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CHIEF EXECUTIVE OFFICER CHARACTERISTICS IN RELATIONSHIP WITH
PATIENT EXPERIENCE SCORES OF HOSPITAL VALUE BASED PURCHASING

by

CHRISTINA GALSTIAN

LARRY HEARLD, COMMITTEE CHAIR
NANCY BORKOWSKI
STEPHEN O'CONNOR
RICHARD JACKSON

A DISSERTATION

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201

CHIEF EXECUTIVE OFFICER CHARACTERISTICS IN RELATIONSHIP WITH

PATIENT EXPERIENCE SCORES OF HOSPITAL VALUE BASED PURCHASING

CHRISTINA GALSTIAN

ABSTRACT

Patient experience scores have become important indicators of value in healthcare. This study was the first of its kind to examine CEO gender, tenure, and education in relationship with patient experience scores and all other value based purchasing scores, such as outcome, efficiency, clinical process of care, and total performance scores. This study suggested that hospitals with certain types of CEOs may perform better with respect to patient experiences and other value based purchasing scores.

The primary analysis of this study was to examine the impact of hospital CEO characteristics (tenure, education, gender) on patient experience scores. A supplementary analysis examined CEO characteristics (tenure, gender, education) in relationship with all other value based purchasing scores (outcome, efficiency, clinical process of care, and total performance). The study controlled for a broad spectrum of organizational and market characteristics.

Univariate, bivariate, and multivariate analysis techniques were used for the purpose of statistical analysis. The OLS (ordinary least square) block modeling strategy examined both primary and supplementary relationships of dependent and independent variables. The most robust finding of this study was related to gender. Specifically, those hospitals led by *female* CEOs were associated with significantly higher patient experience scores and other value based purchasing scores.

Findings from this study open new doors for future research of CEO attributes in the healthcare industry and will provide useful insights for the recruitment and selection processes used by hospital boards and other executive recruiters that are interested in hiring CEOs who will improve patient experience and other value based purchasing scores. Therefore, the study provides important information for identifying ways to improve patient experience.

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Chapter 1

Introduction

Patient experience has emerged in recent years as a centerpiece of efforts to improve the U.S. healthcare system. For example, Centers for Medicare and Medicaid Services (CMS) incentivizes or penalizes hospitals based on patient experiences during an inpatient stay. Patient experience is derived from measuring patients' perceptions of their hospital experiences (communication with nurses and doctors, the responsiveness of hospital staff, the cleanliness and quietness of the hospital environment, pain management, communication about medicines, discharge information, overall rating of hospital, and whether or not they would recommend the hospital) (CMS, 2014).

Measuring patient experience is not a new concept in healthcare. In 2002, the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, a tool to measure patient experiences during a hospital stay was approved as part of the Deficit Reduction Act of 2005. As a part of the Act, the final IPPS rule stipulated that IPPS hospitals must continuously collect and submit HCAHPS data to CMS in order to receive their full IPPS annual payment update. Those IPPS hospitals that fail to publicly report the required quality measures, which include the HCAHPS survey, may receive an annual payment update that is reduced by 2.0 percentage points (www.hcahpsonline.org, 2014).

This initiative was a combined effort between Agency for Healthcare Quality and Research (AHRQ) and CMS (ahrq.gov, 2014). The purpose of HCAHPS reporting was to

promote accountability, increase efforts to improve patient centeredness, promote care coordination, and improve patient experiences during hospital stays (IOM, 2006).

The Patient Protection and Affordable Care Act of 2010, also known as the Affordable Care Act (ACA), (P.L. 111-148) includes HCAHPS among the measures to be used to calculate value based incentive payments in the Hospital Value Based Purchasing program, beginning with discharges in October 2012 (www.hcahpsonline.org). HCAHPS became part of a broader CMS strategy to promote value based purchasing (VBP) (PPACA; Section 1003). The purpose of value based purchasing is to offer the highest quality per each dollar spent, enhance patient experience outcomes, and address concerns of the solvency of the U.S. healthcare system (Porter, 2010).

Consequently, healthcare organizations are being asked to do more with less reimbursement, less capital, and fewer resources (O'Connor, Trinh, & Shewchuk, 1995). Value based purchasing is comprised of four key elements from 2013 through 2015 (1) clinical process of care, (2) patient experience, (3) outcome, and (4) efficiency. Those four elements combined create a total performance score (TPS) used by CMS to calculate hospital incentives and penalties (cms.gov). Patient experience is weighted as 30% of the total performance score calculation, and therefore, carries significant financial implications for hospitals. Consequently, value based purchasing has been forcing hospitals to reconsider their care delivery systems and leadership practices to identify ways to provide higher value care at a lower cost (Holzer & Minder, 2011).

Study Purpose

Providing a positive patient experience is each individual's responsibility within a healthcare organization. CEOs, however, play an especially important role, as they are in

charge of setting the organizational vision and strategic goals, including those related to providing a positive patient environment and patient experience.

Effective hospital CEOs are equipped with the knowledge and skills needed to motivate and lead the process improvement initiatives after thorough organizational (e.g., needs, resources, cultures, skills) and environmental analysis. Their ability to execute timely and effective change can be the driving force behind the success of an organization (Kaufman, 2013). Given the CEO's significant role in improving performance, an important *research question* that guided this study was:

Are CEOs characteristics associated with patient experience outcomes?

Because patient experience outcomes have become important indicators of organizational performance and can differentiate hospitals in the marketplace, efforts to promote positive patient experience require strategic leadership, timely and effective response to regulatory changes, and a commitment to quality and transparency (Merlino & Raman, 2013). Patient centered leadership in the context of this study has been defined as leadership that rests on values of patient centered care; is respectful of and responsive to patient preferences, needs, and values; and ensures that patient values guide all clinical decisions (IOM, 2001; Thibault, 2013). When organizations satisfy a consumer's needs and preferences, they are actually delivering value and/or increased perceptions of value (Burden, 1998), which in healthcare translates into improved patient experience scores.

CMS defines patient experience as a measure of patient centeredness, delivering value to the patient by meeting their needs and expectations (CMS, 2014). Patient experience has also been defined as the sum of all interactions, shaped by an organization's culture, that influence patient perceptions across the continuum of care (The Beryl Institute, 2014). These perceptions are recognized, understood, and

remembered by the patients based on their individual experiences. Therefore, patient experience, in the context of this study, was defined as patient perceptions of the care delivery experience by a hospital during an inpatient stay. .

It was the premise of this study that CEOs can provide value to their organizations by practicing patient centered leadership and inspiring patient focused innovative behaviors that can stimulate positive patient experiences. This includes their role as "boundary spanners" in interpreting and defining expectations of various stakeholder groups (e.g., government, payers, consumers) for the purpose of implementing strategies and motivating and empowering staff to promote patient-friendly environments.

CEO attributes, such as their education, gender, and tenure, may reflect differential skill and abilities to take on these roles and engage in these behaviors, and thus may play an important role in cultivating a patient centered environment. For example, MD CEOs, through extensive clinical training and education, have been taught to practice medicine by putting their patients first, and therefore may facilitate better patient experiences.

Despite the potentially important role of the hospital CEO, little published research has examined whether CEO characteristics are associated with patient outcomes. This is especially the case with patient experiences due to its relatively recent emergence as a priority for hospitals. Therefore, the primary purpose of this study was to empirically examine whether CEO characteristics such as gender, tenure, and education were associated with reported patient experience outcomes.

Other value based purchasing domains (e.g., efficiency, clinical outcomes) have been recently introduced as mandatory reporting by CMS; however, research establishing the validity of these domain scores as hospital performance metrics is still in its infancy.

Therefore, this study included these other domains as outcomes in an exploratory, supplementary analysis to provide preliminary evidence regarding the consistency of the relationships between CEO characteristics and different domains of hospital performance.

Study Significance

Public reporting of patient experience scores became mandatory in 2013. Consequently, CEOs and other hospital leaders increasingly view patient experience and strategies for its improvement as important determinants for the future success of their organizations (Manary, Staelin, Kosel, Schulman, & Glickman, 2013). Thus, the findings from this study are timely and important for providing insight into ways to foster patient centered environments and enhanced patient experience scores. The findings may also provide useful insights for CEO recruitment and selection processes used by hospitals and other healthcare executive recruiters. The supplementary analysis that incorporates the additional domain scores (outcome, efficiency, clinical process of care, and total performance) may also provide a foundation and benchmarks for future research as well as additional insights into CEO recruitment and selection processes.

Dissertation Outline

Chapter 2 will review the existing empirical literature related to hospital patient experience. First, it will explore the history of patient experience, its measurement, and its effects on other outcomes of interest. Next, the chapter will review the literature on leadership, organizational, and market characteristics correlated with patient experience. Finally, Chapter 2 will present the study hypotheses regarding the association between CEO characteristics and patient experience.

Chapter 3 will provide a description of the research design, sample data sources, methods of data collection, measures, and analytic plan. Chapter 4 will present the results

of the statistical analysis; univariate, bivariate and multivariate analysis. Finally, chapter

5 will discuss the findings, study limitations, opportunities for future research, and

implications.

Chapter 2

Literature Review and Theoretical Framework

Reporting of hospital value based purchasing measures went into effect in 2013 as a standard for measuring hospital performance for the delivery of healthcare services (ACA, Section 3001a). Hospital value based purchasing measures and reporting standards were developed by the CMS, Department of Health and Human Services (HHS), National Quality Forum (NQF), National Quality Measures Clearinghouse (NQMC), and others.

Hospital value based purchasing had two main components called domains in 2013; the clinical process of care domain and the patient experience of care domain. Additional domains of efficiency and outcome were added in 2014. The domains are weighted to calculate a total performance score. In 2013, patient experience score comprised 30% and the clinical process of care domain 70% of total performance score.

In 2014, the clinical process of care domain was 20%, the outcome domain was 30%, efficiency domain 20%, and the patient experience domain was 30% of the total performance score. Each year the federal rule determines how each domain will be weighted to calculate the total performance score, which in turn is used to calculate adjustments to Medicare reimbursements for services rendered (D. M. Cosgrove et al., 2012; Medicare.gov, 2014). Eighty-one percent of the IPPS hospitals have already implemented and/or are implementing new processes/policies and forming new formal positions dedicated to patient experience in order to improve reimbursements (Balbale,

2014; Batailler et al., 2014; Bertakis & Azari, 2011; Beryl Institute, 2014; Hodnik, 2012; Kolstad & Chernew, 2009).

Patient experience has been defined as the sum of all interactions, shaped by an organization's culture, that influence patient perceptions across the continuum of care (The Beryl Institute, 2014). These perceptions are recognized, understood, and remembered by the patients based on their individual experiences. Patient experience measures patient centeredness, whether value was delivered, and whether patient' needs and expectations were met (CMS, 2014). Patient experience score is measured with the HCAHPS survey (Table 2 and Appendix J). HCAHPS was identified in Section 3001 of the Patient Protection and Affordable Care Act of 2010 as a measure to be included in the Hospital Value Based Purchasing (HVBP) program payments made as of Fiscal Year 2013 (CMS, 2011).

HCAHPS survey questions measure patient perceptions of care experiences by focusing on patient interactions during healthcare encounters, whether or not certain events or behaviors occurred, and/or how often they occurred (Long, 2012). The HCAHPS survey (Table 1) is composed of 27 items: 18 substantive items that encompass critical aspects of the hospital experience; four items to skip patients to appropriate questions; three items to adjust for the mix of patients across hospitals; and two items to support congressionally mandated reports (CMS.org).

More specifically, HCAHPS focuses on nurse communication, doctor communication, staff responsiveness, pain management, medication communication, discharge information, cleanliness, quietness of the hospital environment, overall rating of the hospital, and patient willingness to recommend its services (CMS, 2014).

Furthermore, it assesses whether the patient's visit was patient centered or not

(Tsimtsiou, Kirana, & Hatzichristou, 2014).

Table 1
HCAHPS Survey Questions

HCAHPS	Survey Questions
Nurse Communication/Care	During this hospital stay, how often did nurses treat you with courtesy and respect?
	During this hospital stay, how often did nurses listen carefully to you?
	During this hospital stay, how often did nurses explain things in a way you could understand?
	During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?
Doctor Communication/Care	During this hospital stay, how often did doctors treat you with courtesy and respect?
	During this hospital stay, how often did doctors listen carefully to you?
	During this hospital stay, how often did doctors explain things in a way you could understand?
Staff responsiveness	During this hospital stay, did you need help from nurses or other hospital staff in getting to the bathroom or in using a bedpan?
	How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted?
Pain management	During this hospital stay, did you need medicine for pain?
	During this hospital stay, how often was your pain well controlled?
	During this hospital stay, how often did the hospital staff do everything they could to help you with your pain?
Medications Communication	During this hospital stay, were you given any medicine that you had not taken before?
	Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?
	Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?
Cleanliness & Quietness	During this hospital stay, how often were your room and bathroom kept clean?
	During this hospital stay, how often was the area around your room quiet at night?

Care instructions before/after discharge	After you left the hospital, did you go directly to your own home, to someone else's home, or to another health facility?
	During this hospital stay, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital?
	During this hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital?
	During this hospital stay, staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left.
	When I left the hospital, I had a good understanding of the things I was responsible for in managing my health.
	When I left the hospital, I clearly understood the purpose for taking each of my medications.
Understanding the Patient	During this hospital stay, were you admitted to this hospital through the Emergency Room?
	In general, how would you rate your overall health?
	In general, how would you rate your overall mental or emotional health?
	What is the highest grade or level of school that you have completed?
	Are you of Spanish, Hispanic or Latino origin or descent?
	What is your race? Please choose one or more.
	What language do you mainly speak at home?
Overall Rating of Hospital	Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay?
	Would you recommend this hospital to your friends and family?

CMS requires hospitals to administer a minimum of 300 surveys over one calendar year to a random sample of adult patients between 48 hours and six weeks after discharge (www.hcapsonline.org; 2013). Completed HCAHPS are submitted to the CMS data warehouse by hospitals. Incomplete surveys are considered invalid and removed from the system. Unweighted and weighted domain scores, including patient experience, range from 0 to 100 (CMS, 2014).

As suggested by the different domains that constitute the overall total performance score, patient experience is distinct from other aspects of hospital performance and should be measured independently. For example, many hospitals today measure clinical quality outcomes to meet regulatory compliance and patient/market expectations. However, patient experience differs from clinical quality outcomes because of its focus on subjective assessments of care processes, also viewed as abstract expectations for quality (O'Connor, Trinh, & Scewchuk, 2001). Likewise, patient experience differs from patient satisfaction because of its emphasis on subjective views about hospital inpatient care processes based on experiences, perceptions, and specific processes that are expected to occur during an inpatient hospital stay (Bleich, Özaltinb, & Murrayc, 2009; Elliott et al., 2010; Price et al., 2014).

Because patient experience domain focuses on patient experiences and specific care processes, patient centered care is believed to be a critical input into better patient experience scores. In fact, a study of 69 U.S. hospitals revealed that patient centered and compassionate care practices were significantly and positively associated with higher patient experience scores and the likelihood of patients recommending a hospital (McClelland, 2014).

