

2019

Relationships Between Nursing Resources, Uncompensated Care, Hospital Profitability, and Quality of Care

Gloria Glover
Walden University

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Walden University

College of Management and Technology

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Gloria Glover

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Walden University
2019

Abstract

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Profitability, and Quality of Care

by

Gloria Glover

MBA, Nova Southeastern University, 2007

BA, Florida Atlantic University, 2003

Doctoral Study Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Business Administration

Walden University

June 2019

Abstract

The value-based purchase requirement of the Patient Protection and Affordable Care Act puts pressure on hospital leaders to control cost while improving quality of care. The resource dependency theory was the theoretical framework for this correlational study. Archival data from the Centers for Medicare and Medicaid Services collected from 166 acute care urban hospitals for the Fiscal Year 2016. Multiple linear regression analysis was used to determine the relationship between nursing salaries per patient day, cost of uncompensated care as a percentage of net patient revenue, percentage of net income from patient services, and overall patient satisfaction for quality of care received. The multiple regression analysis results indicated the model as a whole to significantly predict overall patient satisfaction for quality of care for the Fiscal Year 2016, $F(3,162) = 13.788$, $p = .000$, and $R^2 = .203$. In the final model, all 3 independent variables significantly predicted overall patient satisfaction for quality of care. Nursing salaries per patient day and percentage of net income from patient services were significant positive predictors of overall patient satisfaction for quality of care. Nursing salaries per patient day ($\beta = .366$, $t = 5.120$, $p = .000$) accounted for a higher contribution to the model than percentage of net income from patient services ($\beta = .169$, $t = 2.374$, $p = .019$). The cost of uncompensated care as a percentage of net patient revenue displayed a significant negative relationship with overall patient satisfaction for quality of care ($\beta = -.176$, $t = -2.458$, $p = .015$). The implications of this study for positive social change include the potential to enhance the quality of care for patients while maintaining local hospitals' financial viability.

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Dedication

I would like to dedicate this doctoral study to my family without their motivation, support and prayer I would not have been able to strive and complete this doctoral study process. With their love and support, I was assured that indeed all things are possible and never to give up even when it seems overwhelming. As well as the importance of striving for your hearts desires and knowing it will be fulfilled; regardless how long it takes. Because of God all things are possible.

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Section 1: Foundation of the Study

The goal of a health care system is to improve patient outcomes by providing quality health care (Longenecker & Longenecker, 2014). Elements of a quality patient experience include positive clinical outcomes and patient satisfaction (Ryan, Sutton, & Doran, 2014). The Patient Protection and Affordable Care Act (ACA), uniformly known as the ACA (2010), influences how hospital providers make decisions related to patient quality (Bustamante & Chen, 2014). The ACA provides financial incentives for hospitals and physicians to focus on patient quality while managing cost through a model called value-based purchasing (VBP; Elliot et al., 2015). The Centers for Medicare and Medicaid Services (CMS) use the VBP model to monitor patient outcome and cost metrics (Dor, Encinosa, & Carey, 2015). The CMS implemented the VBP model in response to the alarming rise in health care costs and spending patterns in the United States (Sharma, Lebrun-Harris, & Ngo-Metzger, 2014).

Background of the Problem

To sustain business growth, hospital leaders need to understand the elements of the patient experience that affect cost (Goldstein, 2015). The challenge hospital leaders' face include measuring and improving the quality of the patient experience (Briggs & Isouard, 2016). According to Clouarte (2016), the measurement of patient quality is a CMS priority. Prior to 2007, researchers had no means of measuring patient satisfaction (Clouarte, 2016). In 2007, the introduction of the Hospital Consumer Assessment of Health Care Providers and Systems (HCAHPS) survey began to measure patient satisfaction (Boylan et al., 2019). The HCAHPS survey stems from the desire of federal

policymakers and private organizations to develop a program aimed at collecting and publicly reporting data on the quality of health care that Americans receive (Clouarte, 2016). The primary purpose of the HCAHPS survey is to provide a standard data collection methodology through a survey instrument to measure patients' perceptions of hospital care and quality (Castronovo, Pullizzi, & Evans, 2015). Clouarte (2016) supported the concept that providing customers with more information will help them make better health care decisions.

CMS developed the VBP model to provide financial incentives to encourage hospitals to focus on outcomes rather than the quantity of services provided (Ryan et al., 2014). Cost management is an integral part of the model (Burwell, 2015). The VBP model integrates a hospital's reported HCAHPS quality data with cost and reimbursement data reported in their annual Medicare cost report (MCR; Dor et al., 2015). The availability of quality outcome and cost data allows researchers the opportunity to study the relationship between nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, percentage of net income from patient services, and overall patient satisfaction of care.

Problem Statement

The VBP requirement of the ACA puts pressure on hospital leaders to control cost while improving quality of care (Dor et al., 2015). In 2015, the United States spent almost three times as much per capita on health care compared by Boylan, Slover, Kelly, Hutzler, & Bosco (2019) countries with similar economic structures yet had no better clinical outcomes (Sawyer & Cox, 2017). The general business problem that I addressed

in this study is that hospital leaders aim to improve quality outcomes while managing the cost of hospital care. The specific business problem that I addressed in this study was that some hospital leaders do not know the relationship between nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, percentage of net patient income, and overall patient satisfaction of care.

Purpose Statement

My purpose in this quantitative correlational study was to examine the relationship, if any, between nursing salaries per patient day, cost of uncompensated care as a percentage of net patient revenue, percentage of net income from patient services, and overall patient satisfaction of care. Independent variables extracted from 2016 hospital MCR worksheets S-3, B Part 1, and S-10 included nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, and percentage of net income from patient services. The dependent variable available from publicly available 2016 HCAHPS survey data was overall patient satisfaction. The population comprised archival data from U.S. acute care hospitals that meet the following criteria: (a) provide short-term acute care, (b) classified as urban by CMS, and (c) have more than 250 patient beds. The implications for positive social change may come through hospital executives using proper guidance to improving quality while maintaining the efficient use of resources. Hospital leaders may address the importance of improving patient quality at a lower cost.

Nature of the Study

The three approaches to conducting research are quantitative, qualitative, and mixed methods (McCusker & Gunavdin, 2015). Quantitative methods involve analyzing the relationship among variables based on existing theory (Ingham-Broomfield, 2014). A quantitative method aligned with the goal of examining the relationship between a set of predictor independent variables and a dependent variable, using existing theory. Qualitative researchers tell the story from the participants' point of view by providing rich descriptive detail through interviews, document reviews, and observations (McCusker & Gunavdin, 2015). A mixed methods researcher uses both numerical and textual data (Halcomb & Hickman, 2015). The qualitative methodology was not appropriate for this study because I did not analyze textual data from interviews, observations, or document reviews; therefore, the mixed methodology was also not appropriate for this study. The research question relates to the relationship among data, thus a quantitative approach was appropriate to test a hypothesis and meet research goals.

The four types of quantitative research designs are correlational, descriptive, experimental, and quasi-experimental (O'Leary, 2017). Researchers use a correlational design to examine the relationship of independent and dependent variables (Ingham-Broomfield, 2014). The correlational design approach allows researchers to review the trend of the relationships between the independent (predictor) variables and dependent (criterion) variables (Curtis, Comiskey, & Dempsey, 2015). Researchers use descriptive statistics to gain a descriptive visualization of data elements (O'Leary, 2017). Although the plan was to use descriptive statistics to explore data, my primary focus in this study

was to test a hypothesis and not only visually describe data elements. Manipulation of the independent variables is an aspect of experimental design (Bryman, 2016). Researchers use quasi-experimental design to manipulate an independent variable, without assignment (Campbell & Stanley, 2015). There was no intent to manipulate variables to assign different conditions; thus, an experimental design was not appropriate for this study. A nonexperimental correlational design was the most appropriate for this study as the goal was to examine the relationship if any among numeric variables.

Research Question

What is the relationship, if any, between nursing salaries per patient day, cost of uncompensated care as a percentage of net patient revenue, percentage of net income from patient services, and overall patient satisfaction of care?

Hypothesis

H_0 : There is no statistically significant predictive relationship between (a) nursing salaries per patient day, (b) the cost of uncompensated care as a percentage of net patient revenue, (c) percentage of net patient income from patient services, and (d) overall patient satisfaction of care.

H_a : There is a statistically significant predictive relationship between (a) nursing salaries per patient day, (b) the cost of uncompensated care as a percentage of net patient revenue, (c) percentage of net patient income from patient services, and (d) overall patient satisfaction of care.

Theoretical Framework

The resource dependency theory (RDT), as developed by Pfeffer and Salancik (1978), was the theoretical framework for this study. Hospital leaders can assess the various factors influencing the operational process by using this theory (Yeager et al., 2014). Pfeffer and Salancik first developed the RDT to explain an organization's behavior as it conforms to the expectation of stakeholders. Yeager et al. (2014) suggested that RDT in health care management helps to explain how to operationalize the market environment in health care settings. Having few resources or uncertainty about the environment can provoke management to make decisions to protect resources and reduce risk (Yeager et al., 2014). The concept of RDT applies to this study because the goal was to examine variables that may relate to resources and quality outcome performance.

According to RDT theorists, the proper alignment of environmental issues relates to the availability of resources required for a particular organization (Pfeffer & Salancik, 1978). Pugliese, Minichilli, and Zattoni (2014) used the RDT pattern to explain the relationships existing between whether organizational profitability and environmental factors are regulated requirements that affect board members' decision making. The RDT was the framework to help understand the implication of this study.

The goal for this quantitative study was to determine whether a relationship exists between nursing salaries per patient day, cost of uncompensated care as a percentage of net patient revenue, percentage of net income from patient services, and overall patient satisfaction of care. Fagerstrom, Lonning, and Andersen (2014) discovered that hospital leaders adjusted business practices when confronted with diminishing resources. This

analysis may produce a practical, broad, and comprehensive approach to understanding how hospital leaders manage resources without affecting quality variables.

Operational Definitions

Affordable Care Act (ACA): In 2010, the U.S. Congress signed the ACA. The purpose of the ACA is to ensure comprehensive health care reform that provides lower health care costs, greater insurance company accountability, and improves the quality of health care provided to patients (Garfield, Orgera, & Damico, 2019).

Diagnosis related group (DRG): A fixed payment amount based on the average cost of patients in the group. Hospitals provide this information on their bills and then Medicare uses this information to decide how much the hospitals should receive for the patient visit (Hernandez, Machacz, Robinson, & James, 2015).

Health care provider: An institution (i.e., hospital, clinical, hospice or home health) or person (i.e., physician, nurse, allied health professional or community health worker) who is certified to practice and provide medicine or surgery in an organization that provides health care services (Chen et al., 2015).

Medicaid expansion: This provision in the ACA expands Medicaid eligibility to include individuals with incomes up to 138 % of the federal poverty level (Hayes, Coleman, Collins, & Nuzum, 2019).

Outliers: These data points within a data set diverge from the regression line (Yin, Wang, & Yang, 2014).

Patient days: These indicate the total number of days for patients admitted into a healthcare facility for episodes of care and overnight stays (Chen et al., 2015).

Patient experience: This represents the clinical experience patients encounter during hospitalization, based on interactions with hospital doctors, nurses, and staff (Beattie, Murphy, Atherton, & Lauder, 2015).

Patient satisfaction: Patients' evaluations of their health care experiences based on their personal and individual values (Beattie et al., 2015).

Uncompensated care: Free or unreimbursed health care services provided by hospitals and other health care providers are considered uncompensated care (Chen et al., 2015).

Value-based purchasing (VBP): A section of the ACA that links provider initiatives/payments to improve performance (patient quality outcomes) by health care providers by attempting to reduce inappropriate care and identifying and rewarding the best-performing providers with financial compensation as a reward for improving quality outcomes (Burwell, 2015).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are elements of a study a researcher believes to be true (Marshall & Rossman, 2015) but cannot verify. Measurements included patient satisfaction based on patients' responses to HCAHPS surveys administered by individual hospitals. The first assumption was that HCAHPS survey results accurately reflect patient satisfaction and patients respond honestly to the survey. The final assumption was that hospital leadership accurately prepare and report their annual MCRs.

Limitations

Limitations are weaknesses in the study that the researcher has no control over (Marshall & Rossman, 2015). The first limitation was that HCAHPS data only cover certain aspects of the patients' quality experiences. Further, MCR data are historical and denote only a short period; an analysis of historical data may not reflect future activities. Finally, a relationship does not prove causality (Gronlund, Wixted, & Mickes, 2014).

Delimitations

Delimitations are restrictions set by a researcher to limit the scope and boundaries of a study (Newcomer, Marion, & Earnhardt, 2014). Delimitations help researchers identify an appropriate amount of literature that can clarify the phenomenon under investigation (Ling Koh, Chai, & Tay, 2014). Teaching hospitals were excluded from the data set. The elimination of teaching hospitals stems from the high patient care cost associated with this hospital mission (Zafar et al., 2015). The study only included acute care urban hospitals; the results may not apply to other hospital types. Finally, the population of the study was limited to hospitals that submitted 2016 quality and cost metric data to CMS.

Significance of the Study

Health care leaders and society could benefit from this study. First, health care leaders may identify factors associated with resources influencing the quality of care. Second, leaders may take advantage of the results of this study by gaining an understanding about the relationship between resources and quality. Furthermore, local

communities may see increased confidence in local hospital systems because of an increase in the quality of care provided to patients.

Contribution to Business Practice

The results of this study could be of value to health care leaders because of leading to better decisions related to the quality of patient care and the allocation of resources. Burstin, Leatherman, and Goldmann (2016) suggested that hospital leaders align their services to focus on the quality of the patient experience with the goal of enhancing clinical outcomes while working within the constraint of limited resources. Health care leaders may use the results of this study as a foundation for appropriate resource allocation. The results of this study may contribute to increasing an emphasis on the relationship between hospital resources and patient quality of care.

Implications for Social Change

The implication for positive social change includes the potential to increase patients' quality of care while sustaining the financial viability of local hospitals. The complexity of the U.S. health system surrounded by the impact of social change increases challenges related to quality of care (Nancarrow, 2015). Positive social change in a hospital system can be fostered by hospital executive management strategies for improving customer service and customer satisfaction, assisting in establishing a continuous service base of patient loyalty (Ozlu & Uzun, 2015). Improved customer satisfaction may lead to higher societal trust in health care systems. Hospital executives will gain tools to improve quality while maintaining the efficient use of resources. A focus on patient satisfaction could lead to better patient clinical outcomes at a lower cost.

Review of the Professional and Academic Literature

This review of academic and professional literature included the use of Walden University's library databases including ProQuest, Business Source Complete, Thoreau, ABI/INFORM Complete, and ProQuest Dissertations and Theses. Searches included websites such as CMS, Agency for Health Care Research and Quality, the U.S. Department of Health and Human Services, and Institute of Medicine. Searches included the following keywords: *resource dependency theory, patient expectations, health care spending, hospital patient satisfaction, value-based purchasing, HCAHPS, customer satisfaction, patient satisfaction, hospital compare, health care quality, patient satisfaction surveys, quality, and satisfaction, Medicare cost report, and hospital performance*. Total citations include 239 separate sources (88% published within 5 years of my expected graduation in 2019), of which 136 are in the literature review. Of the 136 cited references in the literature review, 118 (87%) of the references were published within 5 years of my expected graduation date. Of these sources, 95% of the sources are peer reviewed.

Griffin (2015) defined the *literature review* as a necessary framework for new research. Griffin suggested understanding the work of prior researchers helps frame the scope and purpose of a study. The literature review included a comprehensive examination of the theoretical framework and alternative theories. After the review of the theoretical framework examination, the literature review transitions to a discussion of measurement issues related to the independent and dependent variables. The literature

concluded with a review of methodologies used in prior research related to health care quality and hospital resources.

