Leading healthcare transformation: how top performing teaching hospitals successfully manage change in the new healthcare landscape

J Seth Chatfield
The University of Toledo
A Dissertation

entitled

Leading Healthcare Transformation: How Top Performing Teaching Hospitals Successfully Manage Change in the New Healthcare Landscape

by

J. Seth Chatfield

Submitted to the Graduate Faculty as partial fulfillment of the requirements for Doctor of Philosophy Degree in Manufacturing and Technology Management

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An Abstract of

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This research utilizes a mixed methods approach to understand and describe how the leadership of the nation’s top performing teaching hospitals drive real and rapid organizational change and improvement in regards to patient quality, outcomes, and experiences. All of these key outcome variables are critical to success of hospitals, especially since the advent and implementation of The Patient Protection and Affordable Care Act (PPACA). Sampling utilizes the quantitatively driven Data Envelopment Analysis (DEA) methodology to identify major teaching hospitals that most efficiently produce the highest Value Based Purchasing (VBP) scores for inclusion in this study. Face-to-face, in-depth interviews were conducted with 75 individuals that comprised the senior leadership teams of 10 different healthcare institutions that participated in this study and provided a qualitative, context rich, approach to understanding the phenomena under question.

Analysis of over 55 hours of interview recordings and over 1,000 single spaced pages of interview transcripts using a frequency protocol technique identified common themes associated with successful and sustainable organizational change in regards to performance improvement in patient quality, outcomes, and experiences at the sample
hospitals. Lessons learned, best practices, and future challenges are discussed, as well as a discussion of potential future research issues.
To my wife Bonita, my daughters Sophia and Emerson, my son Isaac, and my parents David and Debra. I love you all. Without your encouragement, patience, and love, this would have never come to be.

Thank you!

I would also like to dedicate this work to my grandmother, Susie Luckett Keller.

I love you grandma, I will miss you.
Acknowledgements

I would like to thank my wife Bonita for enduring hardships and supporting not only myself, but our family throughout my entire graduate experience. She is my better half. I would like to thank my parents for their love, support, guidance, and belief in me. I would like to thank the members of the Dissertation Advisory Council for helping see this project to completion.

I would like to thank my dissertation committee: Dr. Clinton Longenecker, Dr. Jeffery Gold, Dr. Laurence Fink, and Dr. Monideepa Tarafdar. Your council, guidance, encouragement, and support are truly appreciated. Thank you.
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List of Abbreviations

AAMC .................................................. American Association of Medical Colleges
AKA ............................................................... Also Known As
AMI .......................................................... Acute Myocardial Infarction

CBSA .......................................................... Core Based Statistical Area
CEO ........................................................... Chief Executive Officer
CFO ........................................................... Chief Financial Officer
CIO ........................................................... Chief Information Officer
CMO .......................................................... Chief Medical Officer
CMS .......................................................... Centers for Medicare and Medicaid Services
CNO .......................................................... Chief Nursing Officer
COBRA .................................................. Consolidated Omnibus Budget Reconciliation Act
COTH ....................................................... Council of Teaching Hospitals and Health Systems
CQI .......................................................... Continuous Quality Improvement

DEA .......................................................... Data Envelopment Analysis
DMU .......................................................... Decision Making Unit
DRG .......................................................... Diagnosis Related Group

FTE .......................................................... Full Time Equivalent
FY .............................................................. Fiscal Year

GDP .......................................................... Gross Domestic Product

HCAHPS ............................................... Hospital Consumer Assessment of Healthcare Providers and Systems
HF .......................................................... Heart Failure
HMO ........................................................ Health Maintenance Organization

IQI .......................................................... Inpatient Quality Indicators
Chapter 1

Introduction

The health care industry faces challenges unlike any other industry. Some even contend that the modern teaching hospital is the most complex human organization ever devised (Hasenfeld, 1992; Aaron, 2001; Drucker, 2006). Faced with declining reimbursements, changing regulations, and evolving service delivery, the medical community struggles to remain abreast of the daily transformations occurring in the hospital environment. Achieving sustainability in key clinical, operational, and financial metrics becomes ever more complicated. Change and innovation have become paramount to hospital survival.