Care that is patient centered is "respectful of and responsive to individual patient preferences, needs, and values, and ensures that patient values guide all clinical decisions" (IOM, 2001. p. 6). Patient centeredness enables patient access to timely and appropriate care by skillful personnel at all levels of patient interactions, starting from the patient's admission to the facility through discharge and beyond. It builds compassionate and caring relationships that bridge demographic, and economic differences, and engages the patients in their own care; considers family values, religious beliefs, age, lifestyles,

and cultural diversities; makes them feel safe, comfortable, and cared-for (Bush, 2012; A. M. Epstein, Zhonghe, Orav, & Jha, 2005; R. M. Epstein, Fiscella, Lesser, & Stange, 2010; Jadoo et al., 2013; Long, 2012; Tsimtsiou et al., 2014). Patient centered care contributes to culturally sensitive communication, without which patients would feel devalued and lacking in emotional support (Bramley, 2014; J. Chen, Koren, Munroe, & Yao, 2014).

Importantly, although patient experience scores are used for calculating hospital incentives, they can be used by multiple audiences. For consumers, patient experience scores are intended to increase transparency and informed care decision making. For hospitals and other healthcare organizations, patient experience scores might be used to identify problems related to patient centered practices as well as reinforce and motivate change to resolve those problems. States, federal agencies, and other regional/national agencies could potentially use patient experience scores and related empirical evidence to make informed policy decisions (ACA, Section 3015; ahrq.gov). Consequently, understanding factors that influence patient experience are important for multiple health care stakeholders. In the following section, Transformational Leadership Theory (TLT) will be used to offer several hypotheses about why certain CEO characteristics may be associated with better patient experience scores.

Theoretical Framework

Burns introduced the TLT in 1978. The theory suggests that leader characteristics and behaviors can transform organizations and people to achieve better morale, motivation, and outcomes (Burns, 1978). In 1985, Bass (1985) emphasized the psychological components of transformational leadership and its influences on follower motivation. According to Bass, transformational leaders are considered moral leaders

because they appeal to the values and ideals of their followers (Kuhnert, 1994; Kuhnert & Lewis, 1987). In 1991, Covey wrote:

> [T]he goal of the transformational leadership is to "transform" people and organizations in a literal sense – to change them in mind and heart; enlarge vision, insight, and understanding; clarify purposes; make behavior congruent with beliefs, principles, or values; and bring about changes that are permanent, self-perpetuating, and momentum building. (p. 287)

Consistent with these arguments, research has shown that a transformational CEO develops and implements an organization's vision, values, and goals. He/she motivates positive follower behaviors through role modeling and mentoring; collaborates with stakeholders and engages them towards achieving organizational goals, improves job satisfaction and decreases burn out, stimulates strong stakeholder relationships and alignment, enables compassionate and outcome driven cultures, empowers teamwork and innovation, and implements evidence based practices and shared decision making (Garman, Butler, & Brinkmeyer, 2006; Bass, 2008; Burns, 1978; D. Cosgrove et al., 2012; IHI, 2014; Kaufman, 2013; Lo, Ramayah, & De Run, 2010; Luxford, Safran, & Delbanco, 2011; Munir & Nielsen, 2009; Nielsen, Yarker, Randall, & Munir, 2009; O'Reilly, Caldwell, Chatman, Lapiz, & Self, 2010; Resick, Weingarden, Whitman, & Hiller, 2009; Rolfe, 2011; Sanders & Shipton, 2012; Tse, Huang, & Lam, 2013; Vinkenburg, van-Engen, Eagly, & Johannesen-Schmidt, 2011; Wang & Howell, 2010; Weberg, 2010). Likewise, healthcare researchers have found transformational leadership to be positively associated with employee attitudes and intentions to follow quality and safety practices for measurable patient outcomes (Colbert, 2008; Groves & LaRocca, 2012; Lee, Almanza, Jang, Nelson, & Ghiselli, 2013; Ling & Lubatkin, 2008).

It was the contention of this study that patient experience requires high performing cultures that rest on values of patient centered care, cultures that are cultivated and sustained by hospital leaders (Thibault, 2013). Research has shown that a leader's compassionate and patient centered behaviors can influence the degree to which an organization is patient centered, an important determinant for patient experience (Hartog & Belschak, 2012; O'Reilly et al., 2010). The focus of this study was on three characteristics (education, tenure, gender) that previous research has identified as indicators of a CEO's transformational abilities.

Education has been identified as an important transformational leadership attribute linked to patient centered care, in part because it enables leaders to practice evidence based leadership (Brown & Posner, 2001; Covey, 2007; A. M. Epstein et al., 2005; R. M. Epstein et al., 2005; Pedler, 1991). Similarly, CEO tenure is associated with collaboration, adaptability, innovation, and trust, all of which may be important for cultivating a culture of patient centered care. Finally, gender has been described in the literature as a transformational characteristic that reflects differences in intuitiveness, collaborativeness, compassion, and flexibility (Hambrick & Finkelstein, 1991, 1996; Lewis, Walls, & Dowell, 2014; X. Luo, V. K. Kanuri, & M. Andrews, 2013b)

Thus, one could argue that hospitals that achieve high level(s) of patient experience are likely to be led by executives/CEOs who can stimulate and sustain patient centered values (Davis, Schoenbaum, & Audet, 2005; Latham, 2013), and CEO characteristics that reflect transformational abilities of CEOs may be associated with better patient experience scores.

Chief Executive Officer Characteristics

CEO Education

There is growing sentiment that healthcare leadership in the United States has to be reconfigured to meet the needs of the reformed healthcare system to deliver timely care in more complex care delivery systems, such as integrated care networks and accountable care organizations (Ricketts & Fraher, 2013). The transformation of the U.S. healthcare system requires well educated leaders (IOM, 2013). Of specific relevance for this study, successful and effective patient experience practices have been shown to require education that is focused on delivering value and meeting patient /family and industry needs, with more education being associated with better patient services and higher patient experience scores (Robert, Waite, Cornwell, Morrow, & Maben, 2014). Research has also found CEO education to be associated with various leadership practices and organizational outcomes, such as evidence based practices, innovation, and improved financial performance (Bhagat, Bolton, & Subramanian, 2010; Gottesman & Morey, 2006; Jalbert, Rao, & Jalbert, 2002).

For these reasons, the Accreditation Council for Graduate Medical Education has placed a significant emphasis on developing formal leadership education models that foster improved patient outcomes (Rodrigue, Seoane, Gala, Piazza, & Amedee, 2012). Formal graduate education can produce effective and innovative leaders, lead to better care, improve health, and lower costs (Thibault, 2014) because it supports an understanding of the theories and practices of successful leadership strategies and provides access to the existing body of empirical literature (Becker, 1970).

Formal graduate education can also equip CEOs with the necessary technical, human, business, and conceptual skills (Brooks, 1994; Reilly, 2004). Specifically, formal

graduate programs often emphasize important leadership skills such as effective communication, interpersonal skills, managing healthcare resources, and measuring and managing quality data and activities (Brooke, Hudak, Finstuen, & Trounson, 1998). Thus, Master's, doctoral, and other advanced graduate degrees have been acknowledged in the literature as important factors predictive of better workplace environments and care delivery systems that are associated with better pain management practices, lower medical/administrative errors, reduced adverse occurrences, lower mortality rates, and other quality performance outcomes (Aiken, Clarke, Cheung, Sloane, & Silber, 2003; Blegen, Vaughn, & Goode, 2001; Garman, Goebel, Gentry, Butler, & Fine, 2010; Gillespie, Chaboyer, Wallis, & Werder, 2011; Kim, 2014; Trinkoffa et al., 2014).

Consistent with this thinking, Garman et al. (2006, 2010) illustrated that leadership competencies are typically taught at the graduate/post graduate level. Healthcare Leadership Alliance (HLA) is a leadership model with a "cluster of knowledge, skills and attitudes related to role and performance," that is taught at a graduate level (Garman et al., 2006; Shewchuk, O'Connor, & Fine, 2005, p. 33). HLA is a framework developed by the consortium of the six largest healthcare associations (ACHE, ACPE, AONE, HFMA, HIMSS, MGMA, ACMPE) that allows leaders to establish vision, enhance organizational goals, build trust and motivation, encourage teamwork, support diversity, promote environments where employees contribute to their full potential, and achieve higher levels of performance and quality outcomes (Garman et al., 2006). HLA competencies include effective communication, stakeholder relationship management, professionalism, leadership knowledge, business management, healthcare systems understanding, resources management, governance, strategic planning, risk management, quality/safety management, and more (Stefl, 2008).

Beyond healthcare, research has found that higher levels of formal education are associated with better organizational performance such as higher profits and greater market share (Besley, Montalvo, & Reynal-Querol, 2011; Hambrick & Aveni, 1992; Hambrick & Mason, 1984). Executives with higher levels of formal education are more successful at managing change, facilitating organizational adaptation, and motivating followers to improve performance (Baker, Mathis, & Stites-Doe, 2011). Higher education level, in general, is associated with leaders' receptiveness to change and willingness to take risks (Wiersema & Bantel, 1992).

Likewise, Lewis et al. (2014) found that financial decision-making and strategic behaviors vary as a function of CEO formal educational background; organizations led by CEOs with an MBA and/or other higher degrees spend more on capital expenditures, take on more debt, and make more diversifying acquisitions than firms led by less educated CEOs. Kimberly and Evanisko (1981) also found that CEO education level was positively associated with the likelihood of adopting innovative technological and administrative strategies.

Terminal vs. Non-Terminal Degrees

While some have described the Master's degree as the terminal degree for healthcare management practice this study defined a terminal degree as a doctoral degree as it is the highest academic degree approved in a given field. Terminal degrees include research and professional doctorate degrees such as Doctor of Medicine (MD), Doctor of Psychology (PsyD), Doctor of Philosophy (PhD), Doctor of Science (DSC), Doctor of Education (EdD), Doctor of Public Health (DrPH), and other doctoral degrees.

Research has found that leaders with terminal degrees are associated with transformational leadership behaviors and techniques such as inspiring, enabling,

encouraging, and modeling (Brown & Posner, 2001; Covey, 2007; Pedler, 1991).

Furthermore, graduate education which is grounded in theory, research, and utilization of

empirical literature, has shown to encourage use of evidence based leadership strategies

and has led to improved patient centered care (A. M. Epstein et al., 2005; R. M. Epstein

et al., 2005). The use of such evidence can help leaders make better decisions and

develop more effective strategies in response to changing external environments, such as

the increased emphasis on patient experience.

Therefore, it was hypothesized that:

Hypothesis 1: Hospitals led by CEOs that hold terminal degrees will be

associated with higher patient experience scores compared to those hospitals led by

CEOs with non-terminal degrees.

Clinical Terminal vs. Non-Clinical Terminal Degrees

Patient experience requirements raise another question, whether CEOs with

clinical terminal degrees or non-clinical terminal degrees can produce better patient

experience outcomes and contribute to the ongoing discussion of whether healthcare

organizations are better off run by CEOs with a clinical terminal degrees, such as MDs

(Falcone & Satiani, 2008). Most U.S. hospitals have been traditionally led by non-clinical

non-terminal degree CEOs. In 1935, 35% of U.S. hospitals were led by medical doctors,

according to the Journal of Academic Medicine (Falcone & Satiani, 2008). In 2009,

however, out of 6,500 U.S. hospitals, only 235 were led by MD executives in 2009

(Falcone & Satiani, 2008; Goodall, 2011b; Gunderman & Kanter, 2009).

CEOs with a clinical terminal degree or a non-clinical terminal degree may be

successful , however, a new breed of hospital CEO may be required to achieve better

patient centered outcomes (Schultz & Pal, 2004). Research suggests that, because clinical

CEOs spend many years in direct patient care, they may have an aptitude and desire to communicate in ways that are more effective in promoting patient centered culture (Mountford & Webb, 2009).

Clinical terminal degree CEOs may also cultivate more patient centered cultures by acting as role models for their medical staff and may be more effective at attracting gifted medical personnel (Goodall, 2011a, 2011b; Goodall, Lawrence, & Oswald, 2011; Mäntynen et al., 2014). CEOs can also play a critical role in uniting the clinical staff and overcoming potential resistance from physicians, patients, and other stakeholders in implementing more patient centered delivery models (Colla, Lewis, Shortell, & Fisher, 2013).

Consistent with these arguments, a recent study by the UK National Health Service (NHS) found that in 11 cases of attempted improvement in hospital quality performance, organizations with stronger MD leadership were the most successful (Fitzgerald, 2006). A 2011 study of 300 top rated hospitals found a strong positive association between the clinical quality of a hospital and whether the CEO was an MD (Goodall, 2011a). Another study by McKinsey and the London School of Economics found that hospitals with the greatest MD participation in management roles scored 50% higher on important drivers of hospital performance than those with low levels of MD participation (Castro, Dorgan, & Richardson, 2008).

Collectively, these findings suggest that:

Hypothesis 2: Hospitals led by CEOs that hold clinical terminal degree will be associated with higher patient experience scores compared to hospitals led by CEOs that do not hold clinical terminal degree.

CEO Tenure

Empirical research suggests that longer CEO tenure is negatively associated with organizational change, growth, and performance (Balkin & Gomez-Mejia, 1987; Bizjak, Lemmon, & Naveen, 2009; D. Chen & Zheng, 2012; Finkelstein & Hambrick, 1990; Luo et al., 2013b). In the general business literature, long tenure is considered 11 years or longer (Henderson, Miller, & Hambrick, 2006; Lawrence & Lorsch, 1967). However, in the hospital industry, the CEO turnover rate has increased and the average CEO tenure has decreased dramatically (ACHE, March 2014, Report). In 2012, one study reported an average hospital CEO tenure close to 5.5 years (Khaliq, Thompson, Walston, Saste, & Kramer, 2012). According to Becker's Hospital Review (2014), this number dropped even further to 3.5 years in 2014.

Research has shown that shorter tenured and/or newly appointed CEOs are more likely to collaborate with their teams, focus more on building trust, and are more willing to pursue innovative strategies in comparison with longer tenured CEOs (Finkelstein & Hambrick, 1990). CEOs learn critical knowledge early in their tenure, which can taper off as years progress (Hambrick & Finkelstein, 1991). Shorter CEO tenure is associated with greater adaptability, more risk taking, and readiness for change, while longer tenure is associated with being more cautious and conservative when making change related decisions (Gerowitz, 1998; Hitt & Tyler, 1991).

Longer tenured CEOs slowly lose their knowledge and skill development and narrow information search, rely more on the application of previous experiences, and knowledge to new circumstances instead of accruing new skills (Hambrick, Cheo, & Chen, 1996; Hambrick & Finkelstein, 1991, 1996). Longer tenured CEOs become more institutionalized, more risk averse to preserve previous gains, resistant to change,

and less aligned with customer demands and market expectations (Lewis et al., 2014; Simsek, 2007). Similarly, longer tenure has been linked with an inability to keep up with market expectations and be responsive to customer preferences (Henderson et al., 2006; X. Luo, V. Kanuri, & M. Andrews, 2013a; D. Miller & Shamsie, 2001), which in turn can negatively impact an organization's financial performance (Luo et al., 2013b).