Resource Dependency Theory

The RDT provides a theoretical framework for this study. Pfeffer and Salancik (1978) were the first to publish on the development of RDT. Researchers use this theory to explain an organization's behavior and if the situation conforms to the expectation of their stakeholders (Pfeffer & Salancik, 1978). The focus of the theory was based on decisions, controls, and meaningful relationships that may affect the organization's strategies to manage the environment they serve (Aldrich & Pfeffer, 1976).

Internal and external environment. Health care leaders must understand the internal and external environment expectations before they can develop strategies to meet those expectations. The selection of RDT provides the ability to help understand the importance of internal and external resources and how management's strategic decisions allocate resources to gain a competitive advantage (Nemati, Bhatti, Maqsal, Mansoor, & Naveed, 2010). Based on the work of Pfeffer and Salancik (1978), the resource dependence perspective focuses on power dynamics. At its primary level, the RDT explains that organizations are a collection of power relations based on the exchange of resources (Ulrich & Barney, 1984). To be successful, organizations modify their structure and patterns of behavior to best secure needed external resources (Pfeffer & Salancik, 1978). An organization gains overall power by having resources that others need and by decreasing its dependence on others for resources crucial to its own needs (Nemati et al., 2010). The basis of an organization's power is in obtaining access and control over

resources (Kash, Procaccia & Shah, 2014). Arik, Clark, and Raffo (2016) found that for organizations to have control over the resources, strategies need to uphold the organization's presence within the community.

Three parts of RDT are (a) the significance of an organization's capability to gain and sustain resources, (b) the organization's relationships with other groups that influence its ability to access required resources, and (c) the organization's attempts to reduce their dependence on others while making others depend on them (Ahmadi et al., 2018). Ulrich and Barney (1984) showed the environment (surroundings/ conditions) is a source of uncertainty for organizations as they try to develop the relationships to maximize their power and reduce the uncertainty. Ulrich and Barney demonstrated that organizations limit uncertainty by building coalitions and formal and informal relationships, or by establishing internal control over some resources.

The effect of limited resources. The lack of adequate resources limits the ability of an organization to meet its strategic goals (Pfeffer & Salancik, 1978). Resources can be internal or external to the organization and can be resources an organization acquires or already owns (Ulrich & Barney, 1984). How a health care organization views the state of its internal and external resources and coordinates the deployment of these resources dramatically affects strategic decision-making and fulfillment of strategic goals (Kash, Spaulding, Gamm, & Johnson, 2014). Within RDT both internal and external resources affect health care management. RDT frames how managers act strategically to reduce environmental uncertainty and dependence (Pfeffer & Salancik, 1978). RDT and transaction cost theory (TCT; Williamson, 1975) are often the main perspectives

strategists use to understand mergers and acquisitions, joint ventures, and vertical integration (Najaforkaman, Ghapanchi, Talaei-Khoei, & Ray, 2015; Pfeffer & Salancik, 1978).

Application to health care. Health care managers must make decisions in an environment of limited resources (Tolk, Cantu, & Beruvides, 2015). Within the last 4 decades, the health care industry has seen an increase of complex regulatory demands, payment structure changes, and uncertainties about the external dependencies (Sharma et al., 2014). The resource dependency perspective and seemingly increasing external environmental pressures often result in a limited number of viable strategic options (Arik et al., 2016).

The theory of resource dependency mostly displays efficiency to build and capture nursing staffing initiatives to promote employee satisfaction. Kash et al. (2014) studied both finance-related initiatives and physician engagement efforts related to the external resource considerations and demands linked to health care reform, which join with the RDT point of view. The quality and culture initiatives allocate resources, which can result in resource dependence (through VBP and patient satisfaction reporting requirements) and internal resource capabilities as well as allocation considerations in both health systems (Kash et al., 2014). Kash et al. confirmed the overarching RDT argument that organizations respond and react to changing conditions within the organizational environment by deploying internal resources (Pfeffer & Salancik, 1978).

Therefore, the deployment of specific combinations of relevant internal resources to achieve strategic goals in the implementation of often-similar policy initiatives across

health care systems can eventually lead to the identification of competitive advantages within the health system as more attention focused to the relevance of the RDT (Pfeffer & Salancik, 1978). These observed differences in human resources deployment of similar strategic initiatives support the notion that strategy continues to cause health care organizations to implement an internal process of resource allocation of sharing and providing it to the community. Noda and Bower (1996) examined decisions concerning development and implementation of valuable management resources in the hospital sector.

Health care strategic planning conversations center on shared external uncertainties faced by all U.S. hospitals, including health care reform, specific reimbursement, program spending cuts, and other payment incentives (Lee, Austin, & Pronovost, 2015). Addressing these uncertainties often results in similar strategic decisions, indicating that today's health care organizations often focus on external environmental requirements (Kash et al., 2014). Kash et al. (2014) researched the importance of aligning external and internal culture and values with change, which provides health care leaders the ability to recognize which key service areas are important to patients.

Application to organization sustainability. Mwai, Gichoya, and Kiplang (2014) explained that when an organization's leadership applies RDT to management strategy, the organization's survival depends on its ability to obtain critical resources from its external environment. A standard way to measure sustainability and survival in organizations is by looking at the level in which they have achieved a particular set of

goals about the business service lines (Pfeffer & Salancik, 1978). Pfeffer and Salancik defined a goal-oriented view of organizations as a collection of individual efforts that come together to obtain something that could not be accomplished through individual action alone. To achieve their goals, organizations adapt and change to fit environmental requirements or attempt to alter the environment to suit the institution's capabilities (Andrews, No, Powell, Rey, & Yigletu, 2016).

Proponents of RDT suggest that resources though limited, scarce, and subject to the/a complex environment are key to an organization's survival (Pfeffer & Salancik, 1978). Pfeffer and Salancik (2018) asserted resources are a basis of power and that legally independent organizations can, therefore, be dependent on each other. According to Pfeffer and Salancik, having control over resources provides power over the individuals who need the resources. An organizational goal is to minimize its reliance on other organizations for the supply of scarce resources by exerting influence to get resources as well as to respond to the needs and demands of others in its environment (Mwai et al., 2014). The organization achieves success by either acquiring control over resources that minimize its dependence on other organizations or by taking control over resources that maximize the reliance of other organizations on themselves (Mwai et al., 2014; Pfeffer & Salancik, 1978).

Alternative Theoretical Framework

To complete this in-depth literature review, I did consider two additional theories. In this subsection, exploration includes two alternative theories, including resource-based view (RBV) and TCT. Both the RBV and TCT help support the chosen primary theory,

which is RDT, as developed by Pfeffer and Salancik (1978). In combination, these theories help to understand how health care leaders can manage and analyze their external environment and internal resources. Researchers using the RBV assert that organizations should determine what strategic resources are necessary to achieve a sustainable competitive advantage (Hitt, Carnes, & Xu, 2016). Using TCT, researchers consider the economic level of transactions as the primary determinant of fair value exchange (Li, Arditi, & Wang, 2014). The next two sections include an overview of these two theories.

Resource-based view theory. Researchers use the RBV to focus on the notion that the internal resources of an organization provide a competitive advantage (Kash et al., 2014). Using this theory, Lin and Wu (2014) suggested organizations assess the availability of resources before embarking on a new strategy. Lin and Wu measured relationships among different resources, different dynamic capabilities, and firm performance resources of any aspect of an organization that are either a strength or weakness with Taiwanese companies. Resources include the organization's procedures, relationships, and in-house technology; whatever provides a source of distinct advantage for the organization is a resource (Lin & Wu, 2014). Lin and Wu found that the organizations' valuable, rare, inimitable, and nonsubstitutable resources directly affect performance in a manner consistent with the RBV.

Theorists using the RBV framework posited that for organizations to be successful, management should align with its external environment (Yeager et al., 2014). Coherence between an organization's internal decisions and strategies and its external

environment is essential for its survival (Hitt et al., 2016). The stability of the external environment allows an organization to understand the factors that influence management and it becomes a competitive advantage for the organization (Akingbola & van den Berg, 2013). If these forces continue to repeat and sustain, they may be core competencies for the organization (Hitt et al., 2016). Lin and Wu (2014) found that successful organizations share similar qualities, namely competencies that are rare, hard to duplicate, and valuable to shareholders.

In addition, Akingbola and van den Berg (2013) determined that nonprofit organization internal resources can serve as core competencies in the area of strategic human resources management in the type of employees that organizations recruit. A nonprofit organization that excels in targeting, recruiting, managing, and promoting employees to implement and support the organizations' missions would be difficult to replicate by competitors (Arik et al., 2016).

Ferlie (2014) applied the RBV theory to the health care industry by identifying required internal resources to understand the (locally variable) outcomes of major quality improvement efforts. Ferlie's findings using RBV theory enable hospital systems to understand determinants of internal clinical performance, resources that improve patient outcomes, and understanding sustained growth of policy level. Kash et al. (2014) established that RBV theory gives organizations an opportunity to focus on an array of unique resources that distinguish an organization's competitive advantage. RBV is an essential trait within the health care decision-making and strategic planning process to assist organizations in recognizing distinct competencies to remain highly innovative

within a driven market, which can often become impacted by low cost-high value alternatives to traditional health care models (Hitt et al., 2015).

When health care leaders combine the internal resources of the RBV perspective with relevant external environmental factors, to develop strategies affecting the organization on particular markets, service lines, and specialty services (Hitt et al., 2015). As the health care industry continues to evolve, driven by U.S. government regulations, reimbursement requirements, the challenge of patient satisfaction trends in population health, improved market competition, and developing innovations, the RBV is an appropriate approach to strategic health care management (Wieringa, 2019). The RBV provides significance in strategy implementation within health care organizations (and other firms faced with an external environment of regulation and competition). The theory will eventually become part of the beginning stages of the strategic planning process (Kash et al., 2014).

Transaction cost theory. Another rival theory for this study was TCT.

Williamson (1975) maintained that the main problem for an organization is adaptability. Researchers who use this theory focus on the economic characteristics of relationships (Sinnewe, Charles, & Keast, 2016). Ulrich and Barney (1984) studied TCT because the theory related to transactional efficiency; these transactions take place when there is an exchange of services or goods between economic actors within or outside the organization. Successful transactions occur when the internal and external price mechanisms are at a maximum (O'Brien, David, Yoshikawa, & Delios, 2014).

Williamson noted that alternative modes of governance for organizations can affect order,

and these modes are essential for the organizational leaders to balance the internal and external costs associated with a product or service.

Wu, Chen, Chen, and Cheng (2014) found that transactions not only were an aspect of buying and selling, but also included daily emotional interactions and exchanges. Researchers use TCT to relate human factors (e.g., encompassing rationality and opportunism) and environmental factors (e.g., behavior uncertainty, information sharing, and frequency) with organizational costs (Sinnewe et al., 2016). Wu et al. established that decisions makers must refer to both the production and transaction costs associated with executing an operation. For example, when managers make a decision related to outsourcing, they must identify resources expended and compare this to output and transactional costs associated with administering the activity (Wu et al., 2014). The disadvantage of focusing exclusively on known costs is that other environmental factors, including trust and uncertainty, can lead to additional costs (Sinnewe et al., 2016).

RDT helps to understand how the use of resources must align with patient care. The importance of internal resources, such as the skills and talents of personnel, is a key element of the RBV, which supports the idea that managers must provide the appropriate resources as part of an overall health care strategic management (Hitt et al., 2015). A review of TCT provides a better understanding of patient care costs. The theories are relevant to the health care industry, which faces competitive market forces as well as a highly restricted and continuously changing regulatory environment (Kash et al., 2014).

The U.S. Health Care System

Hospital entities include many interconnected systems that interact with patients at many levels (Tolk et al., 2015). Hospitals in the United States include not-for-profit (NFP), for-profit (FP), state and local government-owned hospitals, and federal hospitals (American Hospital Association [AHA], 2016). Per capita, national health care expenditures at U.S. registered hospitals in 2017 increased to 3.9% to account to \$10,739 per person with national health expenditures of \$3.5 trillion (CMS, 2019). Total national health care expenditures as a percent of the U.S. Gross Domestic Product in 2017 were 17.9% (CMS, 2019).

Health care leaders continuously adjust strategies based upon innovations in technology and medicine along with the effect of government regulations (Longenecker & Longenecker, 2014). In 2010, the United States implemented the ACA with the goal of expanding health care coverage to many uninsured U.S. citizens; the program also focused on costs, quality, and availability of health care (Smolowitz, Speakman, Wohnar, Whelan, & Haynes, 2015). Elements of the ACA include incentives to encourage hospital leaders to reduce health care costs, improve patient care quality, and reduce readmissions; all these elements have a direct impact on a hospital's operations (Pratt & Belliot, 2014).

The enactment of the ACA increased the number of insured Americans and decreased health insurance coverage gaps (Lee et al., 2015). In 2016, there was a decrease of nearly 12 million uninsured compared to 2013; however, there were still more than 27.6 million uninsured people in the United States (AHA, 2017). By February 2017, more than 10 million people enrolled in state or federal marketplace plans; by June

2017, Medicaid enrollment had grown by more than 17 million (29%) since the period before open enrollment, which began in October 2013 (Kaiser Family Foundation, 2017). ACA intended to help more undocumented and younger people get insurance and increase the number of people on Medicaid (Swan & Foley, 2016).

In 2017, the current Trump Presidential administration submitted a congressional elimination of the ACA penalty individual mandate for not electing to purchase insurance, will take effective in 2019. The result of the repeal is projected to increase in the number of uninsured Americans by 1.3 million, to 31.2 million in a two-year period (Nielsen, Kansas, & Levkovich, 2019). McIntyre and Song (2019) noted that in 2013 42% of Americans shared the belief that the government is responsible to ensure medical coverage for Americans; in 2017, that number rose to 60%. The dilemma is the possibility of the medical benefits that the population has been dependent on will be taken away and chance the medical visits may not be available if the repeal goes into effect (Orient, 2019).

Low-income adults become eligible for health care coverage under the Medicaid expansion in the ACA (Hayes et al., 2019). Clemans-Cope, Long, Coughlin, Yemane, and Resnick (2013) examined the health care use and spending for uninsured, low-income adults with chronic health and mental health conditions with data generated from the Medical Expenditure Panel Survey and controlled for demographic and socioeconomic characteristics. The independent variables in their study were demographics, health conditions, and aspects of the local health care market and unemployment rates (Clemans-Cope et al., 2013). Clemans-Cope et al. found that when

Medicaid served low-income adults with chronic illnesses, these adults had better health care access and higher use than the uninsured. Spending was lower and access was better for Medicaid beneficiaries than the uninsured. When Medicaid expanded in U.S. states, patient access to care improved (Clemans-Cope et al., 2013).

Changes to the Medicare reimbursement payments structure included additional payments associated with productivity (Dockins, Abuzahrieh, & Stack, 2015). The challenge of health care executives is to develop innovative ways to be more productive (Briggs & Isouard, 2016). Health care improvement within the ACA supports increases in quality at a lower cost (Garfield et al., 2019). The changes in the payment schema approach allow hospital leaders to forecast payments based upon strategic options (Dagher & Farley, 2014). The Medicare payment system also includes penalties and demotivators that require hospital leaders to continually evaluate their strategies (Frakt, 2014).

In 1965, President Lyndon B. Johnson signed the Social Security Amendment into law, which formed the Medicare program to ensure accessible and adequate health care for the elderly (CMS, 2013). States created Medicaid programs with federal funding to provide health care for the economically underprivileged population through low income qualification (CMS, 2013). From the time when the implementation of the Medicare program, the growth of the cost of medical services in the United States substantially increased due to the governmental legislation expanding coverage for the elderly, the disabled, and the underprivileged (White & Wu, 2014). The Health Care Financing Administration attempted to reduce costs related to program expenses through

the creation of a payment structure based upon patient diagnosis with the passage of the Omnibus Budget Reconciliation Act of 1989 (Hariri, Bozic, Lavernia, Prestipino, & Rubash, 2009). This act changed hospital reimbursement from a cost-based system to a system with hospitals payments based upon diagnostic-related groups (DRGs; Stefanini, Aloini, Dulmin, & Mininno, 2016). The DRG system encouraged hospital leaders to increase the efficiency of care because the payment structure did not allow for excess days or treatments (Stefanini et al., 2016).

