Hospital Consumer Assessment of Health Care Providers and Systems (HCAHPS) survey. The measures from the survey include communication with nurses, communication with doctors, the responsiveness of hospital staff, cleanliness and quietness of the hospital environment, communication about medications, discharge information, care transition, and the overall rating of the hospital.

Safety. I measured the independent variable on a continuous measurement scale with a range of 0–100. Smaller scores indicate poorer hospital performance in terms of

safety, while larger scores indicate better hospital performance in terms of safety. The safety domain score includes measures of selected patient safety indicators (pressure ulcer, iatrogenic pneumothorax, central venous catheter-related bloodstream infection, postoperative hip fracture, perioperative pulmonary embolism or deep vein thrombosis, postoperative sepsis rate, postoperative wound dehiscence, and accidental puncture or laceration) and complications/healthcare-associated infections (central line-associated bloodstream infection, catheter-associated urinary tract infection, surgical site infection, Methicillin-resistant Staphylococcus aureus, Clostridium difficile infection, and perinatal care).

Efficiency and cost reduction. I measured the independent variable on a continuous measurement scale with a range of 0–100. Smaller scores indicate poorer hospital performance in terms of efficiency and cost reduction, while larger scores indicate better hospital performance in terms of efficiency and cost reduction. The efficiency and cost reduction domain score is the Medicare spending per beneficiary measure.

Medicare reimbursement penalties. I measured the dependent variable on a continuous measurement scale. Although the possible range of values is unknown, the secondary data showed a range from 0.984 to 1.019. Smaller scores indicate a lesser Medicare reimbursement penalty, while larger scores indicate a greater Medicare reimbursement penalty. For this study, the payment adjustment factor represented the Medicare reimbursement penalty. The VBP program adjusts Medicare payments to the hospitals up to 2% based on the quality of care provided to patients.

Strategies to Address Validity and Reliability

Validity and reliability issues can arise when using secondary data. Boo and Froelicher (2013) indicated that these issues arise from the methods and accuracy of the primary data. Researchers can increase the validity of secondary data by analyzing the dataset to ensure a good fit for the research question and include important variables for the desired analysis (Boo & Froelicher, 2013). Furthermore, Cheng and Phillips (2014) claimed that most publicly available datasets provide extensive documentation on the dataset validity to allow researchers to determine the use of the dataset. To address validity, I reviewed the primary data collection strategy to understand the strengths and weaknesses of the dataset. Reliability is the extent to which we can rely on the data source and the consistency and trustworthiness of the data itself (Mohajan, 2017). To address reliability, I obtained information about the accuracy of the data and identify methods for dealing with missing data to mitigate bias results and reduce the sample size.

Data Availability

The data submitted by hospitals was available through the Hospital Compare database and CMS.gov. The public has access to data in the CMS database and CMS.gov without a written request. I retained a copy of the raw data used in this study for 5 years in a password-protected computer and backed up on a password-protected cloud-based program that I will destroy following the retention period. The raw data can be made available upon request.

Data Collection Technique

There are many methods for data collection, such as interviews, focus groups, observations, and existing electronic data. For this study, I analyzed secondary data downloaded electronically from CMS's Hospital Compare and CMS.gov websites. Electronic data collection methods have increased in popularity among academic researchers (Wright & Ogbuehi, 2014). An advantage of electronic data collection is the reduction of inaccurate data entry (Li et al., 2015; Pavlović, Kern, & Miklavčič, 2009). Electronic data collection also reduces the researcher's collection time and cost of the study (Granello & Wheaton, 2004).

A disadvantage of electronic data collection is relying on computer access along with internet connectivity (Li et al., 2015). Another disadvantage to electronic data collection is data integrity and the increased likelihood of incorrect data entry (Granello & Wheaton, 2004; Lee et al., 2015). The researcher must organize and format the data when entering into a spreadsheet to ensure an accurate analysis (Juluru, Al Khori, He, Kuceyeski, & Eng, 2015). Lastly, the researcher must be familiar with the various software packages and aware of any changes in the software versions that may cause errors in the data analysis process (Li et al., 2015).

The first step in the data collection process was accessing the Hospital Compare datasets through the Data.Medicare.gov website. Next, I downloaded the following datasets that represented the independent variables: (a) Hospital Value-Based Purchasing (HVBP) – Clinical Care Domain Scores, (b) Hospital Value-Based Purchasing (HVBP) – Person and Community Engagement Domain Scores (HCAHPS), (c) Hospital Value-

Based Purchasing (HVBP) – Safety, and (d) Hospital Value-Based Purchasing (HVBP) – Efficiency and Cost Reduction. Each of the datasets were downloaded in Microsoft Excel separately then combined into a single Excel file that was password protected named *VBPData*. For the dependent variable, the dataset named *HVBP Program Tables 16A and 16B* were downloaded from the CMS.gov website and then combined in the existing *VBPData* Excel file. For the hospital specific criteria (urban, teaching, and number of beds), I downloaded the 2019 MCR from CMS.gov. After the data collection was complete, I removed hospitals designated as rural, non-teaching, and below 100 beds and above 300 beds. I deidentified the remaining hospitals by removing the hospital name with the corresponding row number.