In summary, shorter tenure is associated with transformative behaviors that promote change, innovation, alignment with patient needs, patient centered practices, trust, increased employee morale, positive behaviors, collaboration, progress, risk taking, teamwork, effective communications, and others that will potentially promote better patient experience . Therefore, it was hypothesized that:

Hypothesis 3: Hospitals led by CEO with shorter tenure will be associated with higher patient experience scores compared to hospitals led by longer tenured CEOs.

CEO Gender (Female vs. Male CEOs)

Women have been underrepresented in the highest levels of the healthcare industry's leadership. According to the American College of Healthcare Executives (ACHE), most women are not reaching CEO positions because the healthcare industry that has been traditionally shaped around male power and authority (Amanatullah & Tinsley, 2013; Brescoll & Uhlmann, 2008; Engen & Willemsen, 2004; Isaac, 2011; Lantz, 2008). Consequently, there is relatively limited literature regarding gender attributes related to performance, with only a few studies looking at female CEO roles, attitudes toward change, leadership styles, and other attributes (Anderson, Mclaughlin, & Smith, 2007; Krishnan & Park, 2005; Musteen, Barker, & Baeten, 2006). Furthermore, no research to date has examined the effects of CEO gender on patient experience.

Women have been described as transformational leaders (Eagly, Johannese, & Engen, 2003), with some researchers arguing that females have better aptitude to integrate and align organizational goals with the external environments (Prinsloo & Barrett, 2013). Likewise, some researchers have suggested that female leaders approach leadership differently than male CEOs and place greater emphasis on behaviors and skills such as flexibility, intuition, and tactfulness when addressing challenging circumstances, greater willingness to acknowledge mistakes, greater engagement in trust building, problem solving, continuous quality improvement, collaboration, transparency, compassion, innovation, and positive attitude toward change compared to their male counterparts (Appelbaum, Audet, & Miller, 2003; Kark, Waismel-Manor, & Shamir, 2012; KLCM, 2014; Maniero, 1994; Paton & Dempster, 2002; Paustian-Underdahl, Walker, & Woehr, 2014).

Females also exhibit greater levels of service orientation by placing greater emphasis on perceptions of patient expectations for the service quality (O'Connor, Trinh, & Shewchuk, 2000). The current researcher argued that these different emphases would be associated with more patient centered cultures that support positive patient experience. Thus, it was hypothesized that:

Hypothesis 4: *Hospitals led by female CEOs are more likely to report higher patient experience scores than hospitals led by male CEOs.*

Chapter 3

Methodology

This chapter describes the research design, data sources, data collection, variable operationalization, and analytic strategy.

Research Design

A cross-sectional, quantitative study was used to examine whether CEO characteristics were associated with reported patient experience scores of CA hospitals.

Study Population

The hospital was the unit of analysis. The sample consisted of 294 California (CA) hospitals. The decision to focus on CA hospitals was based on a combination of pragmatic and research design considerations. The study's use of primary data collection for some variables, as well as limited data availability across states presented challenges to including hospitals from multiple states. Therefore, CA hospitals were selected because they operate across a diverse range of markets. Furthermore, the large number of hospitals operating in CA provided a larger sample size, and thus greater power, to examine the relationship between CEO characteristics and patient experience. The study examined these relationships for calendar years 2013 and 2014.

Data Sources

Data for the analysis were aggregated from several sources: (1) The 2013 and 2014 American Hospital Association (AHA) Annual Surveys; (2) The California Hospital Association (CHA) 2013 and 2014 membership directories of hospital CEOs; (3)

Individual hospital websites; (4) LinkedIn; (5) Medicare Hospital Compare website; (6) The census bureau market characteristics data; and (7) Becker's Hospital Review.

Medicare Hospital Compare website is a public data source. The reported data are updated each performance period (quarter) and each calendar year in January. This study used 2013 and 2014 patient experience data available as of January 2015.

Select hospital characteristics from the AHA Annual Survey data can be accessed via AHA Data Viewer at www.ahadataviewer.com. The most recent data were published in November 2014 and reflect 2013 survey results regarding organizational structure, system affiliation, facility and services lines, beds and utilization, staffing, and expenses (www.ahadataviewer.com, 2014).

The CHA Membership Directory is updated and published in January of each year to represent the most current CEO information. For example, the 2014 directory represents CEO information as of December 2013.

Market characteristics were collected primarily from the Census Bureau (www.census.gov), which reflects data from 2009 to 2013. Most studies dealing with market characteristics have used the census.gov data because of its small margin of error (Appendix G).

The study used January 2015 LinkedIn hospital CEO data. LinkedIn is a professional networking website used by various professionals and executives. LinkedIn uses the Advanced Intrusion Detection Environment (AIDE), a directory data integrity checker, to accurately convert written records into usable data through data entry, data conversion, information harvesting from the web, reporting, analysis, storage, and database backup services (LinkedIn, 2015).

The 2015 Becker's Hospital Review CEO data were also used in this study. Becker's Hospital Review provides hospital and leadership information and is geared toward high-level hospital leaders (CEOs, CFOs, COOs, CMOs, CIOs, etc.). Its data are intended for approximately 18,500 healthcare executives and is published monthly.

The most recent information published on individual hospital websites was used to gather CEO data. Most hospitals update their website's content on a regular basis, especially related to CEO changes and characteristics. Consequently, the 2015 January data were used.

<div align="center">

Measures

</div>

Dependent Variable

The patient experience score is a continuous variable ranging from 0 to 100 and was obtained from the 2013 and 2014 Medicare hospital compare website. Patient experience scores were calculated by CMS from Hospital Consumer Assessment of Healthcare Provider and System (HCAHPS) surveys completed by hospitals (CMS, March 2011). First, CMS calculates the unweighted patient experience of care domain score for each hospital by summing the hospital's HCAHPS base score (0-80) and HCAHPS consistency score (0-20). Next, CMS calculates the weighted patient experience of care domain score for each hospital by multiplying the unweighted patient experience of care domain score by 0.30 (CMS, 2013). CMS publicly reports the weighted scores from four consecutive quarters annually on the Medicare Hospital Compare website (Medicare, 2014).

Data from the website include the following information: six digit numeric hospital provider number, hospital name, hospital physical address, Zip Code, County, unweighted and weighted patient experience score, ranging from 0 to 100, where '0' is

the lowest score possible and '100' is the highest score (Appendix B). The patient experience data were then entered into a Microsoft Excel spreadsheet.

Independent Variables

CEO characteristics were derived from primary and secondary data sources. Secondary data sources were used to verify the accuracy of the primary sources.

The primary source was the 2013 and 2014 CHA Membership Directories. These directories include the CEO name, contact information, education, and gender (Appendix C). The secondary source was hospital websites, which have information regarding their CEOs' education/degree, tenure, and other information. Appendix D includes an example of a hospital's website of pertinent information. In situations where the CHA directory and the hospital website provided inconsistent information, LinkedIn was used as a tertiary source to adjudicate discrepancies. Appendix E includes a screenshot of a CEO's LinkedIn profile.

For example, if the CHA directory reported CEO gender but did not include information regarding his/her education, the hospital's website was consulted to confirm the gender and determine education. Assuming the hospital website confirmed CEO gender and provided an initial assessment of education, his/her LinkedIn profile (where available) was consulted to confirm education. Finally, in the event these three sources did not provide the necessary information or provided contradictory information regarding CEO characteristics, Becker's Hospital Review was consulted.

Gender. Each CEO has her/his name and his/her photo displayed next to the hospital information in the CHA director. Gender was inferred based on the CEO's name and published photo. In situations where the name was ambiguous and the CEO photo was missing in the directory, the hospital website was used as secondary resource.

LinkedIn CEO profiles were used as a cross-reference when the primary and secondary sources were not clear and/or consistent. CEO gender was coded dichotomously as female (1) and male (0).

Tenure. CEO tenure was a continuous variable ranging from 0 to 50 years, representing time at his/her current position as the hospital's CEO. Given the study's interest in CEO tenure, this variable was limited to years as CEO. For example, if he/she worked for the hospital for 20 years, but only three years as its CEO, this study considered tenure as three years. The primary source for CEO tenure was the hospital website. Typically, each hospital website has a page devoted to its leadership team where there is a short CEO biography, including how long the current CEO has been employed as the CEO. Secondary sources for tenure were LinkedIn and Becker's Review.

To calculate CEO 2014 tenure, the researcher accessed CHA membership directory published in January 2015, which reflects CEO 2014 hospital employment data. Then, CEO appointment year was subtracted from year 2014 to get the tenure data for the study. For example, if the CEO was appointed in 2010, the tenure was subtracted from year 2014 and was entered as four years (2014-2010).This calculation was repeated in the same manner for 2013 CEO tenure data; the researcher accessed the membership directory published in January 2014, which reflects CEO employment for year 2013. If CEO was appointed in 2010, the tenure was subtracted from year 2013 and entered as three years (2013-2010).

An identical method was used to calculate tenure by using LinkedIn data; the researcher accessed each CEO's LinkedIn biography published as of January 2015, and looked for his/her hospital appointment history. To collect 2014 tenure data, the researcher subtracted the CEO appointment year from 2014, and to get 2013 tenure data

subtracted the appointment year from 2013. The study set a threshold for tenure at six months; therefore, tenure below six months was excluded from data analysis.

Education. The CHA directory page lists the hospital CEO's name and education/degree. Terminal degree education was coded as 1 for hospitals with a CEO with a doctoral degree (Appendix H) and 0 for all other hospitals. CEOs with all other degrees were coded under Non-Terminal degree as (0).

Clinical Terminal vs. Non-Clinical Terminal Degree was the second educational variable that was used to assess the relationship between education and patient experience scores. Clinical Terminal category meant a doctoral degree/education related to patient care services. It was categorized as Clinical Terminal (1) and Non-Clinical Terminal as (0), (Appendix I).

Control Variables

Research, in general, has found that hospitals' response to regulatory changes such as the ACA vary as a function of a number of organizational characteristics such as ownership type, teaching affiliation, system affiliation, size, geographical location, payer composition, and others (Cook, Shortell, Conrad, & Morrisey, 1983; Kaufman, 2013). Therefore, the study controlled for several hospital and market level factors that could have potentially impacted the patient experience reported score.

Hospital characteristics. Hospital characteristic variables were drawn from the AHA Annual Survey data.

Location. Every 10 years, OMB reviews and revises the criteria to define metropolitan areas (McDermott & Emery, 2015). For the 2010 Census, to qualify as an urban area, the territory must encompass at least 2,500 people, 1,500 of whom reside outside institutional group quarters. According to research, urban hospitals have better

access to human and financial resources, and can offer more comprehensive services compared to rural hospitals (Yeager et al., 2014). However, other studies suggest that rural hospitals, especially the smaller rural hospitals, demonstrate better patient experiences (A. M. Epstein et al., 2005; Lehrman et al., 2010). Therefore, hospitals were coded as a dummy variable (urban=1 and rural=0). In this case, a rural hospital was defined as any hospital that was located in a county/area with less than 2,500 people while an urban hospital was defined as any hospital located in a county/area with more than 2,500 people.

Ownership type. Patient experience scores vary across different types of hospital ownership. Specifically, patient experience scores are higher in for-profit hospitals and lower in non-profit hospitals (Lehrman et al., 2010; Siddiqui, 2014). Public non-profit hospitals, for example, exhibit poorer patient experience outcomes mainly due to their weak pain management practice compared to other ownership types (Gupta, Lee, Mojica, Nairizi, & George, 2014). The ownership type was a dummy variable with (0) representing the non-profit hospitals and (1) representing for-profit hospitals.

Teaching affiliation: For the purpose of this study, teaching hospitals were those closely associated with medical schools, served as a practical education site for medical students, interns, residents, fellows and other allied health personnel. Findings regarding the relationship between teaching status and patient experience are mixed. One study suggested that teaching hospitals were more likely to display superior performance in patient experience scores relative to non-teaching hospitals (Lehrman et al., 2010). A more recent study, however, revealed that teaching hospitals demonstrated lower patient experience scores due to their bigger size, more complex structures, shortage of nursing and other clinical staff, poor patient access, and employee burnout (Carvajal, 2014).

Teaching affiliation was coded as a dummy variable with (1) for teaching and (0) for non-teaching hospitals.

Size. Larger hospitals are typically busier places with higher error rates related to longer work hours and staff burnout (Rogers, Hwang, Scott, Aiken, & Dinges, 2004). Larger hospitals have a higher percentage of patients with poor experience because of the longer laboratory/radiology turnaround times and provider delays (Handel, French, Nichol, Momberger, & Fu, 2014; Samina, Qadri, Tabish, Samiya, & Riyaz, 2008). Likewise, Lehrman et al. (2010) found that the top performers on patient experience were smaller hospitals (100 beds or fewer). Hospital size was controlled for with a continuous variable measured as the number of beds in the facility.

Market characteristics. Research suggests that market and patient characteristics may also influence patient experience as it is based on each individual patient's care expectation, culture, age, health status, insurance type, income, family size, age, education, language, race, length of stay, admission mode, and other characteristics (Boscardin & Gonzales, 2013; Deshpande & Deshpande, 2014; Ruigrok, Greve, & Nielsen, 2007; Sjetne, Veenstra, & Stavem, 2007). Market level control variables were drawn from the AHA annual survey and CA Census Bureau data.

Competition. The Herfindahl Index was used to compute market level concentration based on the sum of county beds. The Herfindahl index, as a measure of competition, ranges from 0 to 1. Values close to 1 show highly monopolistic markets with no competition while values close to 0 indicate highly competitive markets.

To calculate the Herfindahl Index, each hospital's bed count was divided by the total number of beds in a county, yielding the percentage of the beds in the market owned by each hospital. This value was then squared for each hospital and summed across all

hospitals in a county. For example, assume a county has two hospitals (A and B) with 50 beds each. For hospitals A and B, their respective bed counts (50) were divided by the total number of beds in the county (100), and then squared, yielding a value of 0.25 for each hospital The sum of these two values is 0.50 (0.25 + 0.25), which is the Herfindahl Index for that county.

Socio-demographic characteristics. Variables were constructed from CA census data (www.census.gov) (Appendix F). First, the researcher used the AHA databases to identify the county where the hospital was physically located. Then, the researcher searched the census.gov webpage by entering the county in order to get the required socio-demographic information.

All socio-demographic characteristics were calculated by first finding the number of residents of the specific socio-demographic group within the county of interest, and then dividing by the total population of the county, multiplied by 100. Thus, these variables were continuous variables ranging from 0 to 100%.

Race. Race was measured as percent White and minority. Researchers typically consider Blacks, Asians, and Hispanics as minority groups and Whites (non-Hispanic) as the majority group. Percent White was constructed as the total number of White (non-Hispanic) residents in a county divided by the total number of county residents, multiplied by 100. Percent minority was calculated in a similar manner, as the sum of Blacks, Hispanics, and Asians in a county, divided by the total number of county residents, multiplied by 100.

Poverty level. Poverty level was defined as the percentage of persons below the federal poverty level (Appendix G).

Age. Age was defined as the percentage of the population that is 65 years and over. This age group was selected since patient experience was mainly reported for Medicare patients.

Merging Data

Microsoft Excel was used to collect and merge data sets. Initially, the Hospital Compare patient experience data were downloaded, which contained the hospital name, address, and related patient experience score. Then, the CEO data were manually collected and entered into Microsoft Excel. Hospital characteristic data from the AHA Annual Survey were then merged with the rest of the data using the hospital name. Finally, market characteristics were merged with these data using the county name. The merged data set was finally transferred into SPSS to conduct the proposed data analysis.