This dynamic environment requires both a flexible strategy and a flexible workforce. Health care executives must reprioritize and shift resources while their workforce learns and implements new processes and procedures. Constant shifts in focus and priorities create a demanding culture of change; a culture which, when managed correctly, has the potential to steer the organization toward success. Today, and in the future, successful health care organizations will be those whose employees can change more quickly and efficiently than those of their competitors. Yet change is difficult to manage and most change efforts fail (Kotter 1995). Changing the behaviors and attitudes
of an entire workforce is both complex and delicate. Unfortunately, there is no playbook or recipe for implementing successful and sustainable change in the complex and turbulent word of managing a major teaching hospital.

This research will identify a sample of the top performing teaching hospitals from a population of 277 Council of Teaching Hospital and Health Systems (COTH) member hospitals operating in America. Sampling will utilize data envelopment analysis (DEA) to identify which hospitals are able to produce the highest value based purchasing (VBP) scores the most efficiently. A sample of ten, top performing teaching hospitals will be selected for further investigation. Interviews will be conducted with five to eight executives from each of the top ten hospitals to explore how senior hospital leadership drive real and rapid organizational change and improvement in regards to patient quality, outcomes, and experiences as well as to identify common principles or methods of how leaders of America’s teaching hospitals have steered their organizations toward successful and sustainable outcomes.

1.1 Research Objective and Contributions

This research seeks to examine how teaching hospitals are successfully managing a rapid and historic change in the healthcare industry and achieving performance levels which are best in class, arguably, best in the world. A recent opportunity has emerged with the passage of the 2003 Medicare Modernization Act, the 2005 Deficit Reduction Act and the 2010 Patient Protection and Affordable Care Act that allows the examination of how hospitals have successfully managed large scale change. The 2010 Patient Protection and Affordable Care Act has further defined a new reimbursement program through the Department of Health and Human Services called the Value Based
Purchasing (VBP) program. This legislation ties Medicare reimbursement for hospitals to measures that have been shown to improve clinical processes of care, patient satisfaction, and patient outcomes. Superior performing hospitals will receive incentive payments and poor performing hospitals will, in effect, be penalized with reduced reimbursements.

Common principles in the vast literature of organizational change will guide the development of research questions and provide a foundation for in-depth interviews with executives of America's top performing teaching hospitals. This mixed methods research approach seeks to explore and identify, from a strategic perspective, a broad model of how real and rapid organizational change is successfully and sustainably achieved in modern teaching hospitals.
Chapter 2

Theory and Literature

2.1 The Hospital Industry

A broad spectrum of challenges face today’s hospitals and their leaders. The health care industry seems to be in a continual state of change. In this ever changing environment, competition is increasing from health clinics, surgery centers, and a host of other specialty providers (Kohn 2000). A recent press release from the American College of Healthcare Executives’ (ACHE) outlined major concerns of hospital CEO’s. Among the top concerns were healthcare reform implementation, patient safety and quality, care for the uninsured, physician-hospital relations, patient satisfaction, and personnel shortages (ACHE 2012).

Increasingly, the United States health care industry is wrestling with rising costs and extensive regulatory and market pressures. New challenges arise daily for health care executives in both public and private organizations (Guo 2003). The pressures to stay competitive are enormous in that health care executives must manage costs and revenues while simultaneously satisfying diverse stakeholders—their ultimate customers (patients), family members, insurance companies and regulatory entities. The complex layers of the health care system have conflicting expectations. As a result, health care
management faces increasing operational challenges while striving to maintain healthy bottom-line results.

2.1.1 The Unique Nature of Teaching Hospitals

Teaching hospitals fill a critically important niche in the hospital industry. The modern teaching hospital is the most complex human organization ever devised (Hasenfeld, 1992; Aaron, 2001; Drucker, 2006). This complexity stems from multiple missions of teaching, research, and patient care. Teaching hospitals are committed to providing the highest quality health care to patients, to expand the boundaries of medicine through research, to share their experience and knowledge throughout the provider community and to educate the next generation of health care professionals (Gottlieb 2008). They are a major resource for the communities they serve and the nation as a whole.