Data Analysis

Research Question

What is the relationship between hospital performance measures (clinical care, person and community engagement, safety, and efficiency and cost reduction), and Medicare reimbursement penalties?

Hypothesis

H_0: There is no statistically significant predictive relationship between hospital performance measures (clinical care, person and community engagement, safety, and efficiency and cost reduction), and Medicare reimbursement penalties.

H_a: There is a statistically significant predictive relationship between hospital performance measures (clinical care, person and community engagement, safety, and efficiency and cost reduction), and Medicare reimbursement penalties.

Statistical Analyses

Correlational studies are the most common non-experimental design within health care research (Sousa, Driessnack, & Mendes, 2007). According to Mishra, Pandey, Singh, Keshri, and Sabaretnam (2019), the type of variable will determine which statistical method to use for data analysis. The correlational method assesses a possible linear association between two continuous variables (Mukaka, 2012) and researchers may use the correlational method accompanied by a linear regression analysis. Given that the variables are continuous and the hypothesis sought to explain the relationship between variables, the linear regression analysis was the appropriate statistical analysis to use for this study.

Denis (2018) claimed that researchers use a regression analysis when predicting a continuous dependent variable based upon one or more independent variables. Multiple linear regression links the number of correlated variables upon a single dependent variable (Hazra & Gogtay, 2016). Researchers may use null hypothesis testing in combination with regression analysis when multiple variables are involved (Chang, 2017). In many cases, the contribution of a single independent variable does not explain the dependent variable Y (Schneider, Hommel, & Blettner, 2010). If so, one can perform a multiple linear regression to study the effect of multiple variables on the dependent variable (Schneider et al., 2010). As a result, for this study, I tested the hypothesis using a multiple linear regression model.

Mishra et al. (2019) suggested that researchers should understand the assumptions and conditions of each method in order to select the appropriate statistical analysis;

therefore, I considered other correlational statistical analyses, for example, chi-square, ANOVA, and logistic regression. Chi-squared compares the association of categorical variables in a sample or group (Kim, 2017). ANOVA tests mean differences between a categorical independent variable and a continuous dependent variable (Boisgontier & Cheval, 2016). Researchers use logistic regression to analyze the effect of categorical or continuous independent variables on a dichotomous dependent variable (Denham, 2017). Due to the variable's level of measurement, chi-square, ANOVA, and logistic regression were not appropriate for this study.

Data Cleaning and Missing Data

Data cleaning involves the process of detecting and correcting errors in the data (Chu, Ilyas, & Papotti, 2013). For this study, I used secondary data from the Hospital Compare database and CMS.gov. Cheng and Phillips (2014) stated most secondary data sources provide detailed documentation about the data collection process and the data cleaning process. The Hospital Compare database and CMS.gov have validation methods for reported data before posting results in the database (U.S. Department of Health & Human Services, 2015). In addition to the robust data cleansing process, I sorted the downloaded data and excluded all hospitals that do not meet the specific criteria of an urban hospital, teaching hospital, and bed size between 100–299 beds. Lastly, I removed facilities that reported no data measures between October 1, 2018, through September 30, 2019.

Missing data decreases power and precision and may lead to bias (Fiero, Huang, Oren, & Bell, 2016). The most common approach is omitting the instances with missing

data and analyze the remaining data (Kang, 2013). CMS considers hospitals that submit at least three out of the four domains for measurement under the VBP Program as a complete dataset to calculate hospital performance scores (CMS, 2017).

Statistical Analysis Assumptions

Regression analysis typically makes assumptions of outliers, multicollinearity, normality, linearity, homoscedasticity, and independence of residuals (Denis, 2018). The first assumption is that there is no multicollinearity, meaning that two or more of the independent variables are not strongly correlated with each other. To evaluate this assumption, I will inspect the variance inflation factors (VIF). The second assumption is that there are no significant outliers. I will evaluate this assumption by examining the scatterplot of the standardized residuals. If no data points fall far outside the general pattern of the data points, the assumption of no outliers will be considered satisfied. If there are extreme outliers, I will remove those data points from the analysis. The third assumption is that the error terms have a roughly normal distribution. I will evaluate this assumption by inspection of a normal probability plot (P-P) of the regression standardized residuals. The fourth assumption is that the independent variables collectively have a linear relationship with the dependent variable. To evaluate this assumption, I will inspect a normal probability plot (P-P) of the regression standardized residuals. The fifth assumption is that variance is homogenous (homoscedasticity). I will inspect a normal probability plot (P-P) of the regression standardized residuals.to evaluate this assumption. Lastly, the sixth assumption is that each independent variable is individually linearly related to the dependent variable (independence of residuals). For

this assumption, I will inspect a normal probability plot (P-P) of the regression standardized residuals.

I used the bootstrapping technique to address any violations of the data assumptions. Bootstrapping is a statistical method that is based on resampling and replications to draw inferences about populations (Lemoine et al., 2018). This method can also estimate statistic uncertainties or confidence intervals without parametric assumptions (Matsuyama, 2018).

If the multiple linear regression shows the independent variables are statistically significant, then the null hypothesis will be rejected and concluded that the hospital performance measures predict Medicare reimbursement penalties. I will report the equation of the model and interpret statistically significant regression coefficients. I will also present and interpret the R-square for the final model.