Table 2
Study Variables, Measures, and Data Sources

Dep. Variable	Measure(s)	Data Source (s)
CA Hospitals' 2013, 2014 Patient Experience Scores	Scores ranging from 0 -100. 0 is the lowest score and 100 is the highest score	Medicare Hospital Compare 2013, 2014 Data (http://www.medicare.gov/hospitalcompare)

Ind. Variable	Measure(s)	Data Source (s)
CEO Gender	Female (1)/Male (0)	Primary: CHA 2013, 2014 Member Directories Secondary: Hospital Website Tertiary: LinkedIn
CEO Tenure	Years as CEO in the current position from 0 -50 years	Primary: Hospital Website Secondary: LinkedIn Tertiary: *Becker's Hospital Review*
CEO Education/Degree	Clinical Terminal Degree (1) /Non-Clinical Terminal Degree (0) Terminal (1)/Non-Terminal (0)	Primary: CHA 2013, 2014 Member Directories Secondary: Hospital Website Tertiary: LinkedIn

Cont. Variable	Measure(s)	Data Source (s)
Hospital Ownership Type	For-Profit (1)/Non-Profit (0)	AHA 2013, 2014 Databases
Hospital Location	Urban (1)/Rural (0)	AHA 2013, 2014 Databases
Hospital Size	Number of Beds as a continuous measure	AHA 2013, 2014 Databases
Hospital Teaching Affiliation	Teaching(1), Non-Teaching (0)	AHA 2013, 2014 Databases
Market Competition	*Herfindahl Index (0 to 1)*	AHA 2013, 2014 Databases
Race/Ethnicity	Percent White and Minorities, 0-100% of the total population	U.S. Census Bureau
Poverty Level	Percent population, 0-100%	U.S. Census Bureau
Age as 65+	Percent population, 0-100%	U.S. Census Bureau

Statistical Analysis

Regression analysis was used to analyze the relationships between CEO characteristics and patient experience. Two sets of ordinary least square regressions were used, one for each of the educational variables chosen (i.e., one model with terminal degree as a predictor, and another with Clinical/Non-Clinical terminal degree as a predictor). The two sets of regression models were necessary to address likely multicollinearity between the two education variables.

The analysis included the following steps:

a. Investigated the data set via descriptive statistics to identify missing values, departures from normality, presence of outliers and/or influential observations, homoscedasticity, and multicollinearity among the predictors.

b. Residual analysis. Each model was rigorously tested for goodness of fit against functional misspecifications, heteroscedasticity, and possible multicollinearity issues using a combination of analytical tools based on the residual terms of the regressions, including graphical methods and formal statistical tests.

Graphical methods included:

− Plot residuals vs. predicted patient experience scores. A random scatter plot with no outliers or influential observations and with constant variance indicated whether there was any departure from the conditions under which a linear regression model is known to work well. If that is not the case, scatter plots of residuals vs. each of the other covariates were used to detect whether any of the predictors were responsible.

- Checked for normality using the Q-Q plot (after having solved the other issues listed above).

Formal statistical tests included:

- Breusch-Pagan test for homoscedasticity

- Detected misspecifications and the need to transform variables by regressing the estimated residuals against the predictors and their squares to detect the need for more complex functional forms other than the linear one. If all coefficients were not statistically significant, then the model was to be correctly specified; add extra predictor(s) or transformation of the dependent variable.

Chapter 4

Analysis and Presentation of Findings

This chapter presents the results of the data analysis used to investigate the relationship between selected CEO characteristics and patient experience scores. The four hypotheses tested in this study were:

Hypothesis 1: Hospitals led by CEOs that hold terminal degrees will be associated with higher patient experience scores compared to those hospitals led by CEOs with non-terminal degrees.

Hypothesis 2: Hospitals led by CEOs that hold a clinical terminal degree will be associated with higher patient experience scores compared to hospitals led by CEOs that do not hold a clinical terminal degree CEOs.

Hypothesis 3: Hospitals led by CEOs with shorter tenure will be associated with higher patient experience scores compared to hospitals led by longer tenured CEOs.

Hypothesis 4: Hospitals led by female CEOs will be associated with higher patient experience scores than hospitals led by male CEOs.

Descriptive Results

Tables 3 and 4 below present descriptive statistics for the study sample. The study included 294 acute care hospitals in the state of California for the years 2013 and 2014. The majority of the hospitals for both years were not-for-profit (76%) with the remaining hospitals being for-profit (24%). Urban hospitals accounted for 96% of hospitals in the sample, while rural hospitals accounted for only 4%. Teaching hospitals constituted 29% of the study sample and 71% were non-teaching hospitals.

On average, 28% of California hospitals had female CEOs in 2014 and 30% in 2013. In 2013, over 31% of all hospital CEOs held some kind of terminal degree, 12% had a clinical terminal degree, and 30% had some kind of a clinical degree. These percentages declined slightly in 2014, with 29% of all California hospital CEOs having some kind of a terminal degree, 11% having a clinical terminal degree, and 25% having some type of clinical degree.

Table 3
Hospital and CEO Categorical Characteristics (N=294)

	2013		2014	
Variables	N	%	N	%
Independent Variables				
Gender	-		-	
Female (1)	88	29.9%	76	27.7%
Male (0)	206	70.1%	198	72.3%
Terminal Degree	-		-	
Terminal (1)	93	31.6%	77	28.1%
Non- Terminal (0)	201	68.4%	197	71.9%
Clinical Terminal Degree	-		-	
Clinical Terminal (1)	34	11.6%	30	10.9%
Non Clinical Terminal (0)	260	88.4%	244	89.1%
Control Variables				
Hospital Ownership	-		-	
For-Profit (1)	70	23.8%	66	24.1%
Non-Profit (0)	224	76.2%	208	75.9%
Hospital Location	-		-	
Rural (0)	11	3.7%	9	3.3%
Urban (1)	283	96.3%	265	96.7%
Hospital Teaching Affiliation	-		-	
Teaching (1)	85	28.9%	82	29.9%
Non-Teaching (0)	209	71.1%	192	70.1%

Table 4 includes hospital and CEO characteristics for California's hospitals for the continuous study variables. Patient experience, on average, was 10.2 (SD=5.2) in 2013, and declined slightly in 2014 to 8.7 (SD=4.8). Similarly, the clinical process of

care domain score declined from 41.5 (SD=14.4) in 2013 to 10.4 (SD=4.8) in 2014.

Efficiency and outcome scores data were available only for 2014. On average, the

hospital efficiency domain score was 4.8 (SD=6.0) in 2014 and the outcome domain

score was 14.4 (SD=6.7). Similar to the domain scores, the total performance score was

lower, on average, in 2014 (M=38.1, SD=12.6) compared to 2013 (M=52.8, SD=15.2).

Average CEO tenure was 6.4 years in 2013 and 6.9 years in 2014. Market

competition, as measured by the Herfindahl index, was slightly higher in 2014 (.10)

compared to 2013 (.12).

Table 4
Mean and Standard Deviations for Continuous Variables

Variable	2013			2014		
	N	Mean	Std Dev	N	Mean	Std Dev
Dependent Variables						
Patient Experience	287	10.2	5.2	266	8.7	4.8
Clinical Process of Care	289	41.5	14.4	267	10.4	4.8
Efficiency Domain[1]	-	-	-	267	4.8	6.0
Outcome Domain[1]	-	-	-	261	14.4	6.7
Total Performance	282	52.8	15.2	267	38.1	12.6
Independent Variables						
CEO Tenure (years)	294	6.37	5.80	274	6.9	5.4
Control Variables						
Number of Beds	294	249	172	274	245	161
Market Competition	294	0.12	0.24	274	0.10	0.19
Ethnicity: % Black	294	6.4%	3.4%	274	6.6%	3.5%
Ethnicity: % Hispanic	294	38%	13.4%	274	38.0%	13.4%
Ethnicity: % Asian	294	13.4%	8.2%	274	13.5%	8.2%
Ethnicity: % White	294	40.2%	14.1%	274	40%	14%
Ethnicity: Bel Poverty	294	16.0%	4.1%	274	16%	4%
Ethnicity: % Age 65 +	293	12.7%	2.1%	274	12.7%	2.1%

[1] Data available only for 2014

<center>**Bivariate Results**</center>

Correlation Analysis for Continuous Variables

Correlation results are presented in Table 5, which displays the correlations between all of the continuous variables and each of the dependent variables (value based purchasing scores) broken down by year.

Patient Experience Domain Scores

Patient experience scores exhibited a statistically significant negative correlation with the number of beds in 2013 (r = -.196, p = .001), the percentage of Black residents (r = -.254, p=000), and the percentage of Hispanic residents (r = -.187, p=.001). In contrast, patient experience scores were positively correlated with market competition (r = .130, p=.027), the percentage of White residents (r = .299, p=.000), and the percentage of residents 65 years of age and older (r = .172, p=.004). In 2014, patient experience scores were significantly and positively correlated only with the percentage of White residents (r=.137, p=.026).

Clinical Process of Care Domain Scores

In 2013, clinical process of care was negatively correlated with CEO tenure (r = -.136, p = .021), the percentage of Hispanic residents (r = -.214, p =.000), and the percentage of residents below the federal poverty level (r = -.161, p = 006). In contrast, clinical process of care was positively correlated with the percentage of Asian residents (r = .150%, p = .010) the percentage of White residents (r = .134, p = .022), and the percentage 65 years of age or older (r=.126, p=.033).

There were no significant correlations between clinical process of care and the other continuous variables in 2014.

Efficiency Domain Scores

In 2014, hospital efficiency scores were negatively correlated with hospital size ($r = -.128$, $p = .037$), the percentage of Hispanic residents ($r = -.238$, $p = .000$), and the percentage of Asian residents. Efficiency score was positively correlated with the percentage of White residents ($r = .285$, $p = .000$), market competition ($r = .349$, $p = .000$) and the percentage of residents 65 years of age and older ($r=.197$, $p=.001$).

Outcome Domain Scores

In 2014, outcome scores were negatively correlated with market competition ($r=-.141$, $p=.023$).

Total Performance Scores

In 2013, total performance score was negatively correlated with CEO tenure ($r= -.144$, $p= .016$), hospital size ($r= -.171$, $p=.004$), the percentage of Hispanic residents ($r= -.192$, $p=.001$), the percentage of residents below the federal poverty level ($r= -.130$, $p=.029$), and the percentage of residents 65 years of age and older ($r= -.118$, $p=.048$). In contrast, total performance score was positively correlated with the percentage of White residents ($r= .166$, $p=.005$).

In 2014, total performance score was significantly and negatively correlated with the percentage of Hispanic residents ($r= -.173$, $p=.005$) and the percentage of White residents ($r= -.179$, $p=.003$). Total performance score was positively correlated with the percentage of residents ages 65 years and older ($r= .134$, $p=.028$).

Table 5
Correlation Matrix Continuous Variables

		Independent/Control Variables								
Dependent Variables		CEOs Tenure	# Beds	Market Comp.	Ethnic% Black	Ethnic% Asian	Ethnic% Hispanic	Ethnic% White	% < Poverty	% 65 +
Patient Experience (2013)	r	.008	-.196**	.130*	-.254**	-.070	-.187**	.299**	-.103	.172**
	p	.890	.001	.027	.000	.234	.001	.000	.080	.004
	N	287	287	287	287	287	287	287	287	286
Patient Experience (2014)	r	.014	-.050	.037	-.108	-.075	-.053	.137**	-.069	.081
	p	.817	.412	.547	.079	.224	.392	.026	.262	.188
	N	266	266	266	266	266	266	266	266	266
Clinical Process Care Domain (2013)	r	-.136*	-.041	.075	-.001	.150*	-.214**	.134*	-.161**	.126*
	p	.021	.484	.202	.984	.010	.000	.022	.006	.033
	N	289	289	289	289	289	289	289	289	288
Clinical Process Care Domain (2014)	r	.012	.011	-.037	-.048	.098	-.099	.055	-.119	.034
	p	.848	.858	.548	.438	.109	.105	.369	.052	.577
	N	267	267	267	267	267	267	267	267	267
Efficiency Domain (2013) - Not Available										
Efficiency Domain (2014)	r	-.089	-.128**	.349**	-.064	-.127*	-.238**	.285**	-.034	.197**
	p	.149	.037	.000	.294	.038	.000	.000	.575	.001
	N	267	267	267	267	267	267	267	267	267
Outcome Domain (2013) - Not Available										
Outcome Domain (2014)	r	.060	.062	-.141*	.073	.068	.028	-.072	-.001	-.030
	p	.337	.317	.023	.240	.272	.651	.249	.991	.626
	N	261	261	261	261	261	261	261	261	261
Total Performance (2013)	r	-.144*	-.171*	.077	-.059	.096	-.192**	.166**	-.130*	.118*
	p	.016	.004	.195	.322	.106	.001	.005	.029	.048
	N	282	282	282	282	282	282	282	282	281
Total Performance (2014)	r	-.008	-.028	.076	-.036	-.012	-.173**	.179**	-.078	.135*
	p	.902	.651	.214	.558	.844	.005	.003	.202	.028
	N	267		267	267	267	267	267	267	267

**. Correlation is significant at the 0.01 level (2-tailed).   *. Correlation is significant at the 0.05 level (2-tailed).

Testing for Differences in the Means between Multiple Groups

One-way ANOVA examined equality of the population means for the value based purchasing dependent variables across the categorical independent explanatory variables (Tables 6-8).

Gender. On average, in 2013 (Table 6), patient experience scores were significantly higher in hospitals with female CEOs (M=11.9, SD=5.7) compared to hospitals with male CEOs (M=9.4, SD=4.7; $F(1285)=15.74$, $p<0.001$). The difference in patient experience scores between hospitals with female CEOs (M=9.6, SD=4.3) and hospitals with male CEOs (M=8.3, SD=5.0) was significant in 2014 as well $F(1264)=4.3$, $p<0.05$).

In 2013, the clinical process of care domain scores of hospitals with female CEOs M=45.2, SD=13.0) were significantly higher than the clinical process of care domain scores of hospitals with male CEOs (M=39.8, SD=14.7; $F(1287)=9.38$, $p<0.01$). The difference in clinical process of care domain scores between hospitals with female CEOs (M=11.6, SD=3.7) and hospitals with male CEOs (M=10.0, SD=5.1) was significant in 2014 as well $F(1265)=6.7$, $p<0.01$). The average total performance scores were significantly different between hospitals with a female CEO (M=57.3, SD=15.6) and a male CEO (50.8, SD=14.7; $F(1280)=11.6$, $p<0.001$) in 2013. Similarly, average total performance scores were significantly different in 2014, when hospitals with a female CEO had an average score of 44.0 (SD=13.5) and hospitals with a male CEO had an average score of 35.8 (SD=11.5; $F(1265)=24.87$, $p=0.001$).

In 2014, average efficiency domain scores were significantly higher in hospitals with female CEOs (M=7.4, SD=7.01) relative to hospitals with male CEOs (M=3.7,

SD=5.28; F(1265)=25.0, p<0.001). In contrast, there was no significant difference in outcome domain scores between hospitals with a female CEO and hospitals with a male CEO.