The ACA includes a mandate for individual health insurance coverage as well as a wide range of quality of care initiatives (Smolowitz et al., 2015). The framers of the law used penalties, regulations of health care standards, and external reimbursement awards against the health care facility to assist in leveling the costs to ensure that patients benefit (Aroh, Colella, Douglas, & Eddings, 2015). The CMS VBP model is an award system embedded in the ACA that rewards U.S. acute care hospitals when they increase quality while managing costs (Mkanta, Katta, Basireddy, English, & deGrubb, 2016). The goal of the founders of the ACA was to guide the health care industry toward innovations in the delivery of quality care; the use of empirical data linked to hospitals' quality and process improvements are important elements of the metrics used to determine the success of this overreaching goal (Smolowitz et al., 2015).

Another focus of the founders of the ACA was the concept of shared decision-making regarding policy/procedures on patient quality and cost (Lathrop & Hodnicki, 2014). Lathrop and Hodnicki suggested the process of shared decision-making relies on understanding the needs of patients based on their clinical requirements. Hospital quality

is important, and access to high-quality care reduces morbidity and mortality (Sharma et al., 2014). A limitation to providing the highest level of care is that hospital leaders must conform to a business model to survive, and revenue must exceed their expense obligations (Tolk et al., 2015). Hospital leaders do not have unlimited resources to meet all patient needs. Hospital leaders need to understand how the patient defines satisfaction and quality care so they can provide resources in an efficient manner (Tolk et al., 2015). Hospital quality is a function of patient perceptions, and hospital leaders use the HCAHPS data as the metric in decisions related to efficiently providing quality care to patients (Dor et al., 2015).

Patients prefer a hospital that has a strong relationship with their primary care physician than one that does not (Baker, Bundorf, & Kessler, 2015). Dor et al. (2015) noted patients may make selections on the hospital's reputation or location and accessibility. Other patients may make selections on the hospital's reputation or location and accessibility (Dor et al., 2015). Some private insurance policies will only cover services at hospitals that are in the provider's approved network; consequently, the type of insurance the patient has can be a factor in hospital choice (Emmert & Schlesinger, 2017). Comments and open-ended descriptions of patient experiences are available on the Internet, providing consumers with alternate sources to help make decisions about their choice of hospital (Dor et al., 2015). Hospital report cards are another method of providing the patient with consumer information relevant to making choices, but users can find evaluating various information sources difficult (Emmert & Schlesinger, 2017).

The cost of hospital care includes, among other items, professional insurance, utilities, medical devices and instruments, food, prescription drugs, and hospital staff salary, wages, and benefits (Tolk et al., 2015). Salaries and benefits comprise almost 60% of inpatient hospital costs (AHA, 2016). Between 2010 and 2014, hospitals spent over \$47 billion annually on information technology and investments in electronic health records (AHA, 2016). Costs increased for hospitals from higher prescription drug prices and regulatory requirements that require additional staffing and compliance (Tolk et al., 2015). However, spending growth for retail prescription drugs decreased from 8.9 percent of overall costs 2015 to 1.3% in 2016, resulting from the decrease in price growth for generic and brand-name drugs (Hartman, Martin, Espinosa, & Catlin, 2017). These examples illustrate how a hospital has limited control over cost increases.

Independent Variable: Nursing Salary Cost

The first independent variable, the cost of nursing salaries, is a critical variable that hospital leaders must monitor. Using 2009-2011 data from 3,500 U.S. based hospitals, Stanowski, Simpson, and White (2015) found that amount of nursing cost correlates with positive patient experiences. To measure cost, Stanowski et al. measured cost based upon average daily census (ADC). Using ADC instead of hospital beds better reflects hospital activity (Stanowski et al., 2015). Hospitals report their annual census on Worksheet S-3 Part 1 of the MCR (see Appendix A). The calculation of ADC was calculated by dividing inpatient days by 365. Similar to Sharma, Konetzka, and Smieliauskas (2017), the measurement of nursing salaries per patient day was calculated

by dividing total routine (nursing) salaries for inpatient adults and pediatrics by ADC (Worksheet B-1; see Appendix B).

Nurses are vital to patient care outcomes and cost efficiencies within the hospital (Kieft, De Brouwer, Francke, & Delnoij, 2014). Spetz (2016) concluded that the human face of health care is nursing. As many patients have acute medical issues, the roles of nurses are critical and dynamic (Paul & MacDonald, 2014). When hospital system labor shortages subside or decrease, leadership are able to put more resources into recruiting and training (Nancarrow, 2015). Sufficient nursing resources are a critical component of patient care quality (El-Akreimi, Colaianni, Portoghese, Galletta, & Battistelli, 2014).

Fluctuation in hospital clinical staffing levels increases stress for nurses, which affects their work environment and can lead to a decrease in patient quality and outcomes (Admia, Moshe-Eilon, Shron, & Mann). Several adverse effects can be increased turnover, low morale, and errors in their work that can affect the quality of care that patients receive (Call, Nyberg, Ployhart, & Weekley, 2015). Hospital employee turnover also relates to increased health care costs and can lead to lower quality of patient care (Van Bogaert, van Heusden, Timmermans, & Franck, 2014). McHugh and Ma (2014) found that employees who had a strong relationship with their supervisor had better access to information, resources, and support, which lead to better job satisfaction and lower turnover intentions.

Maintaining the requirements of ACA can conflict with health care organizations' competitive and external needs within the community they serve; these constraints relate to scarce clinical resources (Yeager et al., 2014). Nurses are part of a group of

professionals trained to provide patient care and perform complex functions while attending to patient (Marc, Bartosiewicz, Burzyńska, Chmiel, & Januszewicz, 2019). The nursing shortage in the United States may increase to over 800,000 open positions by 2020 (Paul & MacDonald, 2014). Concerns of health care leaders for staff include retention and employee turnover as well as developing eloquent ways to recruit talent to reduce cost and improve quality outcomes (Roberts-Turner et al., 2014). Nursing shortages affect patient safety and can affect patient complications and increased mortality rates (Paul & MacDonald, 2014). Higher levels of patient care and safety relate to hospitals that have higher nurse-to-patient ratios (Clipper & Cherry, 2015). Clipper and Cherry (2015) used an optimization model to assign regular and cross-trained clinical staff while keeping costs to a minimum.

The goal of cross-training is to extend the skill set of employees beyond a single task (Paul & MacDonald, 2014). Cross-training provides more flexibility in the hospital workforce, but cross-trained personnel may not be as efficient as dedicated staff (Paul & MacDonald, 2014). Paul and MacDonald evaluated the use of cross-training with chaining, where each department had some employees who cross-trained for the next department. Using the optimization model, Paul and MacDonald (2014) found that the total number of nurses required was less and that the service level was higher with cross-training. In addition, the study reported that staffing costs were less using cross-training.

Finland uses a system called RAFAELA, developed in the 1990s to measure nursing intensity (NI) and the allocation of nursing staff (Fagerstrom et al., 2014). Fagerstrom et al. (2014) found that optimizing nursing staff levels improves patient care.

Metrics included in their staffing productivity measure included direct patient care and planning activities. Fagerstrom et al. examined benefits of the system, which included improved patient care, improved workforce planning, better risk management, improved nurse satisfaction, and better patient documentation, to see if high-quality patient care correlates with the efficient allocation of nursing staff. Fagerstrom et al. conducted a quantitative prospective, comparative design to investigate the differences between the two patient population groups of liver and kidney transplant patients. The dependent variable was length of stay and the independent variable was staffing costs (Fagerstrom et al., 2014). The instrument used to calculate NI was the RAFAELA system of Oulu Patient Classification. Fagerstrom et al. computed the cost per NI point by dividing annual total nursing wage costs with annual total NI points. Using multiple regression analysis, Fagerstrom et al. concluded that differences in nursing work conditions, organizational structure, and leadership support impact staffing costs between the two patient groups. The results of Fagerstrom et al. are pertinent to this study by demonstrating that nurse staffing and conditions impacts patient quality of care. The importance for healthcare organizations to understand and monitor patient experiences to improve the quality of care. To improve patient experiences of the quality of care, nurses need to know what factors within the nursing work environment are of influence.

Bisco, Cole, and Karl (2017) investigated the relationship between salaries of registered nurses in the United States and the level of government-sponsored health care (Medicare, Medicaid, and Children's Health Insurance Program (CHIP)). Bisco et al. concluded that patient service eligibility and coverage influence nurses' salaries. They

used government demand, demographics, health, and demand as independent variables, and the dependent variable was nursing salary measured by gross annual salary obtained from the NSRN database (Bisco et al., 2017). Bisco et al. concluded a correlation exists between lower nursing salaries and government programs, relative to private programs. The relationship between nursing salaries and uncompensated care is important factor that impacts patient satisfaction of care because nursing staff have direct involvement in care for patients.

One way that nurses continue to work to change the profession is by encouraging change within their health care organizations. Eggleston and Finkelstein (2014) argued that nursing is a trusted profession, but the profession can still improve. Financial pressures, shifts in the health care laws, regulatory mandates, technology changes, workforce shortages, and the aging population affect all aspects of the health care system, including nurse and patient interactions (Eggleston & Finkelstein, 2014). Eggleston and Finkelstein argued that nurses should advocate for a safe and healthy work environment as part of their daily activities and that this advocacy can occur at the individual, unit, organizational, or system levels. Nurses need to be actively involved in health care policy-making, in addition to caring for patients and conducting clinical research (Tajeu, Kazley, & Menachemi, 2014). Nurses understand the health needs and environmental factors for successful patient care and are essential for providing quality care and managing costs (Zuckerman, 2014).

Shortages in nursing resources led to the development of new models like RAFAELA that optimize the allocation of nursing staff, resulting in better patient care

and improved job satisfaction (Fagerstrom et al., 2014). The nursing shortage has a direct impact on patient quality and the cost of health care because inadequate staffing of nurses can lead to adverse patient outcomes, including mortality, as well as cause an increase in operating and labor costs (de Vos et al., 2016). Being overworked, which can result in decreased workplace satisfaction, decreased patient satisfaction, and increased health care costs, is one reason for current turnover among nurses (Sanchez, Valdez, & Johnson, 2014).

Turnover leads to a waste of resources; affects the organization's operations; and increases costs for clinical recruiting, orientation, and training (Sokhanvar, Hasanpoor, Hajihashemi, & Kakemam, 2016). Turnover rates have a direct impact on transition costs that also decrease clinical productivity and quality of care, because of requiring the hospital to place more effort on employing and instructing new clinical staff (Dempsey & Reilly, 2016). Employee recruitment and retention improves when employee engagement enhances morale, which is a direct correlation to productivity within an organization and also brings in higher profits (Dempsey & Reilly, 2016).

Nurses interact closely with patients and adverse conditions in the workplace, which ultimately affect patient care and patient satisfaction (Dempsey & Reilly, 2016). Martínez-González, Berchtold, Ullman, Busato, & Egger (2014) found that raising awareness and educating professionals in their hospital setting improved the work lives of nurses. In addition to education at the local level, nurses can advocate for change at various levels in the system, including the global constant through organizations, such as the integrated care programs that help shape impactful policies that improve the nursing

profession in light of resource shortages while enhancing patient care and satisfaction (Miller, 2014).

Independent Variable: Uncompensated Care Cost

The second independent variable is the cost of uncompensated care. Using a sample of 2,695 hospitals participating in the VBP program, Gilman et al. (2015) found that VBP reimbursement negatively affected hospitals with a high level of uncompensated care. Uncompensated care refers to unreimbursed health care services to indigent patients by hospitals and other health care providers (Reiter, Noles, & Pink, 2015). Petaschnick (2018) defined uncompensated care as the measure of hospital care provided for a patient for which there was no payment. A hospital's financial outcomes relates to the cost of providing uncompensated care can be unfavorable with lower profit margins (Camilleri & Diebold, 2019). To navigate through the lower profit margins some hospital may reduce the type of quality provided to patients or investment opportunities for growth with staff and infrastructure this can impact patient satisfaction of care (Camilleri & Diebold, 2019). Blavin (2016) measured uncompensated care as a percentage of net patient revenue. To measure uncompensated care was by dividing total uncompensated care (Worksheet S-10; see Appendix C) by net patient revenue (Worksheet G-3; see Appendix D).

Uncompensated care in the United States was over \$35.7 billion in 2015, accounting for around 4.2% of hospitals' total expenses (Haefner, 2018). The financial components of uncompensated care include the sum of uncollectable account receivables and charity care; in 2016 computed to 38.3 billion in which government funding offsets

only 65% of those cost (Khullar, Song, & Chokshi, 2018). Hospitals receive direct compensation to provide services to uninsured indigent patients through a U.S. government program known as the Medicaid Disproportionate Share Hospital (DSH) payment system (Chen et al., 2015). Clemans-Cope et al. (2013) shared that uncompensated care has a variety of impacts on hospitals that threaten the quality of care, particularly for NFP hospitals and government hospitals. Clemans-Cope et al. suggested Medicaid expansion and the ACA have brought more health insurance coverage, but with shortages in both physicians and nurses, hospitals struggle to provide additional services. Uncompensated care causes financial pressures that influence the level and quality of care provided in both FP and NFP hospitals (Pickett, Marks, & Ho, 2017).

Mission-based NFP hospitals typically provide most of the services required by uninsured indigent populations. Song, Lee, Alexander, and Seiber (2013) analyzed the differences between NFP and FP hospitals using a multivariate regression analysis. The study sample included 3,317 nongovernment, general, acute care, and community. Song et al. used independent variables including hospital ownership categories of NFP, FP, and government. Song et al. used six indicators that comprised of hospital size, urban, or rural designation, teaching status, system affiliation, network affiliation, and operating performance, and the dependent variables were five indicators of community interest. These variables included charitable care, uninsured and underinsured, partnership, community-oriented health services, and community assessment (Song et al., 2013). Hospital ownership specifically related to uncompensated care; Song et al. found that percentages of uncompensated care were higher at NFP hospitals. NFP hospitals were

also similar to community-oriented health services and community assessment and partnership, working more in the community than FP hospitals. Song et al. observed no difference in the level of Medicaid services between FP and NFP hospitals. The level of uncompensated care impacts reimbursement implications to the hospital (Chen et al., 2015). As NFP hospitals receive more uninsured patients, Chen et al. (2015) found an impact on total revenue.

Gooch (2019) suggested that hospitals risk the change of being affected by an increase in uncompensated care because the plans have no mandating qualifying health plans to cover the necessary benefits of the ACA. The ACA includes a provision phases out the hospital DSH payments issued to the hospitals. ACA may reduce the levels of uninsured and uncompensated care. Changes in Medicare payments affect the health care of uninsured patients (He & Mellor, 2016). Along with changes to Medicare payments, other pressures affect the uninsured and raise the cost of uncompensated care. Mas (2015) showed that the financial well-being of a hospital is an essential component of providing charity by testing whether hospital financial pressures affect the health of the uninsured population. Mas investigated the implications of managed care for the uninsured in the United States. Mas found that the quality of care of these hospitals decreased more in areas where there was high level of managed care. The financial pressures that managed care dissemination imposes had a negative effect on the quality of care of the uninsured and those admitted to U.S. government hospitals.