In addition to serving as the training ground for the vast majority of new physicians and other health professionals, teaching hospitals are the site of continuously evolving medical knowledge that leads to new cures and treatments. They are where critical community services, such as trauma and burn centers, always stand ready, and they are a vital part of America’s safety net, providing care to millions of the nations uninsured (AAMC 2008). In 2007 major teaching hospitals (COTH member hospitals) represented only six percent of the nation’s hospitals, yet accounted for twenty three percent of all hospital admissions and shouldered forty one percent of the total cost of charitable care (over $6 billion), all while training more than three quarters of the nations residents (Grover, Martin and Fisher 2009). It should also be noted that the largest source of teaching hospital revenue comes from Medicare (Langabeer and Napiewocki 2000).


2.1.2  **Reimbursement Methods for Health Care Providers**

Third party payers of health care services have developed a variety of reimbursement methods to pay health care providers. Designing a reimbursement method for health care providers requires answering the following questions (Grimaldi & Baker, 2002; Wilson, 2009):

- What is the basis for the payment?
- What services are included in the payment?
- What type of health care provider is covered?
- What are the financial incentives contained within the reimbursement method?

Health care provider reimbursement methods can be charge based, cost based, or unit based (Zelman, McCue, Millikan and Glick, 2003). Charge based reimbursement consists of third party payers reimbursing the provider based on charges or a percentage of charges. Cost based reimbursement consists of third party payers reimbursing the provider based on the actual costs that the payer has deemed reasonable or allowable. Unit based reimbursement consists of third party payers reimbursing the provider based on a specified unit of payment. Units of payment could consist of diagnosis, inpatient days, patient discharges, visits, or procedures (Grimaldi and Baker, 2002). Furthermore, third party payers can determine payment amounts either before the provision of services (prospectively) or after the provision of services (retrospectively).

A predetermined unit of payment is the signature characteristic of a prospective payment system (PPS), which establishes the rate of payment in advance of any service being provided and before any costs have been incurred (Wilson, 2009). Examples of
prospective payment systems for hospitals include per-diems (one day in the hospital), diagnosis related group (DRG), which is a patient diagnosis, per member per month (PMPM), relative value scales, or a case rate (procedure)(Grimaldi, et al. 2002). With a prospective payment system, the provider of care knows in advance the level of reimbursement they will receive before services are ever rendered.

While prospective payment systems determine the amount paid to the health care provider before the provision of services, the payment, the number, and type of services provided are not necessarily related. For example, a hospital may negotiate a specific per diem rate with a health plan that covers services provided to the patient during a 24-hour period. The negotiated payment rate does not change according to how many or what type of services the patient receives during the 24-hour period. While the hospital can only estimate the number of days that it will bill to the health plan, the hospital knows the exact amount it will receive for each day of service’s billed(Wilson 2009).

2.1.2.1 Changing Reimbursement Systems

Financial incentives to health care providers differ between retrospective and prospective reimbursement systems. The financial incentives in retrospective reimbursement methods relate to the number and type of services provided as the volume and complexity of services determines the amount reimbursed. Therefore, the financial incentive is to provide more services or more complex services (Robinson, 2001; Wilson, 2009).

In prospective payment systems, payment is predetermined, which shifts attention to the costs associated with providing services. In order to increase the difference between the amount paid and the cost of providing the services, known as the margin,
providers must reduce or control costs. Thus, prospective payment systems contain an incentive to provide services more efficiently by reducing or controlling costs.

Third party payers, including public programs such as Medicare and Medicaid, have implemented specific reimbursement methods or payment systems in an attempt to achieve program goals. For example, third party payers have shifted from a retrospective reimbursement system to a prospective reimbursement system in an attempt to reduce their costs, e.g., Medicare switching acute care hospitals from cost-based reimbursement to diagnosis related groups (Guterman and Dobson 1986). In similar efforts to control costs and improve outcomes, private health plans and state Medicaid programs shifted physicians from fee-for-service reimbursement to capitation during the late 1980s and early 1990s (Shortell & Hull, 1996; Holahan, Zuckerman, Evans, & Rangarajan, 1998). Capitation is a payment arrangement for service providers such as physicians and nurse practitioners that pays a set amount for each enrolled person assigned to them.