Statistical Software and Version

Researchers commonly use IBM's SPSS Statistics software package to perform statistical analysis (Shek & Ma, 2011; Weaver & Koopman, 2014). SPSS Statistics performs various types of analysis and data transformations that will adequately fulfill many researchers' statistical needs (Arkkelin, 2014). For this study, I used SPSS Statistics version 25 for Windows.

Study Validity

Study validity assists in determining cost-effective and ethical tests for researchers to use (Aravamudhan & Krishnaveni, 2015). Validity also ensures the findings accurately reflect the data (Noble & Smith, 2015). This study is a non-

experimental design; therefore, threats to internal validity are not applicable. The threats to external validity and statistical conclusion validity are the reliability of secondary data analysis, data assumptions, and sample size. The subsequent section will discuss external and internal validity as it pertains to the study outcomes and threats to statistical conclusion validity.

External Validity

External validity is applying the results of one study to other outside studies (Murad, Katabi, Benkhadra, & Montori, 2018). Two concepts of external validity are generalizability and applicability (Lesko et al., 2017). Generalization refers to applying the findings from the sample population to the entire population. Research in health care settings has a goal to improve health and may not be generalizable to non-research settings. Huebschmann, Leavitt, and Glasgow (2019) argued that researchers fail to replicate other study findings due to the lack of attention to the factors that contribute to the success or failure of the research.

Another concept of external validity is applicability. Murad et al. (2018) described applicability as drawing inferences from the study population and applying them to other populations. Researchers identified only 14% of evidence-based research translates into practice, meaning the remaining research had misused time, financial resources, and opportunities to improve health care (Huebschmann et al., 2019). Ovretveit, Leviton, and Parry (2011) noted that health care professionals are concerned with the quality and safety of patients when implementing findings from various health care environments.

Internal Validity

Halperin, Pyne, and Martin (2015) described internal validity as the degree of control applied to confounding variables to explain the effects of various treatments. Internal validity is applicable when researchers determine the approximate truth about inferences regarding cause-effect or causal relationships. Hence, internal validity is only relevant in experimental studies that establish a causal relationship. The goal of this non-experimental study design was to examine the correlation between variables, not causation; therefore, threats to internal validity are not applicable.

Statistical Conclusions Validity

Researchers determine statistical conclusion validity by accurate data analysis of the relationship between variables (García-Pérez, 2012). Incorrect data analysis may lead researchers to accept or reject hypotheses (Tasić & Feruh, 2012) or report an ineffective treatment (Ary, Jacobs, Irvine, & Walker, 2013). Simpson and Campbell (2015) identified threats to statistical conclusion validity when measures have low reliabilities, violating assumptions of statistical tests, and having insufficient statistical power.

Reliability of the instrument. Reliability is the consistency of the analytical procedures, including accounting for personal and research method biases that may influence findings (Noble & Smith, 2015). I used secondary data from the U.S. Government Sites for Medicare CMS database; therefore, a threat to reliability for the use of secondary data depends on the accuracy of the data collection in the primary dataset. Williams, Watt, Schmaltz, Koss, and Loeb (2006) concluded that publicly available measures used to assess hospital performance found to be acceptable and reliable.

Data assumptions. Statistical techniques typically require one or more assumptions to be met (Hoekstra, Kiers, & Johnson, 2012). Researchers frequently use statistical tests when checking for violations of assumptions, which can influence Type I errors (Hoekstra et al., 2012). In addition, I used the bootstrapping methods to address any violations. Potential assumptions for correlation include outliers, normality, linearity, and homoscedasticity.

Correlation assumes variables are continuous, normally distributed, and representative of the population to draw meaningful conclusions (Schober et al., 2018). If assumptions are violated, the researcher should further explore the relationship between variables. Researchers use various diagnostic plots to further examine and assess validity within these assumptions (Schützenmeister, Jensen, & Piepho, 2012). Bettany-Saltikov and Whittaker (2013) suggested researchers use multiple statistic tests when applicable to overcome threats to validity.

Sample size. The sample size is the minimum number of participants needed to answer the study's research questions (Whitehead, Julious, Cooper, & Campbell, 2015). A small sample size negatively affects statistically significant findings (Button et al., 2013). To eliminate the threat of sample size, I conducted a power analysis to determine the appropriate sample size for this study (Faul, Erdfelder, Buschner, & Lang, 2009)

Transition and Summary

In Section 2, I discussed the purpose of the study and the rationale for selecting a quantitative research method along with a correlational research design over other research methods and designs. I explained my role in the data collection process and the

population used for the data collection. Additionally, I discussed why secondary data were suitable for this study. I presented ethical considerations and noted potential conflicts of interest that are relevant to this study. Outlined in Section 2 were specific data collection and analysis procedures I followed in this study. In Section 3, I present the findings from the study, apply the result to professional practice, discuss the implications for social change, recommend steps to useful action, list recommendations for further research, and reflect on my experiences through this the study process.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this quantitative correlational study was to examine the relationship between measures of hospital performance and Medicare reimbursement penalties. I examined the relationship between the measures of hospital performance for clinical care, person and community engagement, safety, efficiency and cost reduction, and Medicare reimbursement penalties. The independent variables were clinical care domain score, person and community engagement domain score, safety domain score, and efficiency and cost reduction domain score. The dependent variable was the VBP Medicare reimbursement penalties (the percentage payment adjustment applied to Medicare reimbursement payments to penalize or reward each participating hospital based on the quality of care that they provide to patients). The null hypothesis was rejected and the alternative hypothesis was accepted. The hospital performance measures (clinical care, person and community engagement, safety, and efficiency and cost reduction) significantly predicted Medicare reimbursement penalties.