Additional pressures include changing demographics (Chen et al., 2015). Chen et al. (2015) examined the relationship between uncompensated hospital care in California

and the size and growth of the Latino population and discovered a significant relationship between the growth rate of the Latino population and uncompensated care costs. Factoring market competition into the analysis, the relationship was no longer significant, indicating that competition among hospitals and improving hospital resources reduced the uncompensated care burden (Chen et al., 2015). The recession of 2007–2009 also affected the number of uninsured (Bustamante & Chen, 2014). Bustamante and Chen (2014) used data from the Medical Expenditure Panel Survey for uninsured U.S. citizens and noncitizens to examine the relationship between the timing of the Great Recession and health spending. Bustamante and Chen found that recent immigrants reported less spending than citizens during the recession. Both residents and nonresidents reported less health care spending, and recent immigrants may not even be getting health care (Bustamante & Chen, 2014).

Bustamante and Chen (2014) suggested that higher health care costs are the cause of some immigrants not receiving preventative care. There are many reasons why people remain uninsured or experience gaps in their health care coverage. Desmond, Laux, Levin, Huang, and Williams (2016) noted the expected perceived expense of the insurance plans and the thought of being ineligible for Medicaid discouraged patients from obtaining insurance. Several limitations of the ACA exist, one of which is that the act leaves a substantial number of individuals uninsured—many are immigrants and people who are exempt from the mandate and therefore do not have access to affordable coverage (Mueller & Carrasquillo, 2017). Another limitation is that the ACA relies on politicians and health care providers to determine the most effective methods for

controlling health care costs, which involves authorizing the government to negotiate prices with health care providers and pharmaceutical companies (Mueller & Carrasquillo, 2017).

Yeager, Cole, Walker, Mora, and Diana (2014) forecasted that Medicaid DSH payments will decline by \$35.1 billion between fiscal years 2017 and 2024. The DSH payments are part of a feature of the Medicaid program, proposed to offset the uncompensated care costs by hospitals that take care of Medicaid and uninsured patient populations (Yeager et al., 2014). Yeager et al. (2014) suggested that the ability of health care providers to treat patients in economically vulnerable areas decreases revenue which impacts resources available for patient care. Reiter et al. found more uncompensated care dollars in rural hospitals in expansion states than those in nonexpansion states (Reiter et al., 2015). Pickett et al. (2017) also examined which population benefited from increased insurance coverage under the ACA by using a survey instrument called the Health Reform Monitoring Survey. The reduction of uninsured patients has reduced uncompensated care and increase profitability (Petaschnick, 2018). Hospitals in states that did not elect to expand Medicaid received a reported increase in Medicaid and uncompensated care margins of 0.12% on average (Petaschnick, 2018). With increased uncompensated care, a hospital has less resources available for patient care, which provides justification for including uncompensated care as a variable impacting patient satisfaction.

Independent Variable: Percent of Net Income from Patient Services

The third independent variable was percent of net income from patient services. Profitable hospitals are in a better position to develop strategies to improve quality (Gilman et al., 2015). Richter and Muhlestein (2017) found a relationship between profitability and the patient experience. Hospital leaders must understand the relationship between profit and quality. Worksheet G-3 in the MCR reports this variable.

Richter and Muhlestein (2017) suggested that a direct financial impact to hospital VBP is the patient experience. Richter and Muhlestein measured the return-to-provider rate and perceptions of health quality correlated with hospital profitability for over a six-year period (2007–2012) with a sample of 19,792 observations from 3,767 hospitals from data retrieved from the CMS and HCAHPS. The three dependent variables used were net patient revenue, net income, and operating margin. The independent variables used were percentage of patients who would recommend the hospital, percentage of patients who would not recommend the hospital, percentage of patients who rated the hospital a 9 or 10, and percentage of patients who rated the hospital a 6 or lower (Richter & Muhlestein, 2017). Richter and Muhlestein used generalized estimating equations, a marginal model, and a regression model to come to the conclusion that there is a correlation between a positive patient experience and increased hospital profitability and conversely a correlation between negative patient experience and decreased hospital profitability. With the increasing importance of cost efficiency and quality improvement within the health care system in the United States, health care executives need to comprehend the relationship between quality outcomes and costs (Dehmer et al., 2014).

CMS anticipated that approximately 50% of hospitals would not meet VBP requirements (CMS, 2013). Hospital organizations' median operating margins decreased from 3.4% in 2015 to 2.7% in 2016 (Gooch, 2019); implementing the VBP model can lead to a 1–2% loss in reimbursement, which could affect hospitals' financial sustainability (Volland, 2014). Changes in the health care reimbursement model forced hospital leadership to take more responsibility regarding the quality of care provided to patients and form relationships with physicians to assist in implementing changes to maintain profitability (Shih & Dimick, 2014). Rogers, Bai, Lavin, and Anderson (2016) examined the acute care hospitals' profitability in fiscal year 2013 to measure net income from patient care services per adjusted discharge. Rogers et al. established that 45% of all acute care hospitals in the sample were profitable, with 2.5% earning more than \$2,475 per adjusted discharge. Rogers et al. reviewed 10 hospitals of that population; seven hospitals were FP and earned more than \$163 million in total profits from patient care services. Rogers et al. used price regulation, the market share of the largest insurer, and rate of Health Maintenance Organization (HMO) penetration as their independent variables and hospital net income as the dependent variable (Rogers et al., 2016). Rogers et al. also noted that hospitals that had an FP status had higher price markups or a system affiliation, which positively impact profitability. Hospitals with large numbers of Medicaid patients had greater unreimbursed expenditures per discharge and lower profitability (Rogers et al., 2016).

Several responses to the ACA called for the reduction of Medicare provider payments, with one view asserting that 15% of health care facilities would become

unprofitable (White & Wu, 2014). The cost adjustment structure affects the slow growth rates of hospitals' compensation. Uncertainty of hospital revenue occurs due to the implementation of the ACA reform (Garfield et al., 2019). The possibility of lost revenue can force hospitals to cut operating costs, which has occurred in many private facilities (White & Wu, 2014). A direct link between quality and reimbursement stems from patient quality outcomes (Ryan et al., 2014). High-quality outcomes relate to a positive patient perception, which increases the chance that patients seek health care services from the health care organization (Kilpatrick et al., 2019). Further, payment under ACA focuses on evaluating quality outcome rates that affect both patient perception and revenue (Shih & Dimick, 2014).

Marier (2014) found hospital ratings provided the best utility for their study to determine whether hospitals receive the appropriate resources through the DSH payment system established by Medicaid to compensate hospitals for providing care to indigent patients. The independent variables included hospital type (urban and rural), the ratio of capital cost to Medicare reimbursement, percent of Medicare patients, ADC, if it was a teaching hospital, and the number of providers retrieved from CMS DSH reimbursement submission (Marier, 2014). Marier used hospital ratings from HCAHPS as the dependent variable to determine whether certain hospitals received DSH payments and if they were using extra resources differently from other hospitals. Hospitals that received DSH payments had higher hospital ratings by 8–10%. Those same hospitals had higher ratings in the categories for hospital cleanliness and medical staff communication (Marier, 2014).

Researchers who modeled hospital characteristics found substantial covariance within numerous variables, including size, academic distinction, ownership status, and region (Dupree, Neimeyer, & McHugh, 2014). A correlational study displayed results on quality of care and patient experience (Stein, Day, Karia, Hutzler, & Bosco, 2014). A hierarchical logistic regression model characterized patients within hospitals with the risk-adjusted Case Mix Index (Suter et al., 2014). Acute myocardial infarction (AMI) readmission showed in the CMS data from 2009 to 2012 displayed a disproportion of patient care for congestive heart failure (CHF) and AMI with payment incentives (Suter et al., 2014). Suter et al. (2014) used three 12-month time periods as independent variables and risk-standardized mortality rates/risk-standardized readmission rates as the dependent variables. Suter et al. concluded that payment incentive programs may influence hospital readmission performance.

Pratt and Belloit (2014) examined the restructuring of health care in the United States by the ACA and its effect on hospital costs, profitability, and patient outcome benchmarks. They used hospital cash flows, mortality, and readmissions as independent variables and the level (high or low proportion) of the CMS services as the dependent variable to understand funding increases and declines (Pratt & Belloit, 2014). A gap in the literature and data regarding hospital spending exists, which demonstrates a challenge for leaders to recognize related costs and resources associated with spending, patient perception, and quality outcomes (Sharma et al., 2014).

Dependent Variable: Patient Satisfaction

The CMS administers the HCAHPS survey, which is randomly sent to a selected sample of patients after their hospital discharge (Boylan et al., 2019). The HCAHPS survey includes 11 components (see Appendix E). Of these 11 components in the HCAHPS survey, there are two measures of overall satisfaction: willingness to recommend and overall rating of hospital (Stanowski et al., 2015). Patient satisfaction scores are a top priority in the healthcare industry; nearly half (54%) of health care executives say patient experience and satisfaction is one of their top three priorities (CMS, 2015). Richter and Muhlestein (2017) used the willingness to recommend as a measure of patient satisfaction. Stanowski et al. (2015) used overall hospital rating as the dependent variable. Following Stanowski et al., the dependent variable embedded in the research question and hypothesis is patient satisfaction.

Stanowski et al. (2015) used ordinary least squares regression analysis to examine relationships existing between inpatient hospital cost measured by the hospital cost index and the score for the overall rating of the hospital using the HCAHPS survey. Stanowski et al. included various independent variables including hospital cost, ADC, region, system integration, teaching status, hospital ownership, and payer mix. The final results indicated that hospitals that invest in clinical resources have higher levels of positive patient experiences (Stanowski et al., 2015). The dependent variable is patient satisfaction. Some of Stanowski et al.'s variables differ from this proposed study's variables. The results of Stanowski et al support the notion that resources impacts patient satisfaction. This study identified how additional resources impact patient satisfaction.

The quality of patient care links to patient satisfaction (Briggs & Isouard, 2016). Personal expectations develop over time and can possibly be adjusted based on the individual's life experiences. Therefore, expectations are an accumulation of personal values, prior experiences, and personal beliefs (Turner et al., 2014). Individual expectancies are unique and comprise of an array of factors including implicit promises, explicit promises, needs, and the experience of the individual (Padin, Svensson, Otero-Neira, & Høgevoid, 2015). Expectations include both cognitive and emotional components (Padin et al., 2015). The quality outcomes from the survey are available on the Internet as well as other sources (Castronovo et al., 2015).

Hospitals use the HCAHPS survey data as a means to evaluate patient-perceived quality of inpatient care and patient experience at hospitals (Dor et al., 2015). In December 2002, the Hospital Quality Alliance (HQA) established a public-private collaboration to promote reporting on hospital quality of care (CMS, 2014). The HQA aims to provide a platform for consumers to make informed health care decisions to improve quality in U.S. hospitals (CMS, 2014). Dor et al. (2015) found that the HCAHPS survey results are available on the Hospital Compare website and the patients can use the data for decision-making. The HCAHPS is a survey of patient feedback that was started in 2008 and lets consumers compare hospitals, increasing health care transparency (Elliot et al., 2015). Usage of the report by consumers may be in its infancy stages, as only 6% of Americans have heard of the report (Dor et al., 2015). The survey allows patients to be more informed about what to expect during their hospital visit and be more selective on

which hospital to choose for their treatment based on procedure outcomes, pricing, and clinical staff interaction.

Researchers evaluating improvements and quality of care at hospitals frequently use the HCAHPS survey (Elliot et al., 2015). Dor et al. (2015) used two procedures to evaluate whether prices decreased following the implementation of HCAHPS. Dor et al. studied private insurance claims and found that prices continued to increase as the report's implementation but at a slower pace than in states not using HCAHPS data. Westbrook, Babakus, and Grant (2014) assessed the psychometric properties of the health care service and quality measures in the HCAHPS survey regarding the report's reliability and validity. Quality is made up of two components: technical quality (how well the service was performed) and functional quality (the relational or social aspects of the delivered service such as compassion and communication; Westbrook et al., 2014). Westbrook et al. used a factor analysis and reliability measure to determine whether the scales used in the HCAHPS pass the tests of measurement reliability, and convergent and discriminant validity. Findings indicate that not all the measures pass the tests and that the HCAHPS may not meet standards of reliability and validity (Westbrook et al., 2014).

Environmental services (EVS) are a part of the patient experience; enhancing services, such as room and bathroom cleanliness in the hospital, impacts quality. McCaughey, Stalley, and Williams (2013) evaluated EVS (costs, labor hours) as an independent variables and its effect on patient experience scores (overall rating and room cleanliness) as measured in the HCAHPS. Cleanliness scores have improved nationally on the HCAHPS, and earlier studies have shown that as cleanliness scores go up, so does

a hospital's overall HCAHPS rating (McCaughey et al., 2013). McCaughey et al. found a lack of a relationship between EVS spending and HCAHPS scores and found that no statistical correlation exists between the HCAHPS environmental score the amount of spending.

The quality of nursing care impacts patients' perception of quality of service (Karaca & Durna, 2019). Silber et al. (2016) found that HCAHPS data help stimulate hospital quality improvement and provide patients a source to be better informed when deciding where to seek hospitalization. Silber et al. obtained secondary data for the patient population measured by the independent variable for Medicare fee-for-service claims for all patients that were diagnosed with AMI between 2009 to 2011 and concluded that in order to assist patients in selecting a hospital for obtaining a service, the CMS should consider improving the HCAHPS model to incorporate hospital volume, clinical staff, and which product service line procedures they provide. Other studies have found improvements in hospital quality from the time when the implementation of the HCAHPS. Elliot et al. (2015) measured HCAHPS improvements using patient discharge records from acute care hospitals that reported in 2008 and 2011. Elliot et al. found that scores increased by 3–10% for hospitals from 2008 to 2011, with the most significant improvement in FP hospitals and hospitals with 200 or more beds.

Hospital quality is the responsibility of senior management. Using data collected from the American Hospital Directory database, the relationship between organizational performance in hospitals and a good vision statement evaluated (Gulati, Mikhail, Morgan, & Sittig, 2016). A vision statement gives a roadmap for an organization, and

without a vision, organizations' effectiveness can decrease (Gulati et al., 2016). Gulati et al. (2016) found there is a correlation between vision statements and financial and growth-related performance, such as net patient revenue, total patient discharges, return on assets, and operating margin. High-performing hospitals have leadership that is effective at communicating the vision and has a desire to improve quality. Vaughn et al. (2014) emphasized the importance of an organization having a strong vision statement has a direct correlation the organization's performance.

Vaughn et al. (2014) determined that strategic decisions made by hospital administrators' positively impacted scores on the CMS core measures. Vaughn et al. found that addition to a clear vision and effective leadership, clinical peer review also improves hospital quality (as cited in Edwards, 2013). By surveying over 400 hospitals, Vaughn et al. evaluated clinical peer review factors and program impact variables. Conducting peer reviews affects quality, medical staff perception, physician engagement, and physician-hospital relations (Vaughn et al., 2014). For a hospital to remain successful, leaders must address the needs of the local community. Hospital quality of care is driven by internal and external factors (Kang & Hasnain-Wynia, 2013). Kang and Hasnain-Wynia (2013) examined a hospital's commitment to community orientation (independent variable) and its effect on quality of care and patient experience (dependent variables). Kang and Hasnain-Wynia utilized data for hospital quality of care and patient experience drawn from the 2009 HCA database and the HCAHPS. Multivariate linear regressions showed that hospitals that had more community orientation had better patient experiences and higher quality of care.

Patient expectations are an important determinant of patient satisfaction and the perception of hospital quality (Singh & Kaur, 2012). According to Singh and Kaur (2012), physicians need to communicate with patients to extract this information, as many patients might not be able to define a particular expectation. Researchers found differences in the quality of care provided at hospitals. One focus of the ACA is to improve the quality of hospital care, and researchers have found that patients that are uninsured, underinsured, or use Medicaid receive lower quality care than patients that have private insurance or use Medicare (Spencer, Gaskin, & Roberts, 2013). Hospital ownership, safety-net status, and geographic location relate to the quality of care more than patient characteristics. Spencer et al. concluded that Medicare patients tended to receive worse care, but in some cases, Medicaid and low-payment (self-payment) had better outcomes as compared to privately insured patients.