By changing reimbursement methods or payment systems, third party payers often expect providers will alter their behavior given the financial incentives contained within the new reimbursement method. Altered provider behavior translates into changes in the delivery of services. In other words, after a change in reimbursement methods, providers may deliver different numbers of services or different types of services or change the way in which they deliver services in order to ensure financial viability (Wilson 2009).
2.1.3 Value Based Purchasing

With the passage of the Medicare Modernization Act (MMA) of 2003, movement toward a pay-for-performance program became apparent. MMA established a small financial incentive to motivate hospital reporting on ten quality indicators. The Deficit Reduction Act of 2005 increased that financial incentive to two percent and allowed the Department of Health and Human Services to expand or replace quality measures. More recently, in an effort to promote a higher quality of care for Medicare patients and reduce health care costs the Department of Health and Human Services has launched the Hospital Value Based Purchasing program (VBP). VBP has been further advanced through the 2010 Patient Protection and Affordable Care Act and further defined in section 1886(o) of the Social Security Act.

The Hospital Value Based Purchasing program marks a historic change in how Medicare pays health care providers. Hospitals across the country will no longer be paid for inpatient acute care services based solely on the quantity of services provided but rather the quality of care provided; VBP pays for care that rewards better value, patient outcomes, and innovations, instead of just volume of services. “Medicare is in a unique position to reward hospitals for improving the quality of care they provide,” said Centers for Medicare and Medicaid Services (CMS) Administrator Donald Berwick, M.D. “Under this new initiative, we will reward hospitals for delivering high quality care, treating patients with respect and compassion, and ensuring they have the opportunity to participate in decisions about their treatment” (Department of Health and Human Services, 2011, p. 1).
VBP is a budget neutral program that is funded through an initial one percent reduction of Diagnosis Related Group reimbursement payments beginning in the 2013 fiscal year, estimated at $850 million. This DRG reimbursement payment reduction will be increased every year by one quarter of one percent until it reaches a maximum of two percent in 2017 (FederalRegister 2011). These across the board reductions in reimbursements will be used to make incentive payments to hospitals that perform well on an initial set of twelve clinical process of care measures and eight patient experience of care measures that have been shown to improve clinical processes of care and patient satisfaction (FederalRegister 2011). Because the statute requires that all hospitals receive a set reduction in payments, that the best performing hospitals be paid more than other hospitals, and that the entire program be budget neutral, it follows that the worst performing hospitals will necessarily be penalized, whether or not they meet minimum quality thresholds (Hettich 2011). According to the Department of Health and Human Services Secretary, Kathleen Sebelius, the VBP program will keep patients healthy, improve the health of the nation, and drive down health care costs (HHS 2011).

The measures to determine quality in the Hospital Value-Based Purchasing program focuses on how closely hospitals follow best clinical practices and how well hospitals enhance patients’ experiences of care. When hospitals follow these types of proven best practices, patients receive higher quality care and see better outcomes; helping patients heal without complication can improve health and ultimately reduce health care costs (HHS 2011).

Hospitals are scored based on their performance on each measure relative to other hospitals and on how their performance on each measure has improved over time. The
higher of these scores on each measure will be used in determining incentive payments. By rewarding the higher of achievement or improvement on measures, Hospital Value-Based Purchasing gives hospitals the financial incentive to continually improve how they deliver care. In the future, CMS plans to add additional outcome measures that focus on improved patient outcomes and prevention of hospital-acquired conditions. VBP will provide the catalyst for continuous improvement in patient care. This is not a onetime shift but continual and evolving metric. Once compliance rates are maxed, new measures will be added; continuing to raise the quality bar.

According to the Department of Health and Human Services approximately 3,092 hospitals will be eligible to participate in the VBP program. The final scores of these hospitals are based on national results. In other words, hospitals are not competing within geographic regions but with all hospitals across the nation. For participating hospitals to receive full payment for DRG services under Value Based Purchasing they must rank, approximately, at or above the fiftieth percentile (Federal Register 2011). Said otherwise, there will be winners and losers under the VBP program.