Presentation of the Findings

My goal for this study was to determine the relationship between measures of hospital performance and Medicare reimbursement penalties. The research question is what is the relationship between measures of hospital performance (independent variables) and Medicare reimbursement penalties (dependent variable).

I obtained secondary data for a total of 420 hospitals in the United States that met criteria for inclusion in this study: (a) located in an urban area, (b) designated as a

teaching hospital, and (c) between 100–299 beds. I collected data for 420 hospitals that included the independent variables, (a) clinical care domain score, (b) person and community engagement domain score, (c) safety domain score, and (d) efficiency and cost reduction domain score, and the dependent variable, Medicare reimbursement penalty for fiscal year 2019. The sample represented a total of 47 states. I will discuss the testing of assumptions, present descriptive statistics, present inferential statistic results, provide a theoretical conversation pertaining to the findings, and conclude with a summary.

Test of Assumptions

I evaluated the assumptions of multicollinearity, outliers, normality, homoscedasticity, and independence of residuals. There was no violation of the assumptions; therefore, bootstrapping did not alter the analysis results.

Multicollinearity. An assumption for testing the hypothesis was no multicollinearity. I viewed the correlation coefficients among the predictor variables and determined that all bivariate correlations were small (Table 1). In addition, I evaluated the assumption by inspecting the variance inflation factors (VIF). Generally, any VIF greater than 2 is indicative of multicollinearity. Table 2 confirms the VIF's were all below 2; therefore, the assumption of no multicollinearity was considered satisfied.

Table 1

Correlation Coefficients Among Study Predictor Variables

Variable	Medicare Reimbursement Penalty	Clinical Care	Person and Community Engagement	Safety	Efficiency and Cost Reduction
Medicare Reimbursement Penalty	1.000	.441	.428	.232	.514
Clinical Care	.441	1.000	.139	.086	.004
Person and Community Engagement	.428	.139	1.000	-.050	.168
Safety	.232	.086	-.050	1.000	.043
Efficiency and Cost Reduction	.514	.004	.168	.043	1.000

Table 2

Collinearity Statistics

Model[a]	Collinearity Statistics
	VIF
Clinical Care	1.030
Person and Community Engagement	1.055
Safety	1.014
Efficiency and Cost Reduction	1.032

[a]Dependent Variable: Medicare reimbursement penalty.

Outliers, normality, linearity, homoscedasticity, and independence of residuals.

The evaluation of outliers, normality, linearity, homoscedasticity, and independence of residuals were evaluated by examining the normal probability plot (P-P) of the regression standardized residuals (Figure 2) and the scatterplot of the standardized

residuals (Figure 3). The examinations indicated there were no major violations of these assumptions. The tendency of the points to lie in a reasonably straight line in Figure 2, diagonal from the bottom left to the top right, provides supportive evidence the assumption of normality has not been violated. The lack of clear or systematic pattern in the scatterplot of the standardized residuals in Figure 3 supported the assumptions being met. However, 2,000 bootstrapping samples were computed to combat any possible influence of assumption violations and 95% confidence intervals based upon the bootstrap sample are reported where appropriate.

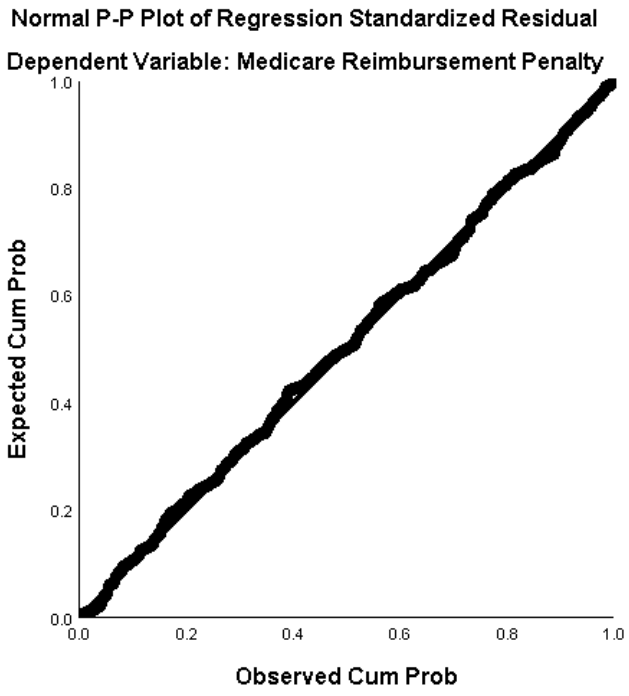

Figure 2. Normal probability plot (P-P) of the regression standardized residuals.