Perceptions of hospital quality improve with interactions with the community, peer review, vision, and leadership (Hearld, Alexander, & Shi, 2014). The HCAHPS measures patient perceptions and patient perceptions drive the hospital quality measures (Trastek, Hamilton, & Niles, 2014). To provide a basis for analyzing resources and costs that impacts of efforts such as increasing the nursing staff, environmental cleanliness and information for the community. Trastek et al. suggested need of servant leadership as the key model for health care organizations as it focuses on development of trust from patients and teamwork. Senior leadership play a virtual role in the organization to structure changes to strengthen provider and patient relationship to improve quality of care for patients (Trastek et al., 2014).

Methodologies

In this proposed study, the goal was to measure the relationship of independent variables to a dependent variable using a multiple regression model. Significant support for this approach occurred in other research. In the review of the literature, the most common method utilized by researchers when studying the performance of health care is quantitative. Kash et al. (2014), for example, examined the implementation of strategic initiatives at two health care systems in a quantitative comparative case study and identified the independent variables as the rankings of initiatives, managers' time consumption, and number of key managers and the dependent variable as strategic initiatives. Hartgerink, Cramm, Bakker, Mackenbach, and Nieboer (2015) used a correlational design to determine the relationship between background characteristics, patients' general health, cognitive functioning, physical functioning, experiences with hospital care, perceived quality of integrated care delivery, and quality of life. Using multilevel regression, Hartgerink et al. found that hospital quality of care impacts patients' quality of life and experiences. Hartgerink et al. concluded there was a correlation between hospital quality of care and patient perception and suggested the importance of patients' enhanced experience with care delivery.

Abor (2014) used a correlational design to test the relationship between the effects of health care governance and ownership structure on the performance of hospitals in Ghana. She determined that a relationship between board characteristics and ownership structure is essential in explaining the performance of hospitals. Abor (2014) concluded that effective board governance structures in NFP hospitals demonstrated better clinical

quality outcomes than FP hospitals. Beattie et al. (2015) also used a correlation design to determine if multiple instruments (surveys) appropriately define the patient experience and hospital quality of care. Wong, Tong, and Wong (2014) conducted a qualitative study on the health care insurance industry in Hong Kong using a survey with over 500 participants. Wong et al. used customer satisfaction as the independent variable and customer loyalty as the dependent variable. Customer satisfaction had a positive effect on customer loyalty and provided an understanding of how hospital marketing influences the community perceptions of patient satisfaction (Wong et al., 2014). The study concluded that health care providers need to develop appropriate strategies to improve performance and retain patients (Wong et. al, 2014).

Silber et al. (2016), Stanowski et al. (2015), and Abor (2014) focused their research on hospital resources and hospital quality components. By contrast, Marier (2014) focused solely on patient quality and satisfaction. Marier reasoned that the measurement of patient satisfaction provides an adequate measure as the dependent variable in patient quality and used a multinomial logistic regression in which patients' involvement, satisfaction, and implementation affected social and financial decisions. Silber et al. suggested that the clinician-patient interaction (perception of patient quality) related to the social and financial decisions driving the patients' satisfaction.

Transition and Summary

Section 1 included the background, problem statement, conceptual framework, and a review of literature. The purpose of this quantitative study was to examine the relationship between nursing resources and percent of patient net income; hence, the

research questions for the study probed the relationship among nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, percent of patient revenue, and the perception of patient quality in the U.S. based hospitals. The study could enhance the value to the health care industry by providing knowledge about the efficient use of resources. Similarly, the relationship could positively influence social change through an improved understanding of patient quality perception.

In the literature review, discussion included the link between nurse resources, patient satisfaction, the HCAHPS survey data, and improved hospital spending outcomes using the MCR. When patients feel care providers meet expectations, satisfaction improves. Understanding this correlation can help an organization change its approach to care within the health care industry. Administrators face increasing pressure to manage and improve hospital quality, but confusion remains over the variation of definitions of quality (used as the independent variable) and readmission outcomes (the dependent variable) (Gordon, Leiman, Deland, & Pardes, 2014). Spending on quality improvements benefits hospitals because the efforts reduce cost (Call et al., 2015). However, these improvements require additional resources. Call et al. (2015) suggested that the best way to improve health care organizations is to improve nursing resources.

Section 2 includes the methodology of this research. The section details the role of the researcher, study participants, research method, research design, population and sampling, ethical research, data collection, data collection technique, data organization skills, data analysis, reliability, and validity. Section 3 contains the presentation of

findings, application to professional practice, implications for social change, and further recommendations.

Section 2: The Project

An important priority for hospitals is quality improvement linked to lower cost and better medical outcomes (Brandes, Dharwadkar, & Suh, 2015). The results of this research could be useful to administrators and executives of hospital organizations to help identify relationships between nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, percentage of net income from patient services, and patient satisfaction of care. In this section of the study, I address the purpose of the methodological issues related to the study including the sample population, data collection, and data analysis.

Purpose Statement

My purpose in this quantitative correlational study was to examine the relationship, if any, between nursing salaries per patient day, cost of uncompensated care as a percentage of net patient revenue, percentage of net income from patient services, and overall patient satisfaction of care. Independent variables extracted from 2016 hospital MCR worksheets S-3, B Part 1, and S-10 included nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, and percentage of net income from patient services. The dependent variable available from publicly available 2016 HCAHPS survey data was overall patient satisfaction. The population was composed of archival data from U.S. acute care hospitals that meet the following criteria: (a) provide short-term acute care, (b) classified as urban by CMS, and (c) have more than 250 patient beds. The implications for positive social change may come through hospital executives using proper guidance to improving quality while

maintaining the efficient use of resources. Hospital leaders may address the importance of improving patient quality at a lower cost.

Role of the Researcher

The role of a researcher is to gather and examine data to reach conclusions (Luft & Shields, 2014). I work in decision support services, which is part of a department of finance within a health care system. My role is to analyze cost and quality variables to increase the efficiency of the hospital system. Laukkanen, Suhonen, and Leino-Kilpi (2015) found that an unbiased attitude is essential for researchers to address potential ethical dilemmas. A researcher needs to be aware of possible ethical dilemmas while conducting the research (Halse & Honey, 2014). Related to this objective, the 1979 Belmont Report provides guidelines for researchers to adhere to while conducting research with human subjects (U.S. Department of Health and Human Services, 2014). Although the 1979 Belmont Report identified ethical principles and guidelines for research involving human subjects, including respect for persons, beneficence, and justice, in my study, there was no use of human participants. However, I did remain aware of the Belmont Report's requirements in the event human interaction does occur within this study.

The secondary data set for this study did not involve interaction with human subjects; therefore, the requirements of the Belmont Report do not apply to this research. There was no ability to control the manner of how CMS collected the primary data. Survivorship bias may occur when focusing on a specific set of people or things, which

could lead to false conclusions (Manso, 2016). Data reliability is the responsibility of CMS through the data collection process.

Participants

There were no human participants. Data for this study came from publicly available secondary data. Hennebel, Boon, Maes, and Lenz (2015) determined that the use of secondary data provides accessibility and offers convenience to researchers. Fanning (2014) expressed that the use of archival secondary data saves researchers time during the data collection period. Pollanen, Abdel-Maksoud, Elbanna, and Mahama (2016) also expressed that secondary data provides researchers an effective alternative to collecting and evaluating difficult data information. Formatted secondary data files retrieved from the CMS website is used in this study. All hospitals must submit an annual MCR, which is publicly available through CMS. The patient survey quality is also available from CMS. Hospitals send surveys to patients discharged from their hospitals; the hospitals then submit the survey data to CMS (Dor et al., 2015). The selection of the health care industry is appropriate for this study as the industry is undergoing significant changes. Day, Himmelstein, Broder, and Woolhandler (2015) suggested that research related to healthcare resource utilization is crucial to the success of the U.S. health care system.

Research Method and Design

Three methods of academic research include quantitative, qualitative, and mixed methods (Raich, Müller, & Abfalter, 2014). Lach (2014) noted each method assists in addressing the research questions and requires an array of sampling and data types. Based

on the specific business problem of improving care quality while controlling costs, the purpose of the study, the research question, and selection of a quantitative methodology.

Research Method

Academic research undertakes quantitative or qualitative methods (Lach, 2014). A mixed method approach combines both quantitative and qualitative elements (Raich et al., 2014). Hannes, Heyvaert, Slegers, Vandenbrande, and Van Nuland (2015) described quantitative research as a means for researchers to measure existing relationships among numeric variables and factors. McCusker and Gunavdin (2015) explained that qualitative research methods are exploratory tools researchers use to gain an understanding of underlying reasons, opinions, and motivations. When researchers look to explore the participants' points of view, qualitative research methods provide an efficacy advantage (Wilson et al., 2016). Santos, Black, and Sandelowski (2014) found that interaction with human participants is a significant element of qualitative research. There were no interaction with participants to collect data, nor was there an attempt to explore a phenomenon from the perspective of a group of individuals. For this reason, the qualitative research method was inappropriate to address the research question.

Researchers have an option to select mix methods, which is a combination of quantitative and qualitative methodologies (Halcomb & Hickman, 2015). The mixed methods approach provides researchers the tools needed to gain an understanding of a phenomenon while simultaneously allowing quantification (Lach, 2014). McCusker and Gunavdin (2015) established that mixed methods enable the researcher to observe a phenomenon during the collection of supporting data, which provides a broader and more

complete understanding of the various meanings of the data. Using mixed methods could provide utility but doing so would be beyond the scope of this study, which was based on the analysis of existing data.

My purpose in this study was to examine the relationship between variables. I used the quantitative method. Quantitative methods allow a researcher to collect and analyze numerical data (Lach, 2014). Roos, Thakas, Sultan, Leeuw, and Paulus (2014) determined that using a quantitative research method enables researchers to examine numerical data. The quantitative method was the best approach for this study. The goal was to analyze the relationship between the hospital resources, costs variables, and patient quality outcomes. Quantitative research was the chosen method to test the hypothesis.

Research Design

When identifying the relationships between variables using quantitative methodology, there is an array of design approaches to consider (Hagger & Lyszczynska, 2014). Vannest and Ninci (2015) identified three quantitative designs: (a) experimental, (b) descriptive, and (c) correlational. When a researcher uses an experimental design, the attempt is to measure the effect of a change in a particular variable through a process of manipulation (Simons, Smith, & White, 2014). Huang, Liu, Song, and Keyal (2014) found that experimental research designs are vulnerable to possible human error. No manipulation of data was conducted during this study; therefore, there was no reason to select an experimental design.

A researcher uses descriptive techniques to define the characteristics of a population or set of variables (Humphreys & Jacobs, 2015). Ploutz-Snyder, Fielder, and Feiveson (2014) argued that descriptive research is suitable to find the mean, mode, and standard deviation of a data set. Descriptive techniques occur before testing the hypothesis. The descriptive techniques allowed an understanding of the characteristics of the data set. However, the descriptive measurements was not part of my hypothesis testing.

A correlational design is appropriate when the goal of a researcher is to examine relationships between two or more variables (Zuo & Xing, 2014). Humphreys and Jacobs (2015) recommended that correlational designs are essential in examining issues not addressed during experimental approach. The correlational design was appropriate for this study because my research question addresses the relationship of data.

Population and Sampling

The population for this study included U.S. acute care hospitals. Specific criteria included the following: (a) provide short-term acute care, (b) have more than 250 patient beds, (c) are urban as classified by CMS, and (d) completed a CMS MCR and submitted HCAHPS survey data for fiscal year ending in 2016. My chosen population aligns with the overarching research question.

Researchers can save valuable time, money, and resources by carefully selecting an appropriate sampling technique (Shorten & Moorley, 2014). Kandola, Banner, O'Keefe-McCarthy, and Jassal (2014) stated that nonprobability and probability sampling are two primary sampling techniques. Selection of nonprobability purposive sampling

technique for this study will achieve a controllable sample similar to the one used by Bhatta, Karki, and Aryal (2015). A researcher does not randomly select items when using nonprobability sampling technique (Fleischhacker, Evenson, Sharkey, Pitts, & Rodriguez, 2013). The creation of a manageable sample and the need for generalization are advantages for researchers using nonprobability sampling (Louis, Clark, Gray, Brannon, & Parker, 2019). The nonprobability purposive sampling technique allows the researcher to limit the sample population by defined conditions (Kandola et al., 2014). The population of the study was U.S. acute care urban hospitals with more than 250 beds, resulting in a purposeful sample of 166 hospitals.

Probability sampling was rejected in favor of a nonprobability technique.

Researchers using a probability design consider one of five principal types of sampling, such as systematic, simple random, stratified, cluster, and multistage sampling (Kandola et al., 2014). In quantitative research, probability sampling involves the researcher randomly choosing independent elements from a population (Kandola et al., 2014). The ease of picking a random sample is an advantage of a probabilistic sample technique (Yin et al., 2014). Bornstein, Jager, and Putnick (2013) established that when done correctly, a random sample results in an unbiased selection and representative sample of the population. There was no interest in displaying a representative sample of the population within this study. The primary interest within this study were for all hospitals that align with the research question.

A purposeful sample of 166 hospitals was an appropriate sample size. Yin et al. (2014) found that although a purposeful sample does not follow probability requirements

for sample size, the sample size requirements for probability provide an appropriate point of reference for defining the final sample size. Green and Salkind (2014) suggested the G*Power 3 tool to determine sample size. The use of the G*Power 3 was to determine the minimum sample size that maintains a power of 0.95. Using an a priori power analysis, assuming a medium effect size ($f^2 = .15$), $\alpha = .05$, and three predictor variables, the calculation of a minimum sample size of 95 hospitals (see Appendix F). The purposeful sample of 166 hospitals exceeds the minimum for this study.

Ethical Research

Sekaran and Bougie (2013) suggested that researchers have an ethical responsibility to validate the rationality and reliability of their research method. Regardless of the kind of the research methodology selected, researchers are accountable for correlating the research process with the ethical dilemma within the study (Laukkanen et al., 2015). Furthermore, researchers need to follow ethical protocols when studying a population (Laukkanen et al., 2015). At the start of this doctoral study, I completed my training related to protecting human participants to confirm my understanding of research-related ethical standards (see Appendix G). The research goals included no participant interactions.

Prior to the data collection and analysis, I did request approval from the Walden Institutional Review Board (IRB). Johnson et al. (2014) examined the IRB to ensure doctoral candidates follow in line with ethical standards, applicable laws, and institutional requirements. After IRB approval, the data collection and analysis process began. This study used secondary data. Because this study did not use human

participants, there was no need for any confidentiality agreements or consents from participants. A researcher has a responsibility to protect vulnerable populations (Morse & Coulehan, 2015). Concerns regarding vulnerable populations was not an issue needed to address because of having no human participants.

Similar to the work of Harrison and Thornton (2014), data sources are from the publicly available CMS website portal. HCAHPS and MCR databases are publicly available at no charge to users. As recommended by Arpacı, Kilicer, and Bardakci (2015), the data was stored on a web-based cloud Google Drive storage service with access restricted to me and my chair. To maintain the Walden University's doctoral study requirements, the data will remain in a secure location for a minimum of 5 years and then destroyed.

Data Collection Instruments

Taber (2017) expressed that instruments are objects within research used to gather data, such as surveys, interviews, and experiments. When secondary data is the basis for a research study, there are no data collection instruments (Taber, 2017). For this study, the selection of archived numeric data from the CMS assisted to complete the analysis.

Omair (2015) discovered the importance of numerical data for quantitative research; numerical data is applicable for this study. Table 1 displays the study variables.

Four primary data types: nominal, ordinal, interval, and ratio (Green & Salkind, 2014). Continuous data is data that has no restriction to the range of values (Green & Salkind, 2014). Ordinal data refers to a data set used to rank a sample of individuals with

reference to some characteristics but without a numerical value (Green & Salkind, 2014).