Table 6
ANOVA. Dependent Variable Differences between Male and Female Groups

	2013					2014				
	N	Mean	SD	F-value	P-value	N	M	SD	F-value	P-value
PE										
M	199	9.41	4.69		0.000	192	8.29	5		0.04
F	88	11.97	5.71	15.74		74	9.67	4.34	4.29	
CPC										
M	201	39.83	14.66		0.002	193	9.96	5.11		0.010
F	88	45.37	12.98	9.4		74	11.65	3.77	6.67	
OUT										
M	-[1]	-	-	-	-	188	13.95	6.53		0.086
F	-	-	-		-	73	15.52	6.90	2.96	
EFF										
M	-[1]	-	-	-	-	193	3.8	5.28		0.000
F	-	-	-		-	74	7.43	7.02	20.85	
TPS										
M	194	50.79	14.7		0.001	193	35.81	11.46		0.000
F	88	57.3	15.57	11.60		74	44.05	13.58	24.88	

[1] No data reported

Clinical terminal degree. There were no statistically significant differences in performance scores between hospitals with CEOs with a clinical terminal degree and hospitals with CEOs with a non-clinical terminal degree (Table 7). This was the case for both 2013 and 2014.

Table 7

ANOVA. Dependent Variable Difference between Clinical Terminal (CT) and Non Clinical Terminal (NCT)

		2013					2014			
	N	Mean	SD	F	P	N	M	SD	F	P
PE										
CT	34	10.32	3.56		0.88	30	9.07	6.21		0.64
NCT	253	10.12	5.34	0.023		236	8.6	4.67	0.224	
CPC										
CT	34	44.7	14.27		0.18	30	10.6	4.29		0.87
NCT	255	41.09	14.36	1.9		237	10.4	4.9	0.27	
OUT										
CT	-[1]	-	-	-	-	29	15.3	7.4		0.43
NCT	-	-	-	-	-	232	14.3	6.6	0.615	
EFF										
CT	-	-	-	-	-	30	3.3	3.8		0.15
NCT	-	-	-	-	-	237	4.9	6.2	2.078	
TPS										
CT	34	55.02	14.18		0.37	30	37.8	10.6		0.87
NCT	248	52.5	15.26	0.796		237	38.13	12.88	0.026	

[1] No data reported

Terminal degree. In 2014 (Table 8), the average outcome domain score was significantly higher for hospitals with CEOs with a terminal degree (M=16.1, SD=7.4) than for hospitals with CEOs with a non-terminal degree (M=13.7, SD=6.3; $F(1259) = 7.0$, $p<0.001$). In contrast, the average efficiency score was significantly lower for hospitals with CEOs with a terminal degree (M=3.6, SD=4.9) compared to hospitals with a CEO with a non-terminal degree (M=5.2, SD=6.4; $F(1265)=3.8$, $p<0.05$).

Table 8

ANOVA. Dependent Variable Difference between Terminal (T) and Non-Terminal (NT)

		2013				2014				
	N	Mean	SD	F	P	N	M	SD	F	P
PE										
T	90	10.98	5.85		0.084	74	9	6.17		0.496
NT	197	9.80	4.7	3.012		192	8.55	4.26	0.47	
CPC										
T	91	39.90	15.67		0.20	75	9.99	5.09		0.366
NT	198	42.24	13.73	1.62		192	10.60	4.72	0.821	
OUT										
T	-[1]	-	-	-	-	72	16.13	7.35		0.009
NT	-	-	-	-	-	189	13.72	6.27	6.975	
EFF										
T	-	-	-	-	-	74	3.64	4.87		0.05
NT	-	-	-	-	-	193	5.20	6.37	3.819	
TPS										
T	88	52.25	17.58		0.067	74	38.49	12.68		0.75
NT	194	53.09	14.10	0.184		193	37.94	12.62	0.097	

[1] No data reported

Multivariate Results

Regression Analysis

Prior to estimating the multivariate models, diagnostics were conducted to check for normality and heteroscedasticity. Visual inspection of the plot of the estimated residuals versus the predicted values did not show any pattern consistent with the presence of either heteroscedasticity or model misspecification. Plotting residuals versus predictors using P-P Plots showed no pattern indicating a lack of normality. Based on these diagnostic tests, the analysis preceded using ordinary least square regression models to test for the relationship between CEO characteristics and performance scores while controlling for known confounding variables.

Hierarchical Multiple Regression

The multivariate analysis used a hierarchical, block modeling strategy. Specifically, an initial model with only the control variables was assessed, followed by a second model that included the control variables and the CEO predictor variables of interest. This strategy enabled a comparison of amount of additional variance explained

by the CEO characteristics, above and beyond the control variables. The researcher assessed the contribution of the CEO characteristics by calculating the change in the coefficient of determination (r^2) between the two models. Unstandardized beta coefficients were used to assess the direction and significance of the relationship between individual CEO characteristics and performance.

In total, the multivariate analysis included 20 models (i.e., four models for each of the five dependent variables). Due to issues of multicollinearity between the education variables, two groups of similar models were required to test all of the study hypotheses. Specifically, one group of models was used to assess the relationship between hospital performance and CEO characteristics using the terminal vs. non-terminal degree distinction for education. A second group of models was used to assess the relationship between performance and CEO characteristics using the clinical terminal vs. non-clinical terminal degree distinction. For both groups of models, two models were estimated: a model with only the control variables and a second model that included the CEO characteristics.

Patient experience of care domain scores. CEO education, regardless of how it was measured, was not significantly associated with hospital patient experience score; thus, the analysis did not provide support for hypotheses 1 or 2. The direction and magnitude of these relationships were similar in Model 4 where education was measured as clinical terminal degree vs. non-clinical terminal degree. Tenure was positively associated with patient experience scores (b = .075, p <.05), which is contrast to hypothesis 3. Relative to hospitals with a male CEO, hospitals with a female CEO reported higher average patient experience scores (b=1.96, p <.001), providing support for hypothesis 4 (Table 9 - Models 2, 4).

There were several notable relationships between the control variables and patient experience performance. The discussion below highlights those control variables that were significant in both full models. Hospital size was negatively associated with patient experience (b = -0.005 to -0.006, p <.001). Market competition was also negatively associated with patient experience (b = -2.12 to -2.17, p < .05). Patient experience scores declined, on average, from 2013 to 2014 (b=-1.44 to -1.46, p<0.001). On average, for-profit hospitals had higher patient experience scores (b=2.23 to 2.27, p<0.05) compared to not-for-profit hospitals.

Overall, the model covariates accounted for approximately 13.3% of the variance in patient experience scores across hospitals. The CEO characteristics, above and beyond the control variables, accounted for approximately 3.7% of the variation in patient experience scores.

While the primary interest of this study was in the association between terminal education status and hospital patient experience performance, another consideration was whether hospitals with CEOs with clinical training, at any level, were associated with better or worse performance. To assess this possibility, a supplemental analysis was done by adding clinical degree vs. non-clinical degree, along with gender and tenure. The results were consistent with the models reported in Table 2, with hospitals with female CEOs associated with better patient experience scores (b = 2.04, p <.001).

Table 9

Ordinary Least Squares (OLS) Regression Models for CEO Characteristics (independent variable) and Patient Experience (dependent variable)

Variable	Terminal degree vs. Non Terminal Degree		Clinical terminal degree vs. Non Clinical Terminal	
	Model 1	Model 2	Model 3	Model 4
	Control only	CEO char. & controls	Control only	CEO char. & controls
	b (SE)	B (SE)	beta (SE)	B (SE)
CEO gender		1.96(.46)***		2.04 (.46)***
CEO tenure		.075 (.037)*		.077 (.037)*
CEO Education				
- CEO terminal degree (vs. no terminal degree)		.584 (.45)		
- CEO clinical terminal degree (vs. non clinical degree)				.663 (.65)
% Black	-.11.7 (17.2)	-13.47(16.9)	-.11.7 (17.2)	-13.68 (16.9)
% White	15.6 (16.3)	16.27 (16.06)	15.6 (16.3)	15.90 (16.06)
% Hispanic	7.1 (14.6)	8.2 (14.34)	7.1 (14.6)	7.7 (14.4)
% Asian	7.6 (16.05)	7.92 (15.8)	7.6 (16.05)	7.12 (15.8)
# of beds	-.006 (.001) ***	-.005 (.001) ***	-0.006 (0.001) ***	-.005 (.001) ***
% 65+	-27.5 (19.2)	-26.4 (18.9)	-27.5 (19.2)	-27.5 (18.9)
Market competition	-2.05 (1.07)	-2.12 (1.06) *	-2.05 (1.07)	-2.17 (1.06)*
Urban	.170 (1.48)	.459 (1.48)	.170 (1.48)	.328 (1.47)
Rural	_	_	_	_
Teaching	.877 (.500)	.931 (.493)	.877 (.500)	.880 (.491)
Non- Teaching	_	_	_	_
Profit	1.58 (.52)**	1.265(.516)*	1.58 (.52)**	1.232 (.516)*
Non Profit	_	_	_	_
2013	_	_	_	_
2014	-1.49 (.41) ***	-1.44 (.403)***	-1.49 (.41) ***	-1.46 (.403)***
% below poverty	.65 (7.8)	2.35 (7.7)	.65 (7.8)	2.358 (7.736)
Adjusted R^2	.100	.134	.100	.133
Change in R^2		.034		.033

*significant at p≤0.1, ** significant at p≤0.05, *** significant at p≤0.01

Clinical process of care domain scores. Longer tenure was negatively associated with clinical process of care scores in Model 4 (b= -165, p<0.05). Compared with hospitals with a male CEO, hospitals with a female CEO reported higher average clinical process of care scores (b =3.51, p <.05), (Table 10, Models 2 and 4).

Among the control variables, for-profit hospitals status was significantly associated with higher clinical process of care scores (b=2.43, p<0.05) compared to not-for-profit hospitals. Average clinical process of care scores declined from 2013 to 2014 (b=31.05 to -31.05, p<0.001), consistent with effect on patient experience scores.

Overall, the model covariates accounted for approximately 69% of the variance in clinical process of care scores across hospitals. The CEO characteristics, above and beyond the control variables, accounted for approximately 1.0% of the variation in patient experience scores.

The supplemental analysis of hospitals with CEOs that held a clinical degree (vs. non-clinical degree) showed that female CEOs (b=3.36, p <=.05), shorter tenure (b=-.162, p<.05), for profit status (b=2.94, p<05) were positively associated with clinical process of care scores while year (b=-30.8, p<0.01) was negatively associated with clinical process of care scores.

Table 10
Ordinary Least Squares Regression Models for CEO Characteristics (independent variable) and Clinical Process of Care (dependent variable)

	Terminal degree vs. Non Terminal Degree		Clinical terminal degree vs. Non Clinical Terminal	
	Model 1	Model 2	Model 3	Model 4
	Control only	CEO char. & controls	Control only	CEO char. & controls
Variable	b (SE)	B (SE)	beta (SE)	B (SE)
CEO gender		3.51(1.009)***		3.49(1.01)***
CEO tenure		-1.54(.81)		-.165(.081)**
CEO Education				
- CEO terminal degree (vs. non terminal degree)		-1.561(.994)		
- CEO clinical terminal degree (vs. non clinical degree)				1.96(1.44)
% Black	-47.7 (37.8)	-41.84(37.47)	-47.7 (37.8)	-36.99(37.49)
% White	-49.3(35.99)	-41.70(35.55)	-49.3(35.99)	-40.18(35.56)
% Hispanic	-61.459(32.26)	-54.44(31.88)	-61.459(32.26)	-52.65(31.88)
% Asian	-50.33(35.40)	-45.28(34.98)	-50.33(35.40)	-42.75(34.97)
# of beds	-002(.003)	.000(.003)	-002(.003)	-.001(.003)
% 65+	-57.157(42.20)	-60.19(41.89)	-57.157(42.20)	-48.17(41.79)
Market competition	1.97(2.34)	2.02(2.34)	1.97(2.34)	2.41(2.34)
Urban	3.89(3.27)	4.1(3.2)	3.89(3.27)	5.18(3.53)
Rural	_			
Teaching	.443(1.10)	.482(1.09)	.443(1.10)	.638 (1.08)
Non- Teaching	_			
Profit	2.43(1.145)*	2.97(1.13)	2.43(1.145)*	2.97(1.14)***
Non Profit	_	_	_	_
2013	_			
2014	-31.05(.90)***	-30.90(.89)***	-31.05(.90)***	-30.85(.89)***
% below poverty	-31.499(17.27)	-29.52(17.08)	-31.499(17.27)	-25.78(17.11)
Adjusted R^2	.685	.695	.685	.694
Change in R^2		.010		.009

*significant at $p \leq 0.1$, ** significant at $p \leq 0.05$, *** significant at $p \leq 0.01$

Outcome domain scores. Hospitals with CEOs with a terminal degree were associated with higher outcome scores (b=2.291, p<0.05) compared to hospitals with CEOs without a terminal degree (Table 11, Model 2). Notably, this association for education was no longer significant when education was modeled as a clinical terminal degree vs. non-clinical terminal degree. Gender and tenure were not significantly associated with outcome scores, on average.

Overall, the model covariates accounted for approximately 4.2% of the variance in outcome scores across hospitals. The CEO characteristics, above and beyond the control variables, accounted for approximately 3.5% of the variation in outcome scores. The supplemental analysis of clinical degree vs. non-clinical degree revealed that hospitals with CEOs with a clinical terminal degree were significantly associated with higher outcome scores (b= 3.45, p<0.001).

Table 11

Ordinary Least Squares Regression Models for CEO Characteristics (independent variable) and Outcome (dependent variable)

	Terminal degree vs. Non Terminal Degree		Clinical terminal degree vs. Non Clinical Terminal	
	Model 1	Model 2	Model 3	Model 4
	Control only	CEO char. & controls	Control only	CEO char. & controls
Variable	b (SE)	B (SE)	beta (SE)	B (SE)
CEO gender		1.58(.94)		1.82(.94)
CEO tenure		.016(.077)		.017(.078)
CEO Education				
- CEO terminal degree (vs. no terminal degree)		2.291(.939)**		
- CEO clinical terminal degree (vs. non clinical degree)				1.09 (1.36)
% Black	73.78(34.36)*	77.83(34.14)*	73.78(34.36)*	74.55(34.51)*
% White	57.09(32.84)	62.26(32.56)	57.09(32.84)	58.97(32.88)
% Hispanic	53.76(29.48)	59.21(29.23)*	53.76(29.48)	55.72(29.50)
% Asian	59.12(32.19)	65.26(31.94)*	59.12(32.19)	60.66(32.22)
# of beds	.004(.003)	.003(.003)	.004(.003)	.003(.003)
% 65+	-12.44(39.57)	-2.90(39.29)	-12.44(39.57)	-9.377(39.65)
Market competition	-.414(2.578)	.167(2.57)	-.414(2.578)	-.240(2.59)
Urban	-6.64(3.30)*	-5.22(3.30)	-6.64(3.30) *	-1.65(1.075)
Rural	_	_	_	_
Teaching	-.158(1.006)	.133(.999)	-.158(1.006)	-.121(1.00)
Non- Teaching	_	_	_	_
Profit	1.255(1.05)	1.44(1.06)	1.255(1.05)	1.65(1.07)
Non Profit	_	-1.44 (1.06)	_	_
% below poverty	-7.00(16.43)	-1.75(16.31)	-7.00(16.43)	-3.60(16.53)
Adjusted R^2	.000	.025	.000	.004
Change in R^2		.035		.016

*significant at p≤0.1, ** significant at p≤0.05, *** significant at p≤0.01

Efficiency domain scores. Hospitals with CEOs with a terminal degree were associated with lower efficiency scores (b=-1.55, p<0.05) compared to hospitals with CEOs without a terminal degree. Compared to hospitals with male CEOs, hospitals with female CEOs reported higher average efficiency scores (b =2.87 to 2.70, p <.01), (Table 12, Models 2 and 4, respectively).