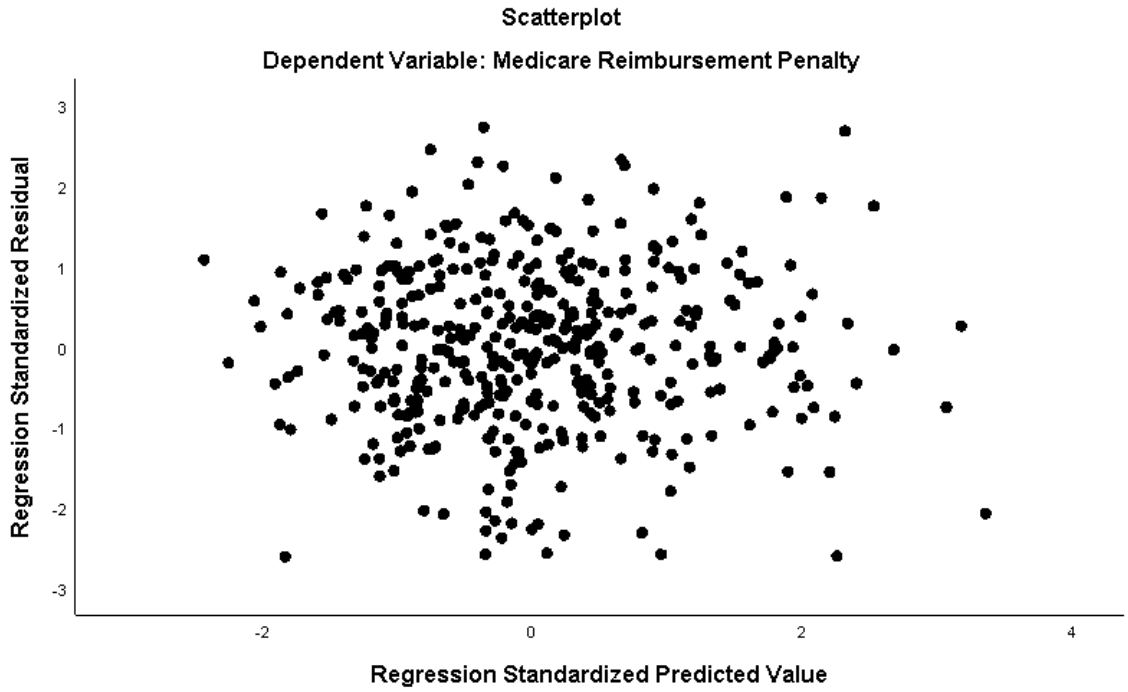

Figure 3. Scatterplot of the standardized residuals.

Descriptive Statistics

Table 3 contains the means and standard deviations for the independent and dependent variables. I measured the hospital performance scores (independent variables) on a continuous measurement scale with a possible range of 0 to 100. Smaller scores indicate poorer hospital performance while larger scores indicate better hospital performance. The average scores ranged from 14.43 (efficiency and cost reduction) to 61.80 clinical care). Thus, on average the 420 hospitals had the poorest performance in the efficiency and cost reduction domain and the best performance in the clinical care domain. The Medicare reimbursement penalties (dependent variable) had an average of

1.000 and a range of 0.98 to 1.02, meaning on average the 420 hospitals had neither a penalty nor a benefit based on the Medicare reimbursement penalty data.

Table 3

Means and Standard Deviations for Quantitative Study Variables

	M	*SD*	Bootstrap 95% CI (*M*)
Medicare Reimbursement Penalty[a]	1.000	0.005	[1.000, 1.001]
Clinical Care[b]	61.796	18.439	[59.965, 63.556]
Person and Community Engagement[b]	26.029	13.705	[24.700, 27.362]
Safety[b]	41.200	18.6770	[39.450, 42.951]
Efficiency and Cost Reduction[b]	14.429	19.938	[12.572, 16.381]

Note. $n = 420$.
[a]Dependent variable. [b]Independent variable.

Inferential Results

I used the standard multiple linear regression, $\alpha = .05$ (two-tailed) to examine the efficacy of the hospital performance measures, clinical care, person and community engagement, safety, and efficiency and cost reduction in predicting Medicare reimbursement penalties. The independent variables were clinical care domain, person and community engagement domain, safety domain, and efficiency and cost reduction domain. The dependent variable was the VBP Medicare reimbursement penalty (the percentage payment adjustment applied to Medicare reimbursement payments to penalize or reward each participating hospital based on the quality of care that they provide to patients). The null hypothesis was that there is no statistically significant predictive relationship between hospital performance measures (clinical care, person and community engagement, safety, and efficiency and cost reduction), and Medicare reimbursement penalties. The alternate hypothesis was that there is a statistically

significant predictive relationship between hospital performance measures (clinical care, person and community engagement, safety, and efficiency and cost reduction), and Medicare reimbursement penalties. I conducted preliminary analyses to assess whether assumptions of multicollinearity, outliners, normality, linearity, homoscedasticity, and independence of residuals were met and observed any violations of the assumptions; no violations of the assumptions were observed. The model as a whole was able to predict Medicare reimbursement penalties, $F(4, 415) = 141.8$, $p < .001$, $R^2 = .58$. The R^2 (.58) value indicated that approximately 58% of variations in Medicare reimbursement penalties are accounted for by the linear combination of the predictor variables (clinical care, person and community engagement, safety, and efficiency and cost reduction). In the final model, all four independent variables significantly predicted Medicare reimbursement penalties. Efficiency and cost reduction ($\beta = .453$, $t = 13.965$, $p < .001$) accounted for the highest contribution to the model, followed by clinical care ($\beta = .379$, $t = 11.709$, $p < .001$), person and community engagement ($\beta = .309$, $t = 9.435$, $p < .001$), and safety ($\beta = .195$, $t = 6.071$, $p < .001$).