Table 1 shows the types of data for the variables.

Table 1

List of Variables

Variable	Type	Description of variable
Nursing salaries by patient day	Continuous	Nursing salaries per patient day calculated by dividing annual nursing salaries by total patient days
Uncompensated and unreimbursed services	Continuous	Percentage of uncompensated care calculated by dividing the cost of uncompensated care by net patient revenue
Percentage of net income from patient services	Continuous	Percent of patient income calculated by dividing net patient income by net patient revenue
Patient satisfaction	Ordinal	Likert scale to measure patients' responses to overall hospital rating

Note. Table of variables categorizes the type and description of independent and dependent variables.

Through an annual MCR, U.S. hospitals report financial statement data, utilization data, Medicare settlement data, costs and charges by cost center, and facility characteristics to CMS. The data was publicly available on a website provided by CMS

and maintained in the Health Care Provider Cost Reporting Information System (HCRIS).

Data Collection Technique

Secondary archival data was the data source for this study. Taber (2017) found secondary data acceptable for research. According to Fleischhacker et al. (2013), when using secondary data, researchers do not need to implement any data collecting techniques. Researchers also save time and cost during the data collection process when using secondary data (Lin & Lui, 2015). A limitation of secondary data is that a researcher does not have direct control over the data collection process (Bevan, Baumgartner, Johnson, & McCarthy, 2013).

The secondary data for this proposed study came from CMS repositories that contain MCRs and HCAHPS quality survey data. Both data sources are publically available with no charge. Hospital are required to submit an annual MCR to CMS as a condition of participation in the Medicare program (Dor et al., 2015). CMS archives hospital MCR report data by fiscal year in their public Internet portal. The extracted 2016 MCR data file (<https://www.cms.gov/Research-Statistics-Data-and-Systems/Downloadable-Public-Use-Files/Cost-Reports/Cost-Reports-by-Fiscal-Year.html>) and HCAHPS survey data (<https://data.medicare.gov/data/archives/hospital-compare>) are the foundation for analysis. Both repositories are available to the public with no restrictions at no cost. Each file uses a unique key, which was the hospital Medicare number. The unique key allowed the ability to use Excel's relational database function to combine both files. Once the 2016 MCR and HCAHPS tables are related, the

removal of variables unrelated to the study variables and hospitals that do not meet the criteria established for the paper. The final file included a row label for each hospital and column for each variable.

Data Analysis

The research question for this study was: What is the relationship, if any, between nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, percent of net income from patient services, and patients' satisfaction of care? The study included three independent variables: (a) cost of routine nursing salaries expended per patient day, (b) the cost of uncompensated care provided as a percentage of net patient revenue, and (c) percent of net income from patient services. Similar to Stanowski et al. (2015), I defined the dependent variable as patients' satisfaction of care, which represents patients' rating of their overall satisfaction with the care they received.

The concept of RDT applies to this proposed study because my goal was to examine variables that may relate to resources and quality outcome performance. According to RDT theorists, the proper alignment of environmental issues relates to the availability of resources required for a particular organization (Pfeffer & Salancik, 1978). The analysis from this study may produce a practical, broad, and comprehensive approach to understanding how hospital leaders manage resources without impacting quality variables. Based on the research question, the following is the null and alternative hypotheses:

H_0 : There is no statistically significant predictive relationship between (a) nursing salaries per patient day, (b) the cost of uncompensated care as a percentage of net patient

revenue, (c) percent of net patient income from patient services, and (d) overall patient satisfaction of care.

H_a: There is a statistically significant predictive relationship between (a) nursing salaries per patient day, (b) the cost of uncompensated care as a percentage of net patient revenue, (c) percent of net patient income from patient services, and (d) overall patient satisfaction of care.

The decision to use a multiple linear regression model for data analysis came after reviewing and rejecting other options such as logistic regression and polynomial regression. Examining the relationship of an array of independent variables with a dependent variable is the primary purpose of a multiple regression analysis (Mertler & Reinhart, 2017). Researchers prefer Pearson's correlation when establishing a relationship with a single independent and dependent variable (Rahn, 2016). Multiple linear regression analysis was the ideal method to test these hypotheses. Descriptive statistics help researchers understand the data sets. Descriptive statistics provide an understanding of disparity and ordinariness of data sets (Lopez-Rojas, 2016). Researchers use descriptive statistics to identify key details about each variable including mean and standard deviation (Kanchan & Krishan, 2013). Lopez-Rojas (2016) noted that researchers use descriptive statistics to describe and summarize variables within a meaningful way.

The data for analysis came from CMS data files containing 2016 MCR and HCAHPS survey data. I did extract data elements and transfer these elements into an Excel file. The Excel file was loaded into Statistical Package for the Social Sciences

(SPSS) for analysis. When examining the relationship between multiple independent variables and a dependent variable the selection of multiple linear regression analysis is most appropriate (Bok-Hee & SoonGohn, 2014). The goal of this proposed study was to examine the relationship between multiple independent and dependent variables. Thus, a multiple linear regression model was the best model to use.

When conducting quantitative research, a researcher needs to understand assumptions of linearity, multicollinearity, normality, homoscedasticity, and independence of error (Thompson, Kim, Aloe, & Becker, 2018). Type I or Type II errors may result in violations of primary assumptions (Green & Salkind, 2014). A Type I error is the rejection of the factually true null hypothesis, and a Type II error is the acceptance of a factually false null hypothesis (Garcia-Perez, 2017). The process of bootstrapping assisted to minimize assumption violations in SPSS: By using bootstrapping through entire population for analysis becomes the sample.

The bootstrapping technique randomly resamples data using a non-parametric test to validate regression models (Arya, 2016; Sillabutra et al., 2016). Researchers use bootstrapping to forecast data (Syntetos, Babai, & Gardner, 2015). Researchers use bootstrapping as a technique to address potential concerns with regressions coefficients on standard errors (Arya, 2016). The SPSS software provides researchers the ability to analyze, aggregate or average individual variable scores (Field, 2013). To gain more experience in using SPSS software version 25, I viewed YouTube videos and completed SPSS online training.

Outliers are data points that diverge across the regression line from the rest of the observed population (Yin et al., 2014). An outlier can be either the extreme value of x , the extreme value of y , extreme value of x and y , or a distant value from all the observations (Yin et al., 2014). An outlier impacts the regression line as an influential point (Yin et al., 2014). Visually reviewing scatterplot graphs is an appropriate strategy to identify outliers (Schubert, Zimek, & Kriegel, 2014). To validate the linearity assumption in multiple linear regression analysis, Girotra et al. (2014) recommended using a scatterplot. A scatterplot is a graph of individual data points and regression line on an X-Y axis that allows a researcher to visually see how far data points deviate from the regression line (Tague, 2005). A visual review of scatterplots graphs for each variables was the process step to identify potential outliers. Scatterplot graphs are a normal output of the SPSS linear regression analysis.

Green and Salkind (2014) defined the linearity assumption as multiple linear regression for analysis is conducted when the linear relationship between the independent and dependent variables is established. Yang, Novick, and LeBlond (2015) studied that the linearity assumption is a small occurrence in practice, clarifying that slight deviations from the line would not affect multiple regression procedures. Data assumptions most commonly utilized are normality and linearity (Zahari, Ramli, & Mokhtar, 2014). Wiedermann, Hagmann, and von Eye (2014) demonstrated that random variables with a normal distribution result are plotted on a graph into an asymmetric bell-shape. Özakan and Seke (2017) stated that when data does not display as a bell-shaped graph there might be errors in the data set. Using a histogram, as suggested by Skorek, Song, and Dunham

(2014) can assist in identifying outliers within the data points. Displaying my data in a histogram helped to identify outliers and remove them from the data set.

Hopkins and Ferguson (2014) reasoned that a linearity assumption and any linear relations linked to other coefficients within the data model is associated with the dependent variables. Schubert et al. (2014) discovered that plotting residuals within a graph is a standard method for testing the existence of linearity. Rovai, Baker, and Ponton (2014) measured linearity testing using the SPSS analysis software to reduce the external validity threats. Data points that are near a 45-degree-angle line was an indication of linearity. The data set can have modifications if the researchers see that data is not linear (Nguyen, Schwartz, & Dockery, 2014).

Zahari et al. (2014) described multicollinearity as a high level of correlation between independent variables. When independent variables have a strong correlational tie, each variable's effect on the dependent variable is difficult to determine (Zahari et al., 2014). The multicollinearity correlation between two independent variables with a variance inflation factor greater than five Variance Inflation Factor (VIF) > 5 is highly correlated (Green & Salkind, 2014). No or little multicollinearity is the assumption in multiple regression analysis (Zahari et al., 2014). The tools researchers used to identify multicollinearity is the Pearson correlation coefficient (Rovai et al., 2014). Rovai et al. (2014) suggested that the Pearson correlation coefficient among all the independent variables should be smaller than .08 to identify the existence of multicollinearity. The range for the Pearson correlation coefficient was between +1 to -1.

Homoscedasticity refers to when the dependent variable displays a related amount of variance through the range of the independent variables (Laerd Statistics, 2015). An indication of heteroscedasticity is if the regression line fluctuates from diverse values of the same error variation (Kokoszkaa, Rice, & Shang, 2017). A distortion of the findings from heteroscedasticity can possibly increase the chance of a Type I error (Bradley & Brand, 2016). Visually examining the regression scatterplot is one way to validate the homoscedasticity assumption (Nguyen et al., 2014). To validate the homoscedastic assumption, I referred to the standardized residuals value in the scatterplot of the regression line.

The interdependence of residuals refers to autocorrelation (Green & Salkind, 2014). No or little autocorrelation is the assumption in multiple linear regression analysis (Rovai et al., 2014). Rovai et al. (2014) stated that autocorrelation exists when the residuals, observed value or $y(x + 1)$ and the average predicted value or $y(x)$ of the dependent variables, are not independent of each other. Procedures to test autocorrelation are included as study procedural steps.

There are an array of software packages accessible to researchers for analyzing data including Statistical Analysis System (SAS), SPSS, and LIMited DEpendent variable models (LIMDEP; Abdel-Karim, 2014). University and industry researchers use SPSS to conduct correlational analysis (Akin, Gulmez, Bozkurt, Nuhoglu, & Usta, 2014). SPSS software provides a platform for data entry that translates numerical and non-numerical data into usable statistical analyzable data (Green & Salkind, 2014). Based on

Walden University's recommendation, software affordability, and ease of use, SPSS was the chosen application to analyze the hospital data.

When analyzing the data using the SPSS software I did refer to B , β , F , R^2 , *Adjusted R^2* , *Sig (p)* and t . The parameter definitions are as follows.

- B . B is used in predicting the equation for unstandardized coefficients (Cheng, Shalabh, & Garg, 2014).
- β . β is used in predicting the equation for the slope of X or the standardized coefficient (Green & Salkind, 2014).
- F . F defines the model's overall predictability as a statistic measure (Green & Salkind, 2014).
- R^2 . The R^2 measures how much the predictor variables influence the dependent variable (Cheng et al., 2014).
- *Adjusted R^2* . Adjusted R^2 reflects the sample size of the study (Green & Salkind, 2014).
- *Significance (p)*. Significance or a p -value is used by researchers to know whether to reject the null hypothesis (Keith, 2014).
- t . The t -value is relative if the standard deviation of the population is unknown; the estimate of the population retrieved from sampling distribution of sample (Ott & Longnecker, 2015).

Researchers use descriptive techniques to measure important specifics about the data including sample mean, standard deviation, percentage, and frequency (Bryman, 2016). Furthermore, Bryman (2016) suggested that researchers should include vital

details about the sample data to supplement multiple linear regression analysis. The use of descriptive statistics include the calculation of sample's mean and standard deviation.

To determine the correlation between dependent and independent variables the regression analysis is an acceptable technique (Green & Salkind, 2014). Cheng et al. (2014) suggested that to determine the relationship between the independent and dependent variables the researcher should use multiple linear regression analysis. Hence, the justification in selecting a multivariate regression model for this doctoral study to identify the relationship between variables at a level of significance of $\alpha = 0.05$.

Study Validity

Lobo, Fisher, Peachey, Ploeg, and Akhtar-Danesh (2015) determined that researchers are responsible for identifying the most appropriate research method for the study. To measure the relations among quantitative variables, a quantitative research method is ideal (Morard, Stancu, & Jeannette, 2012). Hypothesis testing includes measuring the relationship among variables using statistical testing techniques. Prior to my inferential testing, I did validate data. Type I and Type II errors refer to inappropriate statistical conclusions from the analysis (Prabhu, Acharya, & Muddapur, 2014). Specific instrumental reliability related to the sample size and data.

Reliability of the instrument. The primary source of data for this doctoral study was secondary data. Henderson, Kimmelman, Fergusson, Grimshaw, and Hackam (2013) stated that the use of secondary data in quantitative research is an appropriate data collection strategy. To assist in validation of the reliability of the data, the use of internal consistency reliability helped validate the data.

Data assumptions. In this study, the primary statistical threats to the conclusion of validity include data assumptions, sample size, and reliability of the instrument used. According to Thompson et al. (2018), correct statistical tests and adequate sampling reduces data assumption threats. Type I or Type II errors occur when there are violations of primary assumptions (Green & Salkind, 2014). Hence, I did run bootstrapping in SPSS to minimize violations of assumptions.

Transition and Summary

Section 2 includes an examination of the proposed methodology (quantitative) and design (correlational). The section also provided the rationale for selecting a quantitative correlational study instead of qualitative, and mix methods, and experimental or quasi-experimental designs. The section shows the participants, methods of data collection, selection of hierarchical regression, and the specific research and reliability. In the next section, inclusion of the analytical results of the study and provide an interpretation of study's findings and within the context of the hypotheses, the research questions, and the connection to social change implications. Section 3 provided recommendations for further research, my reflections on completing the study, and an overall summary of the study's key conclusions.

Section 3: Application to Professional Practice and Implications for Change

Introduction

My purpose in this quantitative correlational study was to examine the relationship, if any, between nursing salaries per patient day, cost of uncompensated care as a percentage of net patient revenue, percentage of net income from patient services, and overall patient satisfaction of care. Collection of data were retrieved from the CMS website. The independent variables for this study were nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, and percentage of net income from patient services. The dependent variable for this study was overall patient satisfaction of care. The overall model showed that at $F(3,162) = 13.788, p = .000, R^2 = 0.203$, nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, and percentage of net income from patient services significantly predicted overall patient satisfaction of care. When examining the relationship between this study's variables, there was a statistically significant relationship for the model; therefore, I rejected the alternative hypothesis and accepted the null hypothesis..

Presentation of the Findings

I present the findings of this study through a discussion of outcomes related to testing the assumptions, a review of the results of descriptive statistics, inferential statistics outcomes, a theoretical discussion on the findings, and end with a summary. There was no risk of duplication within this study, because the sample size was from a reasonably large population. In this doctoral study, bootstrapping minimized the effects

of the data's outliers that may influence the study outcome. The bootstrapping method warrants a 95% confidence interval.

Test of Assumptions

I assess multicollinearity, outliers, normality, linearity, homoscedasticity, and residual independence assumptions. There was no violation of any of the assumptions. Therefore, bootstrapping did not alter the analysis results.

Multicollinearity. By viewing the coefficients of correlation, the multicollinearity was assessed as the predictor variables. The predictor was small for all coefficients of bivariate correlation; hence, it was not apparent for violation of multicollinearity assumption. Correlation between two independent variables with a variance inflation factor greater than five ($VIF > 5$) is highly correlated (Green & Salkind, 2014). Multicollinearity was not apparent, as the VIF was less than 1.1 for all variables. Coefficient correlations are shown in Table 2 and VIF collinearity statistics are shown in Table 3.