The VBP program is being introduced by Medicare, but, Medicare’s coverage and reimbursement decisions are often followed by other government and private third-party payers. This was recently demonstrated with UnitedHealth Group’s announcement of intentions to replace their current fee-for-service payment model with value based payment contracts across its nationwide network of more than 5,500 hospitals and 550,000 physicians (Wilde 2012). Initially, hospitals that are lacking in their VBP scores may only suffer minor financial consequences but as Medicaid and private insurers follow suit the effects will be major. In a recent report by Forbes, almost forty percent of
two hundred hospital “C-suite” respondents indicated that more than twenty five percent of their hospitals revenue would be based on VBP within the next five years (Millenson 2012).

In regards to specific hospital characteristics that affect VBP performance, only one has thus far been shown to consistently indicate inferior performance, capacity. According to the economic analysis section of the May 6, 2011 final ruling issued by the Centers for Medicare and Medicaid Services and posted in the Federal Register, hospital capacity, as measured by the number of beds was the only significant indicator of VBP performance (Federal Register 2011). Table 2.1 depicts the results of the mean value based incentive payments to hospitals by hospital capacity using fiscal year (FY) 2009 data. What we see is that hospitals with more than two hundred beds are expected to receive reduced Medicare reimbursement payments. This was recently replicated by Klein and Shoemaker (2012) using FY2010 data. Their results are shown in table 2.2 Klein and Shoemaker’s economic analysis found very similar results. Only the analysis by bed size showed any significance. Hospitals with fewer than fifty beds averaged incentive rates of 1.225 percent compared to .8940 percent for hospitals with 800 beds or more. Furthermore, Klein and Shoemaker compare both domains to bed size and find that both clinical process of care measures and patient experience measures are both independently relative to bed size (Klein, et al. 2012).

The population for this research consists of two hundred seventy seven American COTH member hospitals. The average number of beds for this population is five hundred seventy three. As both tables indicate, hospitals of this size are at risk. COTH member teaching hospitals represent a small fraction of our nation’s hospitals that
confront unique obstacles in the face of VBP. The opportunity to study how organizations with, arguably, the largest hurdles to overcome can succeed in the paradigm shift of VBP should not be overlooked. Their factors of success will be applicable to all hospitals and their lessons will be instilled in future generations of health care providers.

Table 2.1 Mean value based incentive payments FY2009; adapted from: (Department of Health and Human Services, 2011)

<table>
<thead>
<tr>
<th>Bed Size</th>
<th>Number of Hospitals</th>
<th>Mean Value Based Incentive Payment</th>
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<tbody>
<tr>
<td>1 to 99 beds</td>
<td>1,045</td>
<td>1.044</td>
</tr>
<tr>
<td>100 to 199 beds</td>
<td>939</td>
<td>1.002</td>
</tr>
<tr>
<td>200 to 299 beds</td>
<td>481</td>
<td>.989</td>
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<tr>
<td>300 to 399 beds</td>
<td>279</td>
<td>.995</td>
</tr>
<tr>
<td>400 to 499 beds</td>
<td>151</td>
<td>.985</td>
</tr>
<tr>
<td>500+ beds</td>
<td>197</td>
<td>.960</td>
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Table 2.2 Mean value based incentive payments FY2010; adapted from: (Klein & Shoemaker, 2012)

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<th>Bed Size</th>
<th>Number of Hospitals</th>
<th>Mean Value Based Incentive Payment</th>
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<tr>
<td>&lt;50 beds</td>
<td>450</td>
<td>1.225</td>
</tr>
<tr>
<td>50-99 beds</td>
<td>598</td>
<td>1.105</td>
</tr>
<tr>
<td>100-149 beds</td>
<td>576</td>
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<tr>
<td>150-249 beds</td>
<td>677</td>
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<tr>
<td>250-399 beds</td>
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<td>.9930</td>
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<tr>
<td>400-799 beds</td>
<td>325</td>
<td>.9623</td>
</tr>
<tr>
<td>&gt;799 beds</td>
<td>45</td>
<td>.8940</td>
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2.1.4 How Hospitals have Handled Change in the Past – A 60 Year