Table 4 displays the regression analysis summary for the independent variables. The coefficients were all less than 0.001 making them impossible to interpret without carrying more decimal places. This condition was a result of (a) the measurement of the independent variables on a scale of 0 to 100, meaning a 1-point increase in a given independent variable would not predict a large change in the dependent variable, and (b) the dependent variable had a very small range from only 0.98 to 1.02. To remedy this issue, I converted the independent variables into units of standard deviations. A 1-point

increase in the converted independent variables represents a 1-standard deviation increase. For example, the standard deviation of the efficiency and cost reduction independent variable was 19.94. Thus, a 1-point increase in the transformed efficiency and cost reduction independent variable represents a 19.94-point increase in that independent variable. Table 3 shows the standard deviations for each of the independent variables.

Table 5 shows the results of the regression analysis after converting the independent variables to units of standard deviations. After converting the independent variables to units of standard deviations, it was necessary to show six decimal places to have meaningfully interpretable results. The final predictive equation was Medicare reimbursement penalty = 0.986756 + 0.002357(efficiency and cost reduction) + 0.001973(clinical care) + 0.001610(person and community engagement) + 0.001016(safety).

Clinical care. When controlling for efficiency and cost reduction, person and community engagement, and safety, the average Medicare reimbursement penalty increased by 0.001973 points for every one standard deviation (18.44) increase in the clinical care hospital performance score. Specifically, the results indicate hospitals with a higher level of clinical care hospital performance tend to have a larger Medicare reimbursement penalty score, meaning less of a Medicare reimbursement penalty. The squared semi-partial coefficient (sr^2) that estimated how much variance in Medicare reimbursement penalty was uniquely predictable from clinical care was .14, indicating

that a 14% of the variance in Medicare reimbursement penalty was uniquely accounted for by the clinical care hospital performance score.

Person and community engagement. When controlling for efficiency and cost reduction, clinical care, and safety, the average Medicare reimbursement penalty increased by 0.001610 points for every one standard deviation (13.71) increase in the person and community engagement hospital performance score. Specifically, the results indicate hospitals with a higher level of person and community engagement hospital performance tend to have a larger Medicare reimbursement penalty score, meaning less of a Medicare reimbursement penalty. The squared semi-partial coefficient (sr^2) that estimated how much variance in Medicare reimbursement penalty was uniquely predictable from person and community engagement was .09, indicating that a 9% of the variance in Medicare reimbursement penalty was uniquely accounted for by the person and community engagement hospital performance score.

Safety. When controlling for efficiency and cost reduction, clinical care, and person and community engagement, the average Medicare reimbursement penalty increased by 0.001016 points for every one standard deviation (18.68) increase in the safety hospital performance score. Specifically, the results indicate hospitals with a higher level of safety hospital performance tend to have a larger Medicare reimbursement penalty score, meaning less of a Medicare reimbursement penalty. The squared semi-partial coefficient (sr^2) that estimated how much variance in Medicare reimbursement penalty was uniquely predictable from safety was .04, indicating that a 4% of the

variance in Medicare reimbursement penalty was uniquely accounted for by the safety hospital performance score.

Efficiency and cost reduction. When controlling for clinical care, person and community engagement, and safety was the average Medicare reimbursement penalty expected to increase by 0.002357 points for every one standard deviation (19.94) increase in the efficiency and cost reduction hospital performance score. Specifically, the results indicate hospitals with a higher level of efficiency and cost reduction hospital performance tend to have a larger Medicare reimbursement penalty score, meaning less of a Medicare reimbursement penalty. The squared semi-partial coefficient (sr^2) that estimated how much variance in Medicare reimbursement penalty was uniquely predictable from efficiency and cost reduction was .20, indicating that a 20% of the variance in Medicare reimbursement penalty was uniquely accounted for by the efficiency and cost reduction hospital performance score.

Table 4

Regression Analysis Summary for Predictor Variables

Model[a]	*B*	*SE*	β	*t*	*p*-value	95% bootstrap
(Constant)	0.987	0.001		1380.122	<0.001	[.985, .988]
Clinical Care	<0.001	<0.001	0.379	11.709	<0.001	[<0.001, <0.001]
Person and Community Engagement	<0.001	<0.001	0.309	9.435	<0.001	[<0.001, <0.001]
Safety	<0.001	<0.001	0.195	6.071	<0.001	[<0.001, <0.001]
Efficiency and Cost Reduction	<0.001	<0.001	0.453	13.965	<0.001	[<0.001, <0.001]

[a]Dependent variable: Medicare reimbursement penalty.