Table 2

Correlation Coefficients Among Study Predictor Variables

Variables	Overall patient satisfaction of care type	Nursing salaries per patient day	Uncompensated care as a percentage of patient revenue	Percent of net income from patient services
Overall patient satisfaction of care	1.000	.371	-.245	0.147
Nursing salaries per patient day	.371	1.000	-.139	-.115
Uncompensated care as a percentage of net patient revenue	-.245	-.139	1.000	-.112
Percentage of net income from patient services	0.147	-.115	-.112	1.000

Note. $N = 166$.

Table 3

Collinearity Statistics

Variables	Collinearity statistics	
	Tolerance	VIF
Nursing salaries per patient day	0.963	1.038
Uncompensated care as a percentage of net patient revenue	0.964	1.037
Percentage of net income from patient services	0.970	1.031

Note. VIF = variance inflation factor; $N = 166$.

Outliers, normality, linearity, homoscedasticity, and independence of residuals. Evaluation of outliers, normality, linearity, homoscedasticity, and independence of residuals were conducted by examining box plots, the normal probability plot (P-P) of the regression standardized residuals, and the scatterplot of the standardized residuals. All data remained in the analysis despite normality violations within the data set. When calculating the 2,000 samples of bootstrap, 95% of CIs were appropriate. The normal P-P of the standardized residuals is displayed in Figure 1. It is supported because it lies against the predicted value in a straight line display the failure of the residuals. The standard residual of a scatterplot is displayed in Figure 2. A violation of the homoscedasticity assumption suggests a decrease in residual variations this is shown the residuals are on one side (left side) higher than the other (right side). Therefore, to minimize any impact on the statistical result, the run of 2,000 bootstrap samples was appropriate.

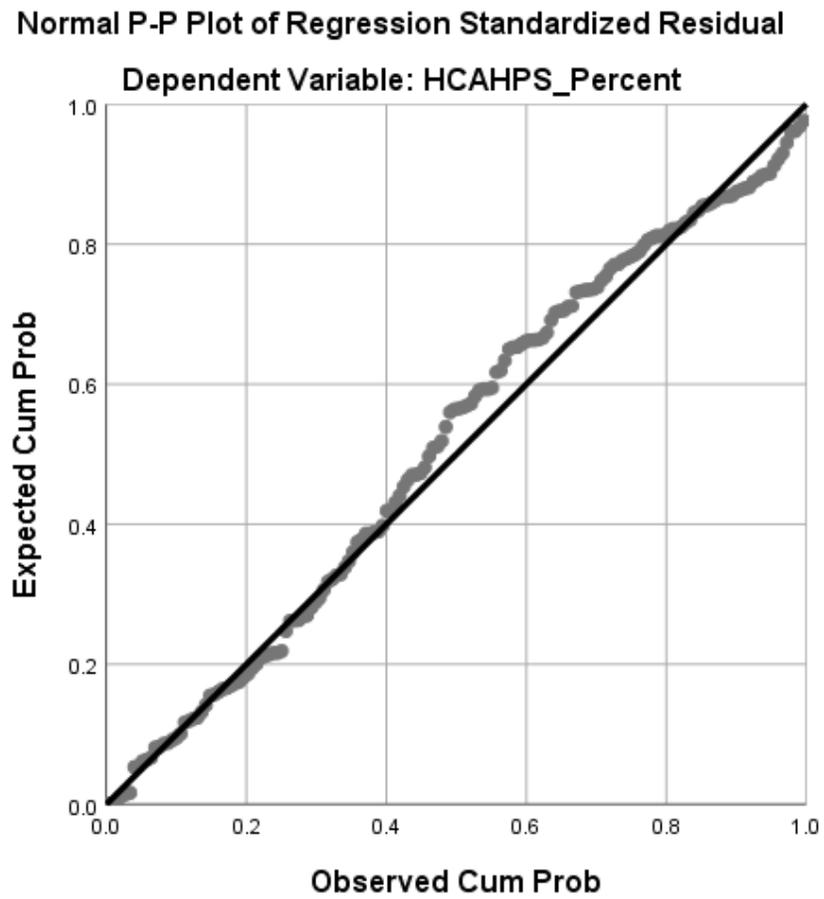


Figure 1. Normal probability plot of the standardized residuals. P-P = probability plot.

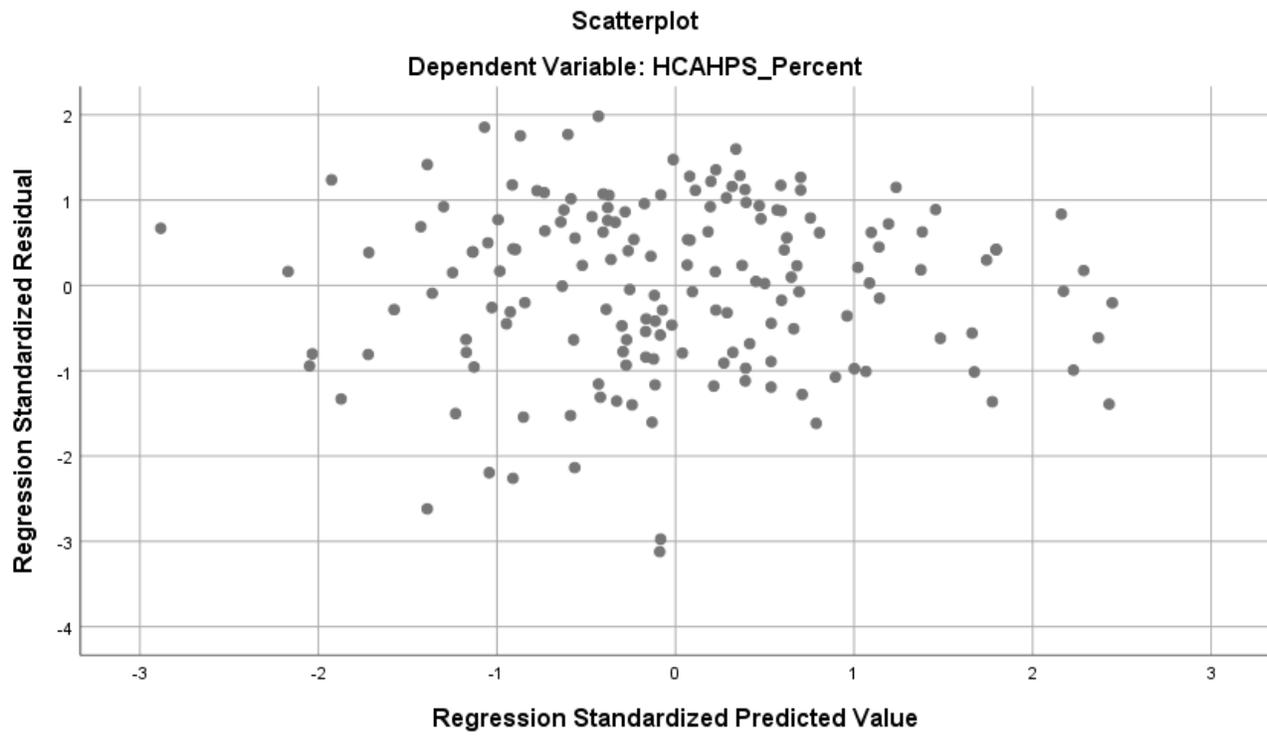


Figure 2. Scatterplot of the standard residuals.

Descriptive Statistics

After reviewing the HCAHPS survey and MCR reports to determine whether the financial results to represent the variables. I selected 166 U.S acute care hospitals; zero outliers were eliminated. Table 4 shows the study variables of the descriptive statistical value

Table 4

Mean and Standard Deviations for Quantitative Study Variables

	<i>M</i>	<i>SD</i>	Bootstrap 95% CIs	
			<i>M</i>	<i>SD</i>
Overall patient satisfaction of care	.7217	.07426	[.7104, .7329]	[.0658, .08198]
Nursing salaries per patient day	440.8325	100.1280	[425.6962, 256.3318]	[87.6697, 111.2835]
Uncompensated care as a percentage of net patient revenue	.0713	.04259	[.0650, .0780]	[.03253, .05385]
Percentage of net income from patient services	.0465	.10174	[.0310, .0616]	[.0852, .1177]

Note. $N = 166$.

Inferential Results

Piloted standard multiple linear regression model was conducted to determine if a relationship existed between the independent variables and overall patient satisfaction of care. The independent variables were nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, and percent of net patient income. The dependent variable was overall patient satisfaction of care. The null

hypothesis was that no significant statistical relationship exists between nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, percent of net income from patient services, and overall patient satisfaction of care. The alternative hypothesis was that a significant statistical relationship exists between exists between nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, percent of net income from patient services, and overall patient satisfaction of care. Preliminary analyzes were carried out to assess whether assumption of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals were met; violations of the assumptions were observed.

The model as a wholes able to significantly predict overall patient satisfaction, $F(3,162) = 13.7$ zero in p , $R^2 = 0.203$. The R^2 (.203) value indicated that approximately 20.3% of variation in overall patient satisfaction of care is accounted for by the linear combination of the predictor variables (nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, percent of net income from patient services). In the final model, all three independent variables significantly predicted overall patient satisfaction of care. Nursing salaries per patient day and percent of net income from patient services were significant positive predictors of overall patient satisfaction of care. Nursing salaries per patient day ($\beta = .366$, $t = 5.120$, $p = .000$) accounting for a higher contribution to the model than percent of net income from patient services ($\beta = .169$, $t = 2.374$, $p = .019$). The cost of uncompensated care as a percentage of net patient revenue displayed a significant negative relationship with overall patient

satisfaction of care ($\beta = -.176$, $t = -2.458$, $p = .015$). The final predictive equation is as follows: Overall patient satisfaction of care = $0.618 + .027$ (Nursing salaries per patient day) - $.306$ (uncompensated care as a percentage of net patient revenue) + $.123$ (Percent of net income from patient services).

Nursing salaries per patient day. The positive slope for nursing salaries per patient day ($.027$) as a predictor of overall patient satisfaction of care indicated there was about a $.027$ (2.7%) in overall patient satisfaction of care when referring the nursing salaries per patient day. The squared, semipartial coefficient (sr^2) that estimated how much variance in nursing salaries per patient day was uniquely to nursing salaries per patient day was $.373$, indicating that 37.3% of the variance in overall patient satisfaction of care is uniquely accounted for by nursing salaries per patient day when the cost of uncompensated care as a percentage of net patient revenue, and percent of net income from patient services are controlled.

Uncompensated care as a percentage of net patient revenue. The positive slope for uncompensated care as a percentage of net patient revenue ($-.306$) as a predictor of overall patient satisfaction of care indicated there was about $.306$ decreased in overall patient satisfaction of care for each 3.06% decrease in uncompensated care as a percentage of net patient revenue. Thus, a 3.06% change of uncompensated care as a percentage of net patient revenue would result in 3.06% decrease in overall patient satisfaction of care. For instance, overall patient satisfaction of care decreased with the increase in uncompensated care as a percentage of net patient revenue. The squared semipartial coefficient (sr^2) estimating how much variance in overall patient care

satisfaction was unique to uncompensated care as a percentage of net patient income was -0.245, indicating that -24.5 percent of the variance in overall patient care satisfaction is accounted for as a percentage of net patient income by uncompensated care when nursing salaries per patient day and the percent of net income from patient services are controlled.

Percent of net income from patient services. Table 5 shows the summary of the regression the predictor variables. The positive slope for percent of net income from patient services (.123) as a predictor of overall patient satisfaction of care indicated there was about .123 increase in overall patient satisfaction of care for each 12.3% increase in percent of net income from patient services. Thus, a 12.3% change (switch) of overall patient satisfaction would result in 12.3% increase. In other words, overall patient satisfaction of care increased with the increase in percent of net income from patient services. The squared semipartial coefficient (sr^2) that estimated how much the variance in overall patient satisfaction of care was unique to percent of net income from patient services was .147, indicating that 14.7% of the variance in overall patient satisfaction of care is uniquely accounted for by percent of net income from patient services when nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue are controlled.

Table 5
Regression Analysis Summary for Predictor Variables

Variables	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>	95% bootstrap
Constant	61.8	2.73		22.7 0	.000	[55.9, 67.3]
Nursing salaries per patient day	.027	.005	.366	.051	.000	[.018, .038]
Uncompensated care as a percentage of net patient revenue	-.306	.125	-.178	-.024	.015	[-.586, -.103]
Percentage of net income from patient services	.123	.052	.169	.027	.019	[.042, .228]

Note. Dependent variable: Overall patient satisfaction of care bootstrap results are based on 2,000 bootstrap samples.

Analysis summary. The purpose of this study was to examine the relationship between nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, and percent of net income from patient services, and overall patient satisfaction of care. Assumptions surrounding multiple regressions have been evaluated without noticing any serious violations. The model as a whole was able to significantly predict overall patient satisfaction of care, $F(3,162) = 13.788$, $p = 0.371$, $R^2 = 0.203$. Thus, I rejected the null hypothesis. All three independent variables provided useful predictive information about overall patient satisfaction of care.

Theoretical discussion of findings. Findings from other researchers, including Pfeffer and Salancik (1978), confirmed my findings from this study. Nemati et al. (2010) identified that RDT selection provides the ability to help understand the importance of

internal and external resources and how the strategic decisions of management allocate resources to gain a competitive advantage. Similarly, Kash et al. (2014) identified how a health care organization views the state of its internal and external resources and coordinates the deployment of these resources with a dramatic impact on strategic decision-making and strategic goal fulfillment. Kash et al. also identified the importance of aligning external and internal culture and values with change, enabling health care leaders to recognize which key service areas are important to patients.

This study's findings extended and supported the RDT of Pfeffer and Salancik (1976). RDT researchers focus on decisions, controls, and meaningful relationships that can affect the strategies of the organization for managing the environment they serve (Aldrich & Pfeffer, 1976). Arik, Clark, and Raffo (2016) based RDT for organizations to control resources, strategies need to maintain the community presence of the organization. Therefore, to achieve their goals, an organization will need to adapt and change to meet environmental requirements or attempt to change the environment to suit the capabilities of the institution (Andrews et al., 2016).

The findings of this study indicate a significant relationship between nursing wages per day and overall patient satisfaction. El-Akremiti et al. (2014) identified sufficient nursing resources as a critical component of quality of patient care. Similarly, Fagerstrom et al. (2014) found that patient care is improved by optimizing nursing staff levels. In addition, Zuckerman (2014) identified nurses understand the health needs and environmental factors for successful patient care and are essential for providing quality care and managing costs. Further, the findings of Dempsey and Reilly (2016) showed that

nurses interact closely with patients and adverse workplace conditions that ultimately affect patient care and patient satisfaction.

Similar to the findings in this study, which showed a significant relationship between uncompensated care costs as a percentage of net patient income and overall patient satisfaction, Yeager et al. (2015) found that improving the quality of health care and reducing costs may eliminate some of the uncertainty associated with future reimbursement changes based on value. Sotto-Santiago, Slaven, and Rohr-Kirchgraber (2019) proposed overemphasizing patient satisfaction could have unintended adverse effects on the use of health care, spending and outcomes. On the contrary, findings from Clemans-Cope et al. (2013) showed that uncompensated care has various impacts on hospitals that threaten the quality of care. Pickett et al. (2017) suggested that uncompensated care causes financial pressures that influence hospital quality of care.

In line with this study's findings, which indicated a significant relationship between net patient service income and overall patient satisfaction, Kash et al. (2014) found that both finance-related initiatives and physician engagement efforts related to external resource considerations and health care reform related demands, which correlated with the RDT view. Similarly, Mwai et al. (2014) identified the organizational goal of minimizing its reliance on other organizations to provide scarce resources by exerting influence in obtaining resources and responding to other people's needs and demands in their environment. Menachemi et al. (2011) further suggested that hospitals in economically prosperous areas have the financial flexibility to pursue resource intensive strategies.