Time Line of Significant Events Related to Hospital Management

In the early 1950’s national health expenditures accounted for approximately four and one half percent of the Gross Domestic Product (GDP). By the end of the decade the price of hospital care had doubled. Those outside of the workforce found it increasingly difficult to receive adequate health care due to increasing private insurance rates. By 1965 president Lyndon Johnson signed into law the landmark federal health insurance programs known as Medicare and Medicaid. 1973 saw passage of the Health Maintenance Organization (HMO) Act that encouraged the development of HMO’s.

During the 1980’s corporations begin to integrate the hospital system which was previously a decentralized structure. Overall there is a shift toward privatization and corporatization of healthcare. In 1985 president Ronald Reagan signed into law the Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA) which shifted Medicare payments to diagnosis (DRG) instead of by treatment; private plans quickly follow suite and capitation payments to doctors becomes more common.

During the 1990’s health care costs increased at double the rate of inflation despite the effect of managed care. By the end of the decade there are 44 million American’s (16% of the nation) with no health insurance at all. The new century continues to see increasing health care costs. 2003 saw the passage of the Medicare Modernization Act which established a small financial incentive to motivate hospital reporting on ten quality indicators. The deficit Reduction Act of 2005, passed by a republican congress under a republican president, authorized the Centers for Medicare and Medicaid Services to develop a VBP plan for hospitals. By 2009 national health
expenditures accounted for approximately 17.4% of GDP; of the 34 countries that are members of the Organization for Economic Co-operation and Development (OECD), which include many of the world’s most advanced countries as well as some emerging countries, the United States ranks 26 out of 34 in average life expectancy from birth (the only countries that have a lower life expectancy than the U.S. are: Czech Republic, Estonia, Hungary, Mexico, Poland, Slovak Republic, and Turkey). Not only do Americans have a lower life expectancy than most of the developed world but Americans are paying more, per capita, for health care than any other country on the planet (OECD 2011).

In 2010 a democratic congress under a democratic president signed into law landmark legislation aimed at extending insurance to 32 million American’s and achieving nearly universal coverage. March of 2012 saw three days of arguments in the Supreme Court over the individual mandate aspect of the 2010 legislation and the high court deemed the legislation constitutional.

The passage of the Medicare Modernization Act of 2003, the Deficit Reduction act of 2005 and the 2010 Patient Protection and Affordable Care Act has already set into motion significant changes in the health insurance industry that will continue regardless of the Supreme Court’s verdict. David Cordani, the CEO of CIGNA, the nation’s fourth largest health insurer says that the insurance industry has already begun changing and that it will continue to change from paying for “sick care” to paying for “health care” regardless of what happens at the high court (Cohen 2012).
2.1.5 Emerging Trends – The Historical Context of Hospital Change Management

The time period of the 1980’s and 1990’s has been referred to as a time of “hyper turbulence” – a time of revolutionary change within the industry (Scott, Ruef, Mendel and Caronna 2000). This time period confronted many new technologies, new ways of delivering services, new mechanisms of paying for care, new types of healthcare organizations and the cooperative or competitive relations between them, new regulatory systems, new players, new assumptions, and new beliefs (Scott, et al. 2000). The switch from a retrospective based reimbursement system to a prospective based reimbursement system by Medicare in the early 1980’s was a major change for hospitals. The introduction of DRG’s forced hospitals to concentrate on efficiency and cost reduction.

A 1995 study by Stephen Shortell and colleagues (1995) examined the relationships among organizational culture, quality improvement processes and selected outcomes for a sample of 61 U.S. hospitals. The authors examined measures focusing on continuous quality improvement (CQI) and total quality management (TQM). The key elements of CQI and TQM were defined as continuous improvement, customer focus, structured processes, and organization wide participation. The authors contend that the main differentiation between CQI/TQM and traditional quality assurance is the focus on understanding and improving underlying work processes and systems versus the traditional quality assurance emphasis on correcting after the fact errors of individuals.