Table 5

Regression Analysis Summary for Predictor Variables After Converting the Independent Variables to Units of Standard Deviations

Model[a]	*B*	*SE*	β	*t*	*p*-value
(Constant)	0.986756	0.001		1380.122	<0.001
Efficiency and Cost Reduction[b]	0.002357	<0.001	0.453	13.965	<0.001
Clinical Care[c]	0.001973	<0.001	0.379	11.709	<0.001
Person and Community Engagement[d]	0.001610	<0.001	0.309	9.435	<0.001
Safety[e]	0.001016	<0.001	0.195	6.071	<0.001

[a]Dependent variable: Medicare reimbursement penalty . [b]Independent variable: Measured in units of standard deviations (1 standard deviation = 19.94). [c]Independent variable: Measured in units of standard deviations (1 standard deviation = 18.44). [d]Independent variable: Measured in units of standard deviations (1 standard deviation = 13.71). [e]Independent variable: Measured in units of standard deviations (1 standard deviation = 18.68).

Analysis Summary

The purpose of this study was to examine the relationship between measures of hospital performance (clinical care, person and community engagement, safety, efficiency and cost reduction) and Medicare reimbursement penalties. I used standard multiple regression to examine the ability of clinical care, person and community engagement, safety, and efficiency and cost reduction to predict the value of Medicare reimbursement penalties. Assumptions surrounding multiple linear regression were assessed with no serious violations noted. The model as a whole was able to significantly predict Medicare reimbursement penalties, $F(4, 415) = 141.8$, $p < .001$, $R^2 = .58$. I rejected the null hypothesis because all four independent variables significantly predict Medicare reimbursement penalties.

Theoretical Discussion of Findings

The findings from other health care industry researchers confirmed the findings from this study. Ramirez et al. (2016) discovered that the type of health care organizations significantly impacted hospital performance scores and the VBP program should continue to influence hospitals to focus on selected outcome measures, cost reduction, and assessments of quality. Similarly, Carter and Silver (2016) concluded that there was a strong positive correlation among many of the scores, indicating a hospital doing well on one hospital performance domain tended to also do well on the other domains. Petrick et al. (2018) also identified that various domains within the VBP need quality improvement interventions to lessen reimbursement penalties. However, the findings of this study contradict the findings from Figueroa et al. (2016) indicating that some quality domain scores did not improve after the adoption of the VBP program.

The findings of this study supported the GCT founded by Luthans and Stewart (1977). Luthans and Stewart (1977) explained the interaction among the primary variables, environmental variables, resource variables, and management variables would result in effective management and optimal system performance. For health care leaders, leading an organization and decision making depends on variables such as organizational size, organizational scope, and environmental uncertainty to improve performance (Larson & Foropon, 2018). Therefore, the GCT suggests that there is no single management approach or strategy that fit every situation, which allows management to develop the best approach that will contribute to the organization's performance. Designing successful programs are difficult for health care providers because there is no

guidance or methods for performance comparisons or measurements of improvements (Cress et al., 2017).

Applications to Professional Practice

The purpose of this study was to determine if there was a relationship between the quality measures of hospital performance and Medicare reimbursement penalties. The findings led me to reject the null hypotheses as there is a statistically significant predictive relationship between hospital performance measures (clinical care, person and community engagement, safety, and efficiency and cost reduction), and Medicare reimbursement penalties. Thus, understanding the predictor variables (clinical care domain, person and community engagement domain, safety domain, and efficiency and cost domain) can result in more efficient health care. This study showed statistically significant evidence to suggest hospitals with higher levels of performance across four domains as well as the overall performance score tend to have a larger Medicare reimbursement penalty score, meaning less of a Medicare reimbursement penalty compared to hospitals with a lower level of performance. A better understanding of a hospital's performance under the defined guidelines of the VBP may assist health care organizations in controlling costs and improving the quality and outcomes of patients.

Understanding the importance of the performance of hospitals will influence leaders in health care organizations to adjust strategy to deliver higher quality and most efficient health care. Health care leaders may consider the findings of this study valuable to current health care industry trends because the findings may motivate the lower scored hospitals identified by CMS to improve quality delivered at those hospitals. Also, health

care leaders can use the findings to make informed decisions when adjusting strategy to avoid Medicare penalties in today's struggling U.S. economy.

Implications for Social Change

The implications for positive social change include the benefit to health care leaders by developing effective approaches to improve access to health care for patients, improve the quality of health care delivered to patients, and reduce their overall health care costs while maximizing Medicare reimbursements for health care organizations. A better understanding of how hospitals perform under the quality domains measured by the VBP program provides the framework for an innovative health care strategy to deliver affordable health care that may be accessible by all communities (Byrnes, 2015). Based on the statistically significant findings from this study, health care leaders should incorporate the VBP measures in the quality management strategies to promote improvement and correct any shortcomings. Health care leaders must ensure that their management reflects a strong commitment to high quality health care.