Among the control variables, the number of beds (b=-008, p<0.01) was negatively associated with efficiency scores. Market competition (b=4.14, p<0.05), teaching

affiliation (b=2.27, p<0.01), and for-profit status (b=2.53, p<0.01) were positively associated with efficiency scores.

The model covariates accounted for approximately 22% of the variance in efficiency scores across hospitals. The CEO characteristics accounted for approximately 6.2% of the variation in efficiency scores.

The supplemental analysis of clinical vs. non clinical education, along with gender and tenure were consistent with the primary analysis. Female CEOs (b=2.82, p<0.001) had overall strong positive association with efficiency scores.

Table 12
Ordinary Least Squares Regression Models for CEO Characteristics (independent variable) and Efficiency (dependent variable)

	Terminal degree vs. Non Terminal Degree		Clinical terminal degree vs. Non Clinical Terminal	
	Model 1	Model 2	Model 3	Model 4
	Controls only	CEO char. & controls	Controls only	CEO char. & controls
Variable	b (SE)	B (SE)	beta (SE)	B (SE)
CEO gender		2.87(.74)***		2.70(.75)***
CEO tenure		-.092(.061)		-.095(.062)
CEO Education				
- CEO terminal degree (vs. no terminal degree)		-1.55(.74)*		
- CEO clinical terminal degree (vs. non clinical degree)				-.664(1.07)
% Black	-12.45(28.17)	-12.38(27.38)	-12.45(28.17)	-9.68(27.59)
% White	-26.97(26.85)	-24.90(26.01)	-26.97(26.85)	-22.64(26.20)
% Hispanic	-36.06(24.08)	-34.33(23.34)	-36.06(24.08)	-31.87(23.49)
% Asian	-31.19(26.29)	-30.87(25.51)	-31.19(26.29)	-27.63(25.66)
# of beds	-008(.002)***	-.008(.002)***	-008(.002)***	-.008(.002)***
% 65+	-8.33(32.089)	-11.29(31.18)	-8.33(32.089)	-6.30(31.39)**
Market competition	4.14(2.10)*	4.19(2.05)*	4.14(2.10)*	4.48(2.07)*
Urban	-2.27(2.70)	-1.85(2.64)	-2.27(2.70)	-1.35(2.66)
Rural	_			
Teaching	2.267 (.82)***	2.25(.79)***	2.267(.82)***	2.39(.80)***
Non- Teaching	_	_	_	_
Profit	2.53(.854)***	1.89(.83)*	2.53(.854)***	2.04(.84)
Non Profit	_	_	_	_
% below poverty	9.145(13.42)	10.54(13.03)	9.145(13.42)	11.73(13.18)
Adjusted R²	.176	.232	.176	.220
Change in R²		.062		.051

*significant at p≤0.1, ** significant at p≤0.05, *** significant at p≤0.01

Total performance scores. Neither education nor tenure was significantly associated with total performance scores. Compared to hospitals with a male CEO, hospitals with a female CEO reported higher average total performance scores (b=6.75 and 6.83, p <.001), (Table 13 - Models 2 and 4, respectively). Hospital beds (b=-.011, p<0.001) and year 2014 (b=.14.69, p <0.001) were negatively associated with total performance scores.

Overall, the model covariates accounted for approximately 28% of the variance in total performance scores across hospitals. The CEO characteristics, above and beyond the

control variables, accounted for approximately 4.2 % of the variation in total performance scores.

The supplemental analysis found that gender is significantly associated with total performance scores.

Table 13

Ordinary Least Squares Regression Models for CEO Characteristics (independent variable) and Total Performance (dependent variable)

	Terminal degree vs. Non Terminal Degree		Clinical terminal degree vs. Non Clinical Terminal	
	Model 1	Model 2	Model 3	Model 4
	Control only	CEO char. & controls	Control only	CEO char. & controls
Variable	b (SE)	B (SE)	beta (SE)	B (SE)
CEO gender		6.75(1.29)***		6.83(1.29)***
CEO tenure		-.162(.104)		-.168(.104)
CEO Education				
- CEO terminal degree (vs. no terminal degree)		-.523(1.28)		
- CEO clinical terminal degree (vs. non clinical degree)				2.16(1.83)
% Black	-18.42(48.93)	-9.69(47.92)	-18.42(48.93)	-6.42(47.86)
% White	-18.74(46.54)	-6.15(45.46)	-18.74(46.54)	-5.43(45.40)
% Hispanic	-42.97(41.71)	-30.77(40.76)	-42.97(41.71)	-29.98(40.69)
% Asian	-26.15(45.78)	-16.93(44.73)	-26.15(45.78)	-15.95(44.64)
# of beds	-.011(.004)***	-.008(.004)*	-.011(.004)***	-.009(.004)*
% 65+	-77.45(54.90)	-75.39(53.89)	-77.45(54.90)	-67.78(53.65)
Market competition	.974(3.06)	1.16(2.99)	.974(3.06)	1.4(2.98)
Urban	.089(4.23)	1.26(4.17)	.089(4.23)	1.9(4.1)
Rural	–	–	–	–
Teaching	2.12(1.42)	2.36(1.39)	2.12(1.42)	2.41(1.38)
Non- Teaching	–	–	–	–
Profit	.781(1.49)	1.83(1.47)	.781(1.49)	1.84(1.47)
Non Profit	–	–	–	–
2013	–	–	–	–
2014	-14.69(1.17)***	-14.37(1.14)***	-14.69(1.17)***	-14.35(1.14)***
% below poverty	-21.90(22.37)	-16.41(21.86)	-21.90(22.37)	-13.63(21.87)
Adjusted R^2	.244	.283	.244	.285
Change in R^2		.042		.044

*significant at p≤0.1, ** significant at p≤0.05, *** significant at p≤0.01

Chapter 5

Discussion and Conclusions

The purpose of this study was to examine the relationships between CEO characteristics and patient experience scores of CA hospitals. Previous literature has shown that CEO leadership matters because they are in a position to inspire proactive employee behaviors and personal initiative (Hartog & Belschak, 2012; O'Reilly et al., 2010; Wynia & Matiasek, 2006). However, little research has been done to examine relationships between patient experience and CEO characteristics to find those attributes that can motivate and inspire patient centered care. In fact, very limited research in healthcare has explored CEO gender, education, and tenure in general. This study fills this gap by focusing on CEO characteristics that may contribute to patient experience scores.

The study hypotheses were based on the framework of transformational leadership theory. This chapter presents a summary and discussion of significant findings related to the study hypotheses. It also discusses some of the implications of the study for healthcare leadership and other stakeholders, and future research opportunities.

CEO Education

CEO education was not significantly associated with patient experience. Thus, the study failed to support hypotheses 2 and 3.

There are several potential explanations for this finding. It is possible that education is not an important correlate of patient experience and therefore no relationship was found. Another potential explanation pertains to the types of outcomes considered in

the study. Specifically, it is possible that education (specifically terminal degree) is most impactful on objective measures such as the clinical process of care and outcome domain scores (heart attack, acute myocardial infarction, pneumonia, heart failure, surgical care, 30 day mortality, and others), but is less impactful on subjective measures like patient experience.

Patient experience is a subjective measure, and unlike traditional clinical measures, it is more complex and more difficult to measure (Farrar, 2006). Patient experience requires looking into subjective patient issues that are more challenging to measure effectively, such as their emotional state, social issues, information, education, anxiety, value, quality of life, respect, dignity, needs, depression, optimism, and other factors related to patient opinions, judgement and feelings (Spurgeon, Humphreys, James, & Sackley, 2012). CEOs with terminal degrees may be more likely to base decisions on evidence, therefore, the effects of those decisions may be more likely to affect more objective measures, and less likely to affect subjective measures such as patient experience.

Consistent with this third explanation, the supplemental analysis found that CEO terminal degree education was significantly associated with outcome and efficiency domain scores, although the relationships were in different directions; positive association with outcome scores and negative association with efficiency scores. Efficiency measure was introduced for public reporting in 2014 by Medicare to assess efficiency of resource utilization (Medicare.gov, 2015). Efficiency measures in healthcare have caused much controversy and the use of such measures without a clearer understanding of what they really assess may have led to unintended (negative) consequences such as low efficiency scores, mainly because of resistance from healthcare

providers (Hussey et al., 2009). A similar explanation for these mixed results is that outcome and efficiency scores represent different aspects of hospital performance and may reflect different financial priorities based on their weighting in the total performance score calculation.

Efficiency score is a claim based measure that measures the efficiency of resource utilization and is weighted at 20% of total performance score (25% as of 2016), (cms.gov). Outcome scores measure clinical care outcomes such as 30 day mortality, patient safety, inpatient clinical complications, secondary infections, readmissions, disease progression or acute exacerbations and are weighted at 30% of total performance score (40% as of 2016) (cms.gov). Based on their weight and financial implications, it is possible that CEOs will invest more resources toward improving outcome scores, even potentially at the expense of efficiency score.

The supplemental study analysis also found that hospitals led by CEO with clinical degree were associated with better outcome scores. One potential explanation for this finding is that CEOs with a clinical backgrounds may focus more on improving clinical measures, which is consistent with the upper echelons theory arguments that leadership background may affect the field of vision, determine priorities and choices (Hambrick, 2005). Therefore, those CEOs with clinical background more likely will focus on clinical outcomes and strategies to effectively improve them.

The study failed to support hypotheses 1 and 2, CEOs with terminal degree and clinical terminal degree education will be associated with better patient experience scores compared to those without terminal and clinical terminal degrees, respectively.

CEO Tenure

The study found that the shorter CEO tenure was associated with lower patient experience scores. Therefore, the study, failed to support hypothesis 3.

Previous research has already indicated that patient centered cultures are critical to stimulate better patient experience scores and require CEOs who understand their immediate environments and stakeholder needs (Bramley, 2014; J. Chen et al., 2014; Latham, 2013; McClelland, 2014; Tsimtsiou et al., 2014). Therefore, CEOs who have been in their positions for longer periods of time have greater awareness and understanding of their environments and stakeholder needs, and therefore are more likely to effectively promote better patient experience.

Shorter tenure, however, was significantly positively associated with higher clinical process of care domain scores when controlled for both clinical and clinical terminal degrees of CEOs. Consequently, shorter tenure was positively and significantly associated with clinical process of care domain scores regardless of the CEO clinical background. This finding may suggest that shorter tenured CEOs will more likely improve objective measures by implementing innovative strategies (clinical process of care) instead of subjective measures (patient experience), because objective measures are less dependent on knowing the hospital environments and stakeholder perceptions, preferences and expectations.

CEO Gender

The most robust finding of the study is related to gender. Specifically, those hospitals led by female CEOs were associated with significantly higher patient experience scores. This finding supports hypothesis 4. Supplementary analysis also found

that hospitals with female CEOs were associated with higher clinical process of care, efficiency and total performance scores.

Previous research has suggested that female executives may be more flexible, intuitive, collaborative, transparent, compassionate, trust building, innovative, and transformative leaders capable of inspiring positive work environments and morale (Appelbaum et al., 2003; Eagly et al., 2003; Eagly & Johnson, 1990; Kark et al., 2012; KLCM, 2014; Maniero, 1994; Paton & Dempster, 2002; Paustian-Underdahl et al., 2014). It is possible that these same qualities may be important for cultivating a patient centered environment that can support and sustain better patient experiences, and thus, may account for the differences between hospitals with male and female CEOs observed in this study.

Control Variables

There were several notable findings with respect to the study's control variables. This section focuses on these variables significantly associated with several different value based purchasing domain scores.

Larger hospitals, on average, reported lower patient experience, efficiency and total performance scores. This finding is consistent with other research that smaller hospitals report higher patient experience scores and other performance measures (Handel et al., 2014; Lehrman et al., 2010; Rangachari, 2007; Rogers et al., 2004; Samina et al., 2008; Sjetne et al., 2007). More generally, however, the empirical evidence has been mixed regarding hospital size and its effects on outcomes. Some studies have suggested that larger hospitals have the resources to implement performance improvement initiatives (Fong et al., 2008).Other studies, however, have argued that

larger hospitals are typically busier places with higher error rates related to longer work hours, staff burnout, longer laboratory/radiology turnaround times, and provider delays.

Hospital ownership was also associated with multiple domains scores of value based purchasing. Specifically, for-profit hospitals were associated with better patient experience, clinical process of care and efficiency scores. Other studies have stated that for-profit hospitals are more likely to be proactive in meeting stakeholders' needs in order to increase revenues and fulfill shareholders' profit expectation (Lehrman et al., 2010; Wilson & Stranahan, 2000).

For-profit hospitals are also more likely to develop shared alliances with others organizations, more likely to encourage physician involvement, have higher degree of community orientation and better patient perception compared to nonprofits (Proenca, Rosko, & Zinn, 2000; Shortell & Evashwick, 1981). Hence, for-profit hospitals may be more likely to be proactive in meeting consumer objective and subjective measures, that will in turn translate into higher patient experience scores.

High market competition was associated with significantly lower patient experience scores, but higher efficiency scores. Some researchers have suggested that competition is a motivating factor for restructuring and other types of organizational changes (Dayaratna, 2013; Lamb, Smith, Weeks, & Queram, 2013). Such restructuring, however, can cause unintended consequences in the form of low quality performance (Barkema & Schijven, 2008; Goldman & Dudley, 2008; Kaufman, 2013; Lutfiyya et al., 2007; J. A. Miles, 2012; R. E. Miles, Snow, Meyer, & Coleman, 1978). For example, some hospitals reduce registered nurse (RN) hours to optimize resource utilization and reduce costs, which negatively affected patient quality, safety, and overall satisfaction

(Person et al., 2004). Thus, it is possible that market competition could improve efficiency while negatively affecting patient experience scores.

Finally, the study exhibited a significant decline in patient experience and all other value based purchasing scores from 2013 to 2014. One explanation for this decline is that the official value based purchasing reporting started in 2013 when most hospitals were still in their early stages of the implementation process, and even Medicare did not have uniform processes for quality data manipulation (Dooling, 2012). In fact, it was only in 2013 that the new uniform process called Structured Data Capture (SDC) was implemented to fully automate the data collection and dissemination processes (Garrido et al., 2013). As such, data reporting became more refined in 2014, potentially leading to more accurate scores that were lower than 2013.