Their findings suggest that the success of CQI and TQM initiatives were directly related to how the organization implemented and managed the change effort. Things like
strategic quality planning by individuals who can actually “do something about it” and providing people with the tools and authority (i.e., empowerment and training) to carry out quality improvement work were most consistently associated with superior clinical efficiency. Their most significant finding was that a participative, flexible, risk taking organizational culture was significantly related to quality improvement implementation (Shortell, et al. 1995).

A 1996 study by Boerstler and colleagues (1996) examined the role of continuous quality improvement (CQI). The researchers surveyed sixty one hospitals to indicate the hospitals use of CQI and selected ten hospitals for site visits. CQI was specifically defined and consisted of five elements: (1) a CQI philosophy; (2) the use of a structured problem solving process; (3) the use of cross functional teams; (4) employee empowerment; and (5) a customer focus. Some expected findings included the fact that all of the hospitals found it difficult to involve physicians in CQI and that the most common barrier to CQI was a lack of adequate information. Some surprising findings were that hospitals that began with clinical projects generally achieved strong physician leadership and relatively good medical staff/administration relations. These hospitals emphasized the research side of the initiative and also tended to be teaching hospitals with a research tradition. Another key finding was that hospital cultures that emphasized member participation, decision making and team work, adaptability, flexibility, and growth had a greater degree of implementation success than those that emphasized control, stability, and rules.

A study by Walston and colleagues (2000) using data from 1996 examined the effect of reengineering on the competitive position of hospitals. Specifically they
examined over six hundred and seventy acute care hospitals with more than one hundred beds to identify the effect of reengineering on cost per adjusted patient day.

Reengineering was defined as a major organizational effort that simultaneously changes work process(es) and design in many units of the hospital and may involve the reallocation and readjustment of work flows, job responsibilities, and production design.

What they found was surprising, “by itself, reengineering appears to increase hospital costs relative to the costs of competitors” (Walston, Burns, & Kimberly, 2000, p. 1374). The researchers also found that hospitals that codified the change process and used internal teams and committees during implementation appeared to benefit from reengineering. The authors contend that organizational change efforts are an effective means for repositioning a firm only if the process is appropriately facilitated.

A major study that was concluded in 2005 examined the identification and synthesis of components essential to achieving high performer status in various provider types. This study was conducted by the Health Services Advisory Group and was funded directly by the Centers for Medicare and Medicaid Services.

The study authors developed an algorithm to measure individual hospital overall quality of care delivered to patients with acute myocardial infarction (AMI), heart failure (HF), and pneumonia (PN) for the period from July 2003 through June 2004. The authors identified the top six hospitals in the nation and labeled them as “high performers” and then matched them with six “non-high performing” hospitals for comparison. A major finding was that less than one percent of American hospitals scored higher than sixteen points out of thirty six possible points; indicating that American
hospitals have not achieved overall excellence in providing care for AMI, HF, and PN patients.

The high performing hospitals demonstrated five core characteristics. These core characteristics are:

1. Culture – adoption of a quality improvement cultural model
2. Technology – high level technology that facilitates the coordination of care
3. Responsibility – executive level responsibility for implementation of quality improvement programs
4. Priorities – hospital quality improvement priorities aligned with the Centers for Medicare and Medicaid Services quality improvement priorities
5. Targets – absolute goals of excellence as opposed to benchmarking goals (quality improvement targets set at ninety percent or higher)

A recent Commonwealth report (2007) identified four hospitals that had made “substantial improvements” in quality related measures over the years 2002-2004 for telephone and in person interviews to identify common dynamics of performance that they shared. Unfortunately, the authors provide very little information regarding their sampling procedure.

What the researchers identified was a common change process. The change process began with a trigger event that awakened the hospital to a new drive for quality. This led to organizational, cultural, and structural changes such as establishment of teams or committees that focus on issues related to quality improvement (QI), additional staff and responsibilities for the QI department, and/or new investments in health information.
technology. In addition, initial changes helped to spread a culture of quality by equipping the institution to identify problems and develop solutions through a team approach by identifying root causes. The identified solutions typically involved the development of evidence-based clinical guidelines, pathways, and protocols or new administrative and support service techniques. The overall result of those efforts was improved outcomes, which in turn led back to greater QI intensity, sparking the cycle to begin anew (Silow-Carroll, et al. 2007).

What all of this is telling us is that despite the initiative, despite the goal or desired end result, success is a product of how the organization is changed to meet its goal or desired outcome. As Longenecker and colleagues so simply state “…without effective leadership and great quarterbacking, very few, if any, real change initiatives are executed in an optimal and rapid fashion” (Longenecker, Papp and Stansfield 2007). How an organization is changed to meet its objectives determines the outcome of those objectives.

2.2 Organizational Change

Organizational change is a popular topic. A search on Amazon.com with the phrase “organizational change” recently yielded more than forty thousand books. Many different theories and models of organizational change exist throughout a multidisciplinary literature base. Some of the more recognized typologies of organizational change include Nordvall’s (1982) three broad categories of organizational change models: (1) teleological models; (2) dialectical models; and (3) evolutionary models. Van de Ven and Poole (1995; 2004) offer four categories of organizational change: (1) life cycle; (2) evolutionary; (3) dialectical; and (4) teleological.
There are literally hundreds of individual models of organizational change but the most prevalent schools of thought in the literature are the teleological (scientific management or planned change) and evolutionary (adaptive change) theories of organizational change. These two perspectives have the longest histories and have been embraced by many practitioners and researchers as useful for understanding change and also have the most starkly contrasting assumptions (Kezar 2001). Table 2.3, adapted from Kezar (2001) and Poole and Van de Ven (2004) offers an outline of the following discussion.

Theories used to explain organizational change under the evolutionary umbrella include: adaption, resource dependence, complex adaptive systems, contingency, systems theory, strategic choice, punctuated equilibrium, and population ecology (Kezar 2001). Other scholars have used the term environmental theories to include these theories.

Theories used to explain organizational change under the teleological umbrella include, strategic planning, organizational development, planned change, scientific management, rational, and adaptive learning approaches (Kezar 2001).

Table 2.3: Comparison of organizational change theories; adapted from (Kezar 2001) & (Poole and Van de Ven 2004)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Theory</th>
<th>(\text{Teleological})</th>
<th>(\text{Evolutionary})</th>
<th>(\text{Dialectical})</th>
<th>(\text{Life Cycle})</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\text{Tempo of Change})</td>
<td></td>
<td>Long periods of continuous change with short periods of episodic change</td>
<td>Continuous change in an adaptive fashion</td>
<td>Long periods of continuous change with short periods of episodic change</td>
<td>Continuous change in a natural progression</td>
</tr>
<tr>
<td>(\text{Level of Analysis})</td>
<td></td>
<td>Group of independent units; primary focus on leader or change agent</td>
<td>Heterogeneous groups</td>
<td>Group of independent units that initiate a heterogeneous group into</td>
<td>Homogenous</td>
</tr>
<tr>
<td>Level of Integration</td>
<td>Primarily Static, the primary focus is the leader</td>
<td>Active</td>
<td>Static to active; leaders are key but collective action is usually the primary focus</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------</td>
<td>--------</td>
<td>---------------------------------------------------------------------------------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>Source of Change</td>
<td>Internal Environment</td>
<td>External Environment</td>
<td>Internal Environment</td>
<td>External Environment</td>
<td></td>
</tr>
<tr>
<td>Intentionality of Change</td>
<td>Planned change, Proactive</td>
<td>Unplanned, reactive, adaptive</td>
<td>Planned or unplanned depending on perspective, adaptive</td>
<td>Unplanned natural progression, generative</td>
<td></td>
</tr>
<tr>
<td>Generative Mechanism</td>
<td>Planned</td>
<td>Competition</td>
<td>Conflict</td>
<td>Regulated</td>
<td></td>
</tr>
<tr>
<td>Why change occurs</td>
<td>Leaders; internal environment</td>
<td>External environment</td>
<td>Dialectical tension of values, norms or patterns</td>
<td>Leaders guiding individual's natural growth</td>
<td></td>
</tr>