Communities can also benefit from the findings of this study. Specifically, the shift to a value-based program and the transparency of health data available enables patients to make informed decisions when choosing health care organizations that deliver the highest quality health care. When patients increasingly use publicly available health data, health care organizations will become more motivated to improve their performance. As we continue in the data transparency era and improvements are made in the quality of data, health care leaders and patients should take ownership to analyze and

investigate the interpretations of the current data that affect future quality strategies, policies, and reimbursements.

Recommendations for Action

The VBP program encourages health care providers to improve the quality of care delivered to patients by reducing patient harm, improving patient outcomes, improving patient experiences, and increasing care transparency (CMS, 2018c). A finding from this study indicated that all four measures of hospital performance, clinical care, person and community engagement, safety, and efficiency and cost reduction were statistically significant in decreasing the Medicare reimbursement penalty. Due to the significance of all four measures affecting Medicare reimbursements, a recommendation for health care leaders is to focus on the measurements within the four domain scores that need the most improvement. In addition, health care leaders should consider refining the measurement and reporting of domain scores to mitigate possible data inconsistencies that could affect a hospitals performance and patient outcomes. Health care leaders should also closely monitor domain scores to ensure hospital performance continues to increase and Medicare reimbursement penalties continue to decrease. The VBP program will remain important to the improvement of health care delivery. Health care leaders must be aware of the financial consequences of Medicare reimbursements and continue to support the improvement of hospital performance measures each year.

The results of this study are essential to health care leaders, physicians, clinicians, politicians, and health care industry scholars. Health care leaders may use the results of this study to promote the VBP program quality initiatives and ensure

appropriate resources are available to achieve an optimal level of performance. Health care leaders should also share the performance data and the financial impact to promote organizational change and VBP program compliance. Physicians and clinicians may use the results of this study to develop initiatives to implement value-based care programs, continuous tracking of quality measures that affect patient outcomes, continuous improvement on future measures that are meaningful to patients and caregivers. Politicians may use the results of this study to enhance collaboration with health care providers to improve the delivery of health care, develop meaningful quality measures to further improve the quality of care, better target future value-based programs that will provide better patient care and outcomes. Health care industry scholars may use the results of the study to explore broader populations, specific measures that may drive the four quality domains for hospital performance, and to continue monitoring the effectiveness of the VBP program. To disseminate the findings of this study, I intend to publish the results in the ProQuest dissertation database and pursue publication in health care industry magazines and academic journals.

Recommendations for Further Research

The focus of this study was on the assessment of designated teaching hospitals located in an urban area with a bed size between 100–299 beds to determine if a relationship exists between the four VBP program domains and Medicare reimbursement penalties. Recommendations for further research include expanding the study population to include non-teaching hospitals and hospitals located in rural areas. Further research could evaluate hospitals located in a specific region to allow hospitals to benchmark their

performance scores. In addition, a deeper evaluation of measures that influence each domain score may provide a strategy for the improvement of those lower scores. Researchers may want to continue monitoring the VBP program year over year to determine the effectiveness and capture any changes implemented for the domain scores.

For this study, I used secondary data generated from CMS's Hospital Compare database and the Medicare Cost Report from CMS.gov. Hospital reported data increases the likelihood of incorrect data entry leading to inaccurate hospital performance scores, which may misrepresent the effectiveness of the VBP program (Rajaram, Chung, & Kinnier, 2016). Therefore, future researchers may want to explore a different approach by collecting qualitative measures from hospital leaders to gain insights into implementing an effective value-based program.

Reflections

My experience with the DBA Doctoral Study process was challenging. I learned a great deal about time management and balancing my study, job, and home life. I experienced difficulties early on in planning the data collection, which ultimately led to changing the direction of the study. In the end, the goal of this study was to determine if there was a relationship between the four VBP domains for hospital performance and Medicare reimbursement penalties. My initial assumption was hospital performance should affect Medicare reimbursement penalties. As expected, the findings from this study revealed there was a statistically significant relationship for all four domains and Medicare reimbursement penalties.

I experienced no issues in analyzing the data from the Hospital Compare database and the Medicare Cost Reports published on CMS.gov. By using secondary data, I mitigated any preconceived ideas since the data were submitted by hospitals. Although the data collection and interpretation of the data were time-consuming, I was astounded by the amount of data that was publicly available during this process. The publicly available data should be valuable in assisting patients who are making important decisions about their overall health. The knowledge I gained from this process and working with this type of data will contribute significantly to my professional career in the health care industry.

Conclusion

In Section 3, I presented the findings indicating a relationship between measures of hospital performance (clinical care domain score, person and community engagement domain score, safety domain score, and efficiency and cost reduction domain score) and Medicare reimbursement penalties. The final model concluded that at $F(4, 415) = 141.8$, $p < .001$, $R^2 = .58$, clinical care, person and community engagement, safety, and efficiency and cost reduction significantly predicted Medicare reimbursement penalties. Based on the statistically significant findings from this study, health care leaders should incorporate the VBP measures in the quality management strategies to promote improvement and correct any shortcomings. Health care leaders must ensure that their management reflects a strong commitment to high quality health care delivered to patients. This study provides value to hospital leaders, physicians, clinicians, and politicians to develop effective approaches to improve access to health care for patients,

improve the quality of health care delivered to patients, and reduce their overall health care costs while maximizing Medicare reimbursements for health care organizations.

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