Another potential explanation for the decline in scores between 2013 and 2014 pertains to Medicaid expansion. CA was an early adopter of ACA Medicaid expansion, which doubled the number of Medicaid enrollees (Medicaid.gov, 2015). Consequently, there was an influx of low income, vulnerable patients with various serious conditions in hospitals. Research has shown that hospitals with more vulnerable populations in low income areas tend to report lower performance scores, including patient experience (Kang & Hasnain-Wynia, 2011). Similarly, other research has shown that safety net hospitals report lower patient experience scores because low income patients are less likely to rate their inpatient experiences high (Chatterjee, Joynt, Orav, & Jha, 2012; Futurescan, 2013; Gilman et al., 2014).

Limitations and Opportunities for Future Research

This study was the first to examine the relationship between hospital CEO characteristics and patient experience, specifically and value based purchasing performance more generally. In doing so, the study provides important baseline insights into the ways that hospital leadership attributes may support performance under ACA's value based purchasing. However, the study had a number of limitations that should be considered when interpreting the findings and/or using study findings for future research.

First, this was a pooled, cross sectional study that used two years of data to examine the relationships between CEO characteristics and patient experience scores. Issues related to changes in the strength and direction of the relationships over time were not explicitly tested as questions of change or sustained improvements in performance could not be adequately addressed within such a short time frame. Likewise, the study could not rule out the possibility that better performing hospitals attract a certain type of CEO (i.e., reverse causality).

Second, the value based purchasing data were collected from secondary data sources. Despite CMS and AHRQ rules and guidelines for data quality, integrity, and reporting, these data could have issues with accuracy and completeness. Third, because this study was limited to CA hospitals only, there are limits to the study's generalizability.

Fourth, the CEO characteristics considered in the study were collected from various sources, and it is possible that the information published in those sources could be inaccurate despite efforts to mitigate these issues by triangulating and verifying characteristics across these sources to enhance their accuracy (e.g., CEO's office submitted the wrong information about his/her background). Finally, the study focused

on only three CEO characteristics (gender, tenure, and education) and did not assess other CEO attributes, such as leadership behaviors, skills, styles, and other background characteristics that may also be important predictors of patient experience and other value based purchasing scores. The consideration of these attributes in future research would constitute an important extension of this research.

Study Implications

Patient experience scores have become important indicators of organizational performance and can differentiate hospitals in the marketplace. Consequently, CEOs and other hospital leaders increasingly view patient experience and strategies for its improvement as important determinants for the future success of their organizations (Manary et al., 2013). Findings from this study with reference to the relationships between CEO characteristics (gender, education, and tenure) and patient experience are timely and important for providing insight into ways to improve patient experience.

Implications for Future Research

The study's statistical analysis indicated that several CEO characteristics were significantly associated with patient experience scores. Even so, these characteristics and other model covariates did not account for a substantial amount of variation in the study's dependent variables, indicating that other factors must account for variation between hospitals. Hence, future researchers may want to consider other relevant explanatory variables that may impact patient experience such as CEO behaviors or personality traits. Future researchers could also examine CEO degrees from CAHME (Commission on Accreditation of Healthcare Management Education) accredited programs, compared to CEOs who do not have degrees from CAHME accredited programs.

Similarly, organizational characteristics such as system affiliation, funding sources, board composition, hospital rating, organizational cultures, and years in business, may be important considerations for future research. Patient characteristics such as gender, education, citizenship status, cultural background, religion, health status, inpatient utilization, risk, marital status, immigration status, and other relevant characteristics may also potentially impact patient experience.

The study focused on hospitals in California. Future researchers can build upon the study's findings by including a larger sample of hospitals, including and especially hospitals from other states. A larger sample may help improve the statistical power and precision of the study's relationships. Including hospitals from other states can also enable researchers to control for or identify state-level differences in these relationships.

There is also an opportunity to study these relationships longitudinally (Kraemer, 1994; S. A. Miller, 1998). Longitudinal studies are better suited to identifying changes over time, may increase statistical power and provide more rigorous tests of potential cause and effect relationships (Mednick, Griffith, & Mednick, 1981).

Implications for Practice

Patient experience is forcing hospitals to reconsider their care delivery systems to provide higher value and improve patient experience. Such considerations require strategic leadership committed to quality and transparency (Holzer & Minder, 2011; Merlino & Raman, 2013). This study suggests that different types of CEOs may be associated with patient experience scores. Such findings may be important information for hospital boards and CEOs when hiring executives, particularly those focused on improving performance in the areas of patient experience and other value based purchasing scores.

Likewise, the findings of this study may have implications for executive recruiters when trying to identify and/or develop hospital leaders who can develop and implement strategies that promote patient experience and value based purchasing more broadly.

Conclusion

The Affordable Care Act was designed to reduce CMS payments by increasing value (Orszag & Emanuel, 2014; CBO). The findings of this study suggest that hospitals with certain types of CEOs may perform better with respect to patient experience. Therefore, the study may provide important information for identifying ways to improve the patient experience in hospitals.

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APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL

DATE: 11/20/14

MEMORANDUM

TO: Christina Galstian
             Principal Investigator

FROM: Cari Oliver, CIP
             Assistant Director
             Institutional Review Board for Human Use (IRB)

RE: Request for Determination—Human Subjects Research
             IRB Protocol #N141119005 - The Relationship Between Hospital CEO
             Characteristics and Patient Experiences of Care

A member of the Office of the IRB has reviewed your Application for Not Human Subjects
Research Designation for above referenced proposal.

The reviewer has determined that this proposal is **not** subject to FDA regulations and is
not Human Subjects Research. Note that any changes to the project should be resubmitted to
the Office of the IRB for determination.

APPENDIX B

CMS PE DATA SAMPLE PAGE

Medicare Hospital Compare Data

Provider #/ Weighted PE	Hospital Name	Address	City	State	Zip	County	Unweighted PE	
050002	ST ROSE HOSPITAL	27200 CALAROGA AVE	HAYWARD	CA	94545	ALAMEDA	22. 0	6.60
050006	ST JOSEPH HOSPITAL	2700 DOLBEER ST	EUREKA	CA	95501	HUMBOLDT	15.0	4.50
050007	PENINSULA MEDICAL CENTER	1501 TROUSDALE DRIVE	BURLINGAME	CA	94010	SAN MATEO	49.0	14.70
050008	CALIFORNIA PACIFIC MEDICAL CTR-DAVIES CAMPUS HOSP	45 CASTRO STREET	SAN FRANCISCO	CA	94114	SAN FRANCISCO	16.0	4.80
050009	QUEEN OF THE VALLEY MEDICAL CENTER	1000 TRANCAS ST	NAPA	CA	94558	NAPA	21.0	6.30
050013	ST HELENA HOSPITAL	10 WOODLAND ROAD	SAINT HELENA	CA	94574	NAPA	69.0	20.70
050014	SUTTER AMADOR HOSPITAL	200 MISSION BLVD	JACKSON	CA	95642	AMADOR	32.0	9.60
050016	MARIAN REGIONAL MEDICAL CENTER, ARROYO GRANDE	345 S HALCYON RD	ARROYO GRANDE	CA	93420	SAN LUIS OBISPO	35. 0	10.50
050017	MERCY GENERAL HOSPITAL	4001 J ST	SACRAMENTO	CA	95819	SACRAMENTO	25.00	7.50
050018	PACIFIC ALLIANCE MEDICAL CENTER	531 W COLLEGE ST	LOS ANGELES	CA	90012	LOS ANGELES	19.0	5.70
050022	RIVERSIDE COMMUNITY HOSPITAL	4445 MAGNOLIA AVENUE	RIVERSIDE	CA	92501	RIVERSIDE	14.0	4.20
050024	PARADISE VALLEY HOSPITAL	2400 EAST 4TH ST	NATIONAL CITY	CA	91950	SAN DIEGO	21.0	6.30

APPENDIX C

CHA MEMBERSHIP DIRECTORY

FRESNO HEART & SURGICAL HOSPITAL

15 East Audubon Drive
Fresno, CA 93720-1542
(559) 433-8000
www.fresnoheartandsurgical.org

Wanda Holderman

Owned by/Affiliated with: Community Medical Centers
Section: Fresno/Madera **County:** Fresno
Congressional District: 22 **State Assembly District:** 23 **State Senate District:** 14
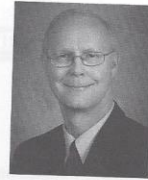
EXECUTIVE MANAGEMENT

Chief Executive Officer	Wanda Holderman, RN, Chief Executive Officer	
Chief Financial Officer	Ben Armfield, Interim Chief Financial Officer	(559) 433-8011
Chief Nursing Officer	Heather Rodriguez, BSN, CCRN, Chief Nursing Officer	(559) 433-8046
General Counsel	Robert Ward, Senior Vice President/Chief Legal Officer	(559) 433-8021
Compliance Officer	Janet Chisholm, Privacy Officer	(559) 324-4001
Chief Information Officer	George Vasquez, Senior Vice President/Chief Information Officer	(559) 433-8026
Human Resources Executive	Lynn Horton, Executive Director, Human Resources/Support Services	(559) 324-3959
Government Relations	John G. Taylor, Director, Public Affairs	(559) 433-8000
Quality Management Director	Thomas Utecht, MD, Senior Vice President/Chief Quality Officer	(559) 324-4770
Privacy Officer	Janet Chisholm, Privacy Officer	(559) 324-4784
Media Spokesperson	John D. Zelezny, Senior Vice President/Chief Communications Officer	(559) 433-8026
Chief Risk Officer	Laura McComb, Corporate Risk Management Officer	(559) 324-4769
Emergency Preparedness	Brian Steinhauer, Manager, Plant Services	(559) 459-2983
		(559) 433-8027

Facility Type: Not-for-profit **EMS Category:** None **License Category:** General Acute Care **Licensed Beds:** 57
Bed Types: Acute Medical/Surgical: 57

GEORGE L. MEE MEMORIAL HOSPITAL

300 Canal Street
King City, CA 93930-3431
(831) 385-6000
www.meememorial.com

Lex Smith

Owned by/Affiliated with: George L. Mee Memorial Hospital
Section: Monterey Bay **County:** Monterey
Congressional District: 20 **State Assembly District:** 30 **State Senate District:** 12

EXECUTIVE MANAGEMENT

Chief Executive Officer	Lex Smith, FACHE, Chief Executive Officer	
Chief Financial Officer	Susan M. Childers, MHA, FHFMA, Chief Financial Officer	(831) 385-7233
Chief Nursing Officer	Ken Hritz, Chief Clinical Officer	(831) 385-7160
Compliance Officer	Kim Wells-Ball, Manager, Health Information Management/Privacy Officer	(831) 385-7125
Chief Information Officer	Rena Salamacha, Chief Information Technology Officer	(831) 385-7206
Human Resources Executive	Karen Wong, Chief Human Resources Officer	(831) 385-7286
Quality Management Director	Denise Miller, RN, Manager, Risk Management/Director, Quality Assurance	(831) 385-7182
Privacy Officer	Kim Wells-Ball, Manager, Health Information Management/Privacy Officer	(831) 386-7375
Media Spokesperson	Lex Smith, FACHE, Chief Executive Officer	(831) 385-7206
Chief Risk Officer	Denise Miller, RN, Manager, Risk Management/Director, Quality Assurance	(831) 385-7233
Emergency Preparedness	John Greathouse, Coordinator, Emergency Preparedness	(831) 386-7375
		(831) 385-6000

Facility Type: Not-for-profit **EMS Category:** Basic **License Category:** General Acute Care **Licensed Beds:** 119
Bed Types: Acute Medical/Surgical: 103 Skilled Nursing: 16 Swing: 88

94

APPENDIX D

HOSPITAL WEBSITE CEO PAGE

LINDA BRADLEY - CEO, CHAIR OF THE GOVERNING BOARD

Linda Bradley, RN/JD serves as Chief Executive Officer of Centinela Hospital Medical Center, a position she has held since May, 2010. During her tenure she has been instrumental in assisting Centinela to achieve quality distinctions including the Distinguished Hospital Award – Clinical Excellence in 2010, 2011, and 2012, top ranking in the nation and the state for stroke care, and Truven Healthcare Analytics (formerly Thomson Reuters) Top 100 Hospital for 2012.

Linda completed her RN studies in San Bernardino, California and later went on to earn her Juris Doctor degree, graduating from Thomas Jefferson School of Law in San Diego, magna cum laude. She is a sought-after and accomplished educator of physicians, nurses, other clinical practitioners, and assists in creating practical implementation strategies to achieve organization strategic results in this complex and ever-changing healthcare landscape.

Serving on the original Board of the California Hospital Patient Safety Organization (CHPSO), her commitment to quality care and patient safety is unquestionable. She comes to Centinela Hospital with decades of healthcare delivery experience, including serving on the CHA and UHA Boards. Additionally she has educated thousands of healthcare providers throughout California as faculty for CHA.

Linda is a native Southern Californian where she continues to reside with her husband.

In her current position, she provides day-to-day operational leadership for the hospital; interfaces with community stakeholders and is an integral part of Prime Healthcare Services senior management team. She states, "Prime Healthcare Services has provided me with an amazing opportunity to continue the legacy of Centinela Hospital Medical Center, which has been providing hospital services to surrounding communities since 1924. I am honored to be part of the Centinela team. The dedication and commitment of the staff and physicians in providing our patients the highest quality of care is truly humbling. I look forward to continuing to build upon the success of the hospital and to provide an even greater commitment to the communities that we serve."

APPENDIX E

LINKEDIN CEO PROFILE PAGE

MS Health Care Leadership - Evolve w/ an online MS in Org Leadership focused on Health Care Management. | Read More »

Does Edward have these skills or expertise?   ✕

| Strategic Planning | Physicians | Healthcare Consulting |

| Leadership | HIPAA |

Type another area of expertise...

[Endorse]   [Skip]   What is this?

Edward Mirzabegian   1st
Regional CEO prime healthcare Services
Greater Los Angeles Area | Hospital & Health Care

Current	Prime healthcare Services, inc
Previous	Avanti Hospitals LLC, Antelope Valley Hospital, MERCY HEALTH SYSTEM OF NORTHWEST ARKANSAS
Education	University of Illinois at Chicago

[Send a message]   [Endorse ▾]   **257**
                                                       connections

Last Conversation 2 months ago

Relationship   Contact Info   friends

Note   Reminder   How you met   Tag

RE: Rr Congratulations!!! Con etulations!!!   2 months ago

See More

Background

Summary

Accomplished Health Care Executive offering 20 years of solid operations background complemented by strategy formulation and business development skills. Visionary and effectual leader with extensive experience in hospital management, as well as system-level operations. Proven ability to drive organizational improvements, implement best practices and achieve strong outcomes that directly benefit the bottom line.