Applications to Professional Practice

Three significant predictors were identified in this correlational study model: nursing salaries per day for patients, the cost of uncompensated care as a percentage of net patient revenue, and percent of net income from patient services. Thus, understanding the predictor variables, nursing salaries per day for patients, uncompensated care as a percentage of net patient revenue, and percent of net income from patient services in relation to overall patient satisfaction of care can result in efficient quality of patient care. Hospital leaders can address the importance of improving patient quality at a lower cost by using information from this study to ensure positive overall patient satisfaction. Based on the findings of this doctoral study, I learned that nursing salary per patient day and percent of net income from patient services are indicators of a hospital's quality of care. The would results to an higher score of overall patient satisfaction of care the cost of uncompensated care as a percentage of net patient revenue there is a lower hospital quality of care which would result to a lower score in overall patient satisfaction of care. Better scores of patient experience could also indicate that perhaps a hospital has better coordination and communication teamwork, organizational leadership, and dedication to overall improvement, and can be associated with better quality patient experience measures and scores (Jha, Frye, & Schlimgen, 2017).

Health care leaders need to identify how improved patient care experiences can be created, improved, and/or maintained for patients and families visiting their facilities (Morton, Brekhus, Reynolds, & Dykes, 2014). The understanding of the predictor variable nursing salaries per day for patients in relation to the overall patient satisfaction

of care may help hospital leaders to manage risk nursing skill mix efficiently. Hence, hospital leaders need to continually understand patient needs to ensure a better patient hospital experience in the hospitals they manage.

Implications for Social Change

The implications for positive social change include the potential to benefit hospital leaders and patients by improving quality of patient care and hospital cost. The importance of the predictive model in this study that can help patients better predict patient care quality. Thus, understanding the predictor variables, nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue and percent of patient revenue in relation to overall patient care satisfaction can result in patients being able to better predict the quality of patient care that a hospital provides. Experiences of patients in U.S. hospitals provides insights to suggests that high levels of nursing staffing can be associated with better experiences for patients and provides evidence that hospitals can provide both high quality clinical care and good patient experience (Jha, Orav, Zheng, & Epstein, 2008). Based on the findings from this doctoral study, hospital leaders and patients can better understand the type of quality of patient care from a hospital.

Society can benefit from the results of this doctoral study because hospital leaders can better predict overall patient care satisfaction based on study information, which can lead to higher quality patient care. As the healthcare industry undergoes changes in the patient profile, hospital leaders must accommodate populations that utilize data and other sources in making healthcare decisions. Improving the patient experience in all types of

healthcare settings should be a critical driver and performed throughout the care continuum (Jha et al., 2017). Aspects of patient experience adopted before, during, and after care produce better results, increase margins of institutional profitability, and ultimately build a patient relationship (Jha et al., 2017). Thus, a better understanding of the predictor percent of patient revenue and overall patient satisfaction of care could add stability by allowing hospital leaders to gain better understanding in identifying opportunities of improvement of quality of patient care.

Recommendations for Action

Patient satisfaction is the key indicator for healthcare leaders understanding and identifying areas of process improvement (Jha et al., 2017). The findings from this doctoral study indicated the validity of RDT and recommend hospital leaders use RDT when reviewing strategies related to hospital resources impact quality of patient care. Also, the finding indicated that nursing salaries per patient day and percent of patient revenue were statistically significant in increasing overall patient satisfaction of care. Based on the findings of these variables, my recommendation for hospital leaders includes (a) implement patient orientation rounding, (b) improve engagement of employees, and (c) use patient satisfaction as a measure of the balance. Patient orientation rounding refers to systematic process in which leaders visit patients on a daily basis to establish relationships, check consistency of care, gain real-time feedback, perform immediate service recovery as needed, and follow-up with staff on opportunities for improvement (Morton et al., 2014). Hence, hospital leaders need to implement patient

rounding as a standard practice to further develop their ability to meet and exceed patient expectations.

Improve engagement of employees refers to the link between engaged satisfied and happy employees to satisfied patients (Bickmore & Merkley, 2014). Based on the findings from this doctoral study, the recommendations are for hospital leaders to review strategies of initiatives of employee training to continually identify and improve employee engagement to maximize quality of patient care and efficiency. Using patient satisfaction as a measure of the balance refers to how healthcare organizations can ensure that improvements in one area do not affect other areas negatively (Bickmore and Merkley, 2014). Based on the findings from this doctoral study, additional recommendations are for hospital leaders to ensure that the new patient hospital encounters do not negatively impact the patient experience and should continuously evaluate improvement throughout the patient stay. Hence, in drawing strategies related to patient satisfaction, hospital leaders need to implement patient orientation rounding and improve employee engagement.

The results of this doctoral study are vital to hospital leaders, physicians, clinical staff, and scholars. Hospital leaders may use the results from this study to align their organizational objectives in improving patient satisfaction by putting the patient before the needs of hospitals. Physicians and clinical staff may use the result of this doctoral study in order to determine strategies to improve the overall patient care experience by assessing patient interactions with all level department/unit interactions with the patient. Scholars may use the findings of this doctoral study as a reference to further research on

those variables that affect the overall patient satisfaction of care. To disseminate the findings of this doctoral study, the intent is to publish the findings of this doctoral study in the dissertation database of ProQuest / UMI, discuss the findings in conferences, and pursue publication in academic journals.

Recommendations for Further Research

In this doctoral study, the focus was on the assessment on U.S. acute care hospitals to identify the relationship between nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, and percent of patient revenue, and overall patient satisfaction of care. Recommendations for further research include identifying the relationship of the variables by expanding into the correlation between type of accreditation and how it relates to better patient outcomes. In addition, I would also recommend identifying the relationship between variables for further research by increasing the number of U.S. acute care hospitals by including teaching hospitals. Furthermore, further research can use different techniques to analyze performance and use a shorter or higher number of years for data analysis.

In addition, this doctoral study has limitations related to secondary data utilization. There were no means of verifying secondary data information; however, a cross check of the data was performed with additional secondary data to minimize the limitation impact. Thus, the recommendation for further research would be type of accreditation and how it relates to better patient outcomes data and source. Furthermore, the past relationship may not reflect future variables performance or relationship, and the correlation does not demonstrate causality (Gronlund et al., 2014). Therefore, future

researchers should determine whether the findings of this doctoral research will extend over time as the healthcare environment changes.

Reflections

My primary goal of this doctoral study was to understand of the impact of hospital resources on the quality of patient care. Few obstacles occurred within the data collection, analyzing, and interpretation of results. Initially, the thought that the elements (nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, and percent of patient revenue) would affect overall patient satisfaction of care. The results of this doctoral study showed a positive outcome. As expected, the variable nursing salaries per patient day was significant. In addition, the cost of uncompensated care as a percentage of net patient revenue drew the same expectation. The significance of the outcomes of percent of patient revenue aligned with initial expectations.

Additionally, there were no issues in identifying the relationship with overall patient satisfaction of care related to nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, and percent of patient revenue in U.S. acute care hospitals. The HCAHPS survey and the MCR data came from the CMS site. The data collection took about 2 months for the sample hospital data. The calculated results were conducted several times using percentages, ratios, and decimals once the sample hospitals were identified. As I continue this research after graduation, the experience gained working with data will be valuable to me.

Conclusion

The purpose of this quantitative correlational study was to examine the relationship between nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, percent of patient revenue, and the overall patient satisfaction of care. The independent variables were nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, and percent of net patient income. The dependent variable was overall patient satisfaction of care. The overall model showed that at $F(3,162) = 13.788$, $p = 0.000$, $R^2 = 0.203$ nursing salaries per patient day, the cost of uncompensated care as a percentage of net patient revenue, and percent of net income from patient services significantly predicted overall patient satisfaction of care. The final model provides value to researchers and clinicians. Increasing nursing resources increases patient satisfaction. Hospitals that are able to generate a positive net income are able to provide services that increase patient satisfaction. However, as a hospital increases services to indigent patients the strain on resources decreases patient satisfaction.

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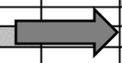
Appendix A: Worksheet S-3 Part 1

11-17

FORM CMS-2552-10

HOSPITAL AND HOSPITAL HEALTH CARE COMPLEX
STATISTICAL DATA

Component	Worksheet A Line No.	No. of Beds	Bed Days Available	CAH Hours	Inpatient Days / Outpatient Visits / Trips			
					Title V	Title XVIII	Title XIX	Total (All Patients)
	1	2	3	4	5	6	7	8
1 Hospital Adults & Peds. (columns 5, 6, 7, and 8, exclude Swing Bed, Observation Bed and Hospice days) (see instructions for col. 2 for the portion of LDP room available beds)								
2 HMO and other (see instructions)								
3 HMO IPF Subprovider								
4 HMO IRF Subprovider								
5 Hospital Adults & Peds. Swing Bed SNF								
6 Hospital Adults & Peds. Swing Bed NF								
7 Total Adults and Peds. (exclude observation beds) (see instructions)								
8 Intensive Care Unit								
9 Coronary Care Unit								
10 Burn Intensive Care Unit								
11 Surgical Intensive Care Unit								
12 Other Special Care								
13 Nursery								
14 Total (see instructions)								
15 CAH visits								
16 Subprovider - IPF								
17 Subprovider - IRF								
18 Subprovider - Other								
19 Skilled Nursing Facility								
20 Nursing Facility								
21 Other Long Term Care								
22 Home Health Agency								
23 ASC (Distinct Part)								
24 Hospice (Distinct Part)								
24.10 Hospice (non-distinct part)								
25 CMHC								
26 RHC/FQHC (specify)								
27 Total (sum of lines 14-26)								
28 Observation Bed Days								
29 Ambulance Trips								
30 Employee discount days (see instructions)								
31 Employee discount days -IRF								
32 Labor & delivery (see instructions)								
32.01 Total ancillary labor & delivery room outpatient days (see instructions)								
33 LTCH non-covered days								



Appendix B: Worksheet B Part 1

11-17

FORM CMS-2552-10

COST ALLOCATION - GENERAL SERVICE COSTS

COST CENTER DESCRIPTIONS	NET EXPENSES (FOR COST) ALLOCATION (from Wkst. A col. 7) 0	CAPITAL RELATED COSTS		EMPLOYEE BENEFITS DEPARTMENT 4	SUBTOTAL (cols. 0-4) 4A
		BLDGS. & FIXTURES 1	MOVABLE EQUIPMENT 2		
GENERAL SERVICE COST CENTERS					
1 Capital Related Costs-Buildings and Fixtures					
2 Capital Related Costs-Movable Equipment					
4 Employee Benefits Department					
5 Administrative and General					
6 Maintenance and Repairs					
7 Operation of Plant					
8 Laundry and Linen Service					
9 Housekeeping					
10 Dietary					
11 Cafeteria					
12 Maintenance of Personnel					
13 Nursing Administration					
14 Central Services and Supply					
15 Pharmacy					
16 Medical Records & Medical Records Library					
17 Social Service					
18 Other General Service (specify)					
19 Nonphysician Anesthetists					
20 Nursing School					
21 Intern & Res. Service-Salary & Fringes (Approved)					
22 Intern & Res. Other Program Costs (Approved)					
23 Paramedical Education Program (specify)					
INPATIENT ROUTINE SERVICE COST CENTERS					
30 Adults and Pediatrics (General Routine Care)					
31 Intensive Care Unit					
32 Coronary Care Unit					
33 Burn Intensive Care Unit					
34 Surgical Intensive Care Unit					
35 Other Special Care Unit (specify)					
40 Subprovider IPF					
41 Subprovider IRF					
42 Subprovider (specify)					
43 Nursery					
44 Skilled Nursing Facility					
45 Nursing Facility					
46 Other Long Term Care					

Appendix D: Worksheet G-3

4090 (Cont.)		FORM CMS-2552-10		10-12
STATEMENT OF REVENUES AND EXPENSES		PROVIDER CCN:	PERIOD: FROM _____ TO _____	WORKSHEET G-3
Description				
1	Total patient revenues (from Worksheet G-2, Part I, column 3, line 28)			1
2	Less contractual allowances and discounts on patients' accounts			2
3	Net patient revenues (line 1 minus line 2)			3
4	Less total operating expenses (from Worksheet G-2, Part II, line 43)			4
5	Net income from service to patients (line 3 minus line 4)			5
OTHER INCOME				
6	Contributions, donations, bequests, etc			6
7	Income from investments			7
8	Revenues from telephone and other miscellaneous communication services			8
9	Revenue from television and radio service			9
10	Purchase discounts			10
11	Rebates and refunds of expenses			11
12	Parking lot receipts			12
13	Revenue from laundry and linen service			13
14	Revenue from meals sold to employees and guests			14
15	Revenue from rental of living quarters			15
16	Revenue from sale of medical and surgical supplies to other than patients			16
17	Revenue from sale of drugs to other than patients			17
18	Revenue from sale of medical records and abstracts			18
19	Tuition (fees, sale of textbooks, uniforms, etc.)			19
20	Revenue from gifts, flowers, coffee shops, and canteen			20
21	Rental of vending machines			21
22	Rental of hospital space			22
23	Governmental appropriations			23
24	Other (specify)			24
25	Total other income (sum of lines 6-24)			25
26	Total (line 5 plus line 25)			26
27	Other expenses (specify)			27
28	Total other expenses (sum of line 27 and subscripts)			28
29	Net income (or loss) for the period (line 26 minus line 28)			29

Appendix E: List of Survey Questions of Patient's Experiences (HCAHPS)

Survey topic	Survey question
1) How often did nurses communicate well with patients?	<p>During this hospital stay...</p> <ul style="list-style-type: none"> • How often did nurses treat you with courtesy and respect? • How often did nurses listen carefully to you? • How often did nurses explain things in a way you could understand?
2) How often did doctors communicate well with patients?	<p>During this hospital stay...</p> <ul style="list-style-type: none"> • How often did doctors treat you with courtesy and respect? • How often did doctors listen carefully to you? • How often did doctors explain things in a way you could understand?
3) How often did patients receive help quickly from hospital staff?	<p>During this hospital stay...</p> <ul style="list-style-type: none"> • How often did you get help as soon as you wanted after you pressed the call button? • How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted?
4) How often was patients' pain well controlled?	<p>During this hospital stay...</p> <ul style="list-style-type: none"> • How often was your pain well controlled? • How often did the hospital staff do everything they could to help you with your pain?
5) How often did staff explain about medicines before giving them to patients?	<p>Before giving you any new medicine...</p> <ul style="list-style-type: none"> • How often did hospital staff tell you what the medicine was for? • How often did hospital staff describe possible side effects in a way you could understand?

6) How often were the patients' rooms and bathrooms kept clean?	<p>During this hospital stay...</p> <ul style="list-style-type: none"> • How often your room and bathroom were kept clean?
7) How often was the area around patients' rooms kept quiet at night?	<p>During this hospital stay...</p> <ul style="list-style-type: none"> • How often was the area around your room quiet at night?
8) Were patients given information about what to do during their recovery at home?	<p>During this hospital stay...</p> <ul style="list-style-type: none"> • Did hospital staff talk with you about whether you would have the help you needed when you left the hospital? • Did you get information in writing about what symptoms or health problems to look out for after you left the hospital?
9) How well did patients understand the type of care they would need after leaving the hospital?	<p>During this hospital stay...</p> <ul style="list-style-type: none"> • Did hospital staff consider your health care options and wishes when deciding what kind of care you would need after leaving the hospital? • Did you and/or your caregivers understand what you would have to do to take care of yourself after leaving the hospital? • Did you know what medications you would be taking and why you would be taking them after leaving the hospital?
10) How do patients rate the hospital?	<p>What number would you use to rate this hospital during your stay?</p>
11) Would patients recommend the hospital to friends and family?	<p>Would you recommend this hospital to your friends and family?</p>

Note. The HCAHPS summary star rating combines information on an array of aspects of the patient experience of care to assist the patient in making informed decisions when comparing hospitals.

Appendix F: G*Power Plot