Experience

Regional CEO
Prime healthcare Services, inc
September 2014 – Present (4 months) | ontario, california

Regional Chief Executive Officer for California Hospitals
Prime Healthcare Services, Inc. Owns and operators 27 for profit and none profit acute care hospitals. 15

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APPENDIX F

CA CENSUS DATA

Agoura Hills (city), California

People QuickFacts	Agoura Hills	California
Population, 2013 estimate	20,681	38,332,521
Population, 2012 estimate	20,589	37,999,878
Population, 2010 (April 1) estimates base	20,330	37,253,959
Population, percent change, April 1, 2010 to July 1, 2013	1.7%	2.9%
Population, percent change, April 1, 2010 to July 1, 2012	1.3%	2.0%
Population, 2010	20,330	37,253,956
Persons under 5 years, percent, 2010	4.4%	6.8%
Persons under 18 years, percent, 2010	24.1%	25.0%
Persons 65 years and over, percent, 2010	11.3%	11.4%
Female persons, percent, 2010	50.7%	50.3%
White alone, percent, 2010 (a)	84.3%	57.6%
Black or African American alone, percent, 2010 (a)	1.3%	6.2%
American Indian and Alaska Native alone, percent, 2010 (a)	0.3%	1.0%
Asian alone, percent, 2010 (a)	7.5%	13.0%
Native Hawaiian and Other Pacific Islander alone, percent, 2010 (a)	0.1%	0.4%
Two or More Races, percent, 2010	3.6%	4.9%
Hispanic or Latino, percent, 2010 (b)	9.5%	37.6%
White alone, not Hispanic or Latino, percent, 2010	78.6%	40.1%
Living in same house 1 year & over, percent, 2008-2012	92.2%	84.2%
Foreign born persons, percent, 2008-2012	16.6%	27.1%
Language other than English spoken at home, pct age 5+, 2008-2012	19.7%	43.5%
High school graduate or higher, percent of persons age 25+, 2008-2012	95.5%	81.0%

APPENDIX G

CENSUS DATA: MARGIN OF ERROR

Source: U.S. Census Bureau, 2009-2013; 5-Year American Community Survey

California	Total Estimate	Margin of Error
Total population	37,659,181	***
SEX AND AGE		
Male	49.7%	+/-0.1
Female	50.3%	+/-0.1
Under 5 years	6.7%	+/-0.1
5 to 17 years	17.8%	+/-0.1
18 to 24 years	10.5%	+/-0.1
25 to 44 years	28.1%	+/-0.1
45 to 54 years	13.9%	+/-0.1
55 to 64 years	11.1%	+/-0.1
65 to 74 years	6.4%	+/-0.1
75 to 84 years	3.7%	+/-0.1
85 years and over	1.7%	+/-0.1
Median age (years)	35.4	+/-0.1
RACE AND HISPANIC OR LATINO ORIGIN		
One race	95.7%	+/-0.1
White	62.3%	+/-0.1
Black or African American	6.0%	+/-0.1
American Indian and Alaska Native	0.8%	+/-0.1
Asian	13.3%	+/-0.1
Native Hawaiian and Other Pacific Islander	0.4%	+/-0.1

Explanation of Symbols:

1. An '**' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.

2. An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.

3. An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.

4. An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.

5. An '***' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended distribution. A statistical test is not appropriate.

6. An '****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.

7. An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.

8. An '(X)' means that the estimate is not applicable or not available.

APPENDIX H

TERMINAL DEGREE LIST, UNITED STATES

D.Ac., D.Acu	Doctor of Acupuncture	D.G.S.	Doctor of Geological Science
D.A.O.M.	Doctor of Acupuncture and Oriental Medicine	D.H.A.	Doctor of Health Administration
Dr.AP	Doctor of Anesthesia Practice	D.H.S.	Doctor of Health and Safety
D.A.S	Doctor of Applied Science	D.H.Ed	Doctor of Health Education
D.Arch	Doctor of Architecture	D.H.L.	Doctor of Hebrew Literature/Letters
D.A., Art.D.	Doctor of Arts	D.H.Sc.	Doctor of Health Science
D.A.T.	Doctor of Athletic Training	D.H.S.	Doctor of Hebrew Studies
Au.D	Doctor of Audiology	D.Hum.Litt., L.H.D., Litt.D., LTD	Doctor of Humane Letters
D.B.A.	Doctor of Business Administration	D.I.T.	Doctor of Industrial Technology
J.C.D.	Doctor of Canon Law	D.I.T.	Doctor of Information Technology
D.Chem.	Doctor of Chemistry	S.J.D., J.S.D.	Doctor of Juridical Science
D.C.	Doctor of Chiropractic	J.D.	Doctor of Jurisprudence
D.C.N.	Doctor of Clinical Nutrition	L.P.D., D.L.P.	Doctor of Law and Policy
D.C.L.	Doctor of Comparative Law Doctor of Civil Law	D.L.S.	Doctor of Library Science
D.C.S.	Doctor of Computer Science	D.Litt. et Phil.	Doctor of Literature and Philosophy
D.C.J.	Doctor of Criminal Justice	Dmgt.	Doctor of Management
D.Crim	Doctor of Criminology	D.M.H.	Doctor of Medical Humanities
D.M.D.	Doctor of Dental Medicine	D.M.Sc.	Doctor of Medical Science
D.D.S.	Doctor of Dental Surgery	M.D.	Doctor of Medicine
D.Des.	Doctor of Design	D.Min., D.M.	Doctor of Ministry
Ed.D.	Doctor of Education	D.M.L.	Doctor of Modern Languages
D.Emg.	Doctor of Engineering	D.Mus, Mus.Doc.	Doctor of Music
D.E.Sc., Sc.D E.	Doctor of Engineering Science	D.M.A., A.Mus.D.	Doctor of Musical Arts
D.Env.	Doctor of Environmental Science and Engineering	D.M.E.	Doctor of Musical Education

D.F.A.	Doctor of Fine Arts	D.P.M.	Doctor of Podiatric Medicine
D.F.	Doctor of Forestry	D.P.T., D.Th.P.	Doctor of Practical Theology
D.M.T.	Doctor of Music Therapy	D.P.S.	Doctor of Professional Studies
D.N.	Doctor of Naprapathic Medicine	Psy.D	Doctor of Psychology
N.D., N.M.D.	Doctor of Naturopathic Medicine	D.P.A.	Doctor of Public Administration
D.N.P.	Doctor of Nursing Practice	D.P.H.	Doctor of Public Health
D.O.M., O.M.D.	Doctor of Occupational Therapy	D.Rec., D.R.	Doctor of Recreation
O.D.	Doctor of Optometry	Rh.D.	Doctor of Rehabilitation
D.O.M., O.M.D.	Doctor of Oriental Medicine	D.Sc., Sc.D.	Doctor of Science
D.O.	Doctor of Osteopathic Medicine	D.Sc.D.	Doctor of Science in Dentistry
D.PC	Doctor of Pastoral Counseling	D.Sc.H.	Doctor of Science and Hygiene
Pharm.D	Doctor of Pharmacy	L.Sc.D.	Doctor of the Science of Law
Ph.D	Doctor of Philosophy	D.S.Sc.	Doctor of Social Science
D.P.E.	Doctor of Physical Education	D.S.W.	Doctor of Social Work
D.P.T.	Doctor of Physical Therapy	D.S.M.	Doctor of Sacred Music
S.T.D.	Doctor of Sacred Theology	Th.D.	Doctor of Theology
D.V.M.	Doctor of Veterinary Medicine	D.B.H.	Doctor of Behavioral Health
D.D.	Divinitatis Doctor	S.D.	Doctor of Science
D.A.S.	Doctor of Applied Science	D.Ch.	Doctor of Surgery
O.T.D	Doctorate of Occupational Therapy	DScPA	Doctor of science physician assistant
D.P.C.	Doctor of Professional Counseling	Dr.PH	Doctor of Public Health

APPENDIX I

CLINICAL TERMINAL DEGREE LIST

Au.D	Doctor of Audiology	D.O.	Doctor of Osteopathic Medicine
D.Sc.H.	Doctor of Science and Hygiene	D.P.T.	Doctor of Physical Therapy
D.C.	Doctor of Chiropractic	M.D.	Doctor of Medicine
D.D.S.	Doctor of Dental Surgery	D.P.M.	Doctor of Podiatric Medicine
D.M.D.	Doctor of Dental Medicine	D.S.W.	Doctor of Social Work
O.T.D.	Doctorate of Occupational Therapy	Dr.AP	Doctor of Anesthesia Practice
O.D.	Doctor of Optometry	D.N.	Doctor of Naprapathic Medicine
D.N.P.	Doctor of Nursing Practice	Sc.D.	Doctor of Medical Science
Rh.D	Doctor of Rehabilitation	D.Ac., D.Acu	Doctor of Acupuncture
D.A.O.M., D.O.M., O.M.D	Doctor of Acupuncture and Oriental Medicine	D.C.N.	Doctor of Clinical Nutrition
D.B.H.	Doctor of Behavioral Health	D.M.T.	Doctor of Music Therapy
D.D.S.	Doctor of Dental Surgery	DScPA	Doctor of Science Physician Assistant
D.H.Sc.	Doctor of Health Science	Psy.D	Doctor of Clinical Psychology
D.M.Sc.	Doctor of Medical Science	D.Sc.	Doctor of Science
D.Sc.D.	Doctor of Science in Dentistry	DCh	Doctor of Surgery
D.P.C.	Doctor of Professional Counseling	Pharm.D.	Doctor of Pharmacy

APPENDIX J

HCAHPS SURVEY

SURVEY INSTRUCTIONS

♦ You should only fill out this survey if you were the patient during the hospital stay named in the cover letter. Do not fill out this survey if you were not the patient.

♦ Answer all the questions by checking the box to the left of your answer.

♦ You are sometimes told to skip over some questions in this survey. When this happens you will see an arrow with a note that tells you what question to answer next, like this:

☐   Yes
☑   No ➔   *If No, Go to Question 1*
You may notice a number on the survey. This number is used to let us know if you returned your survey so we don't have to send you reminders.
Please note: Questions 1-25 in this survey are part of a national initiative to measure the quality of care in hospitals. OMB #0938-0981

Please answer the questions in this survey about your stay at the hospital named on the cover letter. Do not include any other hospital stays in your answers.

YOUR CARE FROM NURSES

1. During this hospital stay, how often did nurses treat you with courtesy and respect?

1 ☐ Never

2 ☐ Sometimes

3 ☐ Usually

4 ☐ Always

2. During this hospital stay, how often did nurses listen carefully to you?

1 ☐ Never

2 ☐ Sometimes

3 ☐ Usually

4 ☐ Always

3. During this hospital stay, how often did nurses explain things in a way you could understand?

1 ☐ Never

2 ☐ Sometimes

3 ☐ Usually

4 ☐ Always

4. During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?

1 ☐ Never

2 ☐ Sometimes

3 ☐ Usually

4 ☐ Always

9 ☐ I never pressed the call button

YOUR CARE FROM DOCTORS

5. During this hospital stay, how often did doctors treat you with courtesy and respect?

1 ☐ Never

2 ☐ Sometimes

3 ☐ Usually

4 ☐ Always

6. During this hospital stay, how often did doctors listen carefully to you?

1 ☐ Never

2 ☐ Sometimes

3 ☐ Usually

4 ☐ Always

7. During this hospital stay, how often did doctors explain things in a way you could understand?

1 ☐ Never

2 ☐ Sometimes

3 ☐ Usually

4 ☐ Always

THE HOSPITAL ENVIRONMENT

8. During this hospital stay, how often were your room and bathroom kept clean?

1 ☐ Never

2 ☐ Sometimes

3 ☐ Usually

4 ☐ Always

9. During this hospital stay, how often was the area around your room quiet at night?

1 ☐ Never

2 ☐ Sometimes

3 ☐ Usually

4 ☐ Always

YOUR EXPERIENCES IN THIS HOSPITAL

10. During this hospital stay, did you need help from nurses or other hospital staff in getting to the bathroom or in using a bedpan?

1 ☐ Yes

2 ☐ No➜ **If No, Go to Question 12**

11. How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted?

1 ☐ Never

2 ☐ Sometimes

3 ☐ Usually

4 ☐ Always

12. During this hospital stay, did you need medicine for pain?

1 ☐ Yes

2 ☐ No ➜ **If No, Go to Question 15**

13. During this hospital stay, how often was your pain well controlled?

1 ☐ Never

2 ☐ Sometimes

3 ☐ Usually

4 ☐ Always

14. During this hospital stay, how often did the hospital staff do everything they could to help you with your pain?

1 ☐ Never

2 ☐ Sometimes

3 ☐ Usually

4 ☐ Always

15. During this hospital stay, were you given any medicine that you had not taken before?

1 ☐　　Yes

2 ☐　　No ➜ **If No, Go to Question 18**

16. Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?

1 ☐　　Never

2 ☐　　Sometimes

3 ☐　　Usually

4 ☐　　Always

17. Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?

1 ☐　　Never

2 ☐　　Sometimes

3 ☐　　Usually

4 ☐　　Always

WHEN YOU LEFT THE HOSPITAL

18. After you left the hospital, did you go directly to your own home, to someone else's home, or to another health facility?

1 ☐　　Own home

2 ☐　　Someone else's home

3 ☐　　Another health facility ➜ **If Another, Go to Question 21**

19. During this hospital stay, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital?

1 ☐　　Yes

2 ☐　　No

20. During this hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital?

1 ☐　　Yes

2 ☐　　No

OVERALL RATING OF HOSPITAL

Please answer the following questions about your stay at the hospital named on the cover letter. Do not include any other hospital stays in your answers.

21. Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay?

0 ☐　　0 Worst hospital possible

1 ☐　　1

2 ☐　　2

3 ☐　　3

4 ☐　　4

5 ☐　　5

6 ☐　　6

7 ☐　　7

8 ☐　　8

9 ☐　　9

10 ☐ 10 Best hospital possible

22. Would you recommend this hospital to your friends and family?

1☐   Definitely no

2☐   Probably no

3☐   Probably yes

4☐   Definitely yes

UNDERSTANDING YOUR CARE WHEN YOU LEFT THE HOSPITAL

23. During this hospital stay, staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left.

1☐   Strongly disagree

2☐   Disagree

3☐   Agree

4☐   Strongly agree

24. When I left the hospital, I had a good understanding of the things I was responsible for in managing my health.

1☐   Strongly disagree

2☐   Disagree

3☐   Agree

4☐   Strongly agree

25. When I left the hospital, I clearly understood the purpose for taking each of my medications.

1☐   Strongly disagree

2☐   Disagree

3☐   Agree

4☐   Strongly agree

5☐   I was not given any medication when I left the hospital

ABOUT YOU

There are only a few remaining items left.

26. During this hospital stay, were you admitted to this hospital through the Emergency Room?

1☐   Yes

2☐   No

27. In general, how would you rate your overall health?

1☐   Excellent

2☐   Very good

3☐   Good

4☐   Fair

5☐   Poor

28. In general, how would you rate your overall mental or emotional health?

1☐   Excellent

2☐   Very good

3☐   Good

4☐   Fair

5☐   Poor

29. What is the highest grade or level of school that you have completed?

1☐   8th grade or less

2☐   Some high school, but did not graduate

3☐   High school graduate or GED

4☐   Some college or 2-year degree

5☐   4-year college graduate

6☐   More than 4-year college degree

30. Are you of Spanish, Hispanic or Latino origin or descent?

1☐ No, not Spanish/Hispanic/Latino

2☐ Yes, Puerto Rican

3☐ Yes, Mexican, Mexican American, Chicano

4☐ Yes, Cuban

5☐ Yes, other Spanish/Hispanic/Latino

31. What is your race? Please choose one or more.

1☐ White

2☐ Black or African American

3☐ Asian

4☐ Native Hawaiian or other Pacific Islander

5☐ American Indian or Alaska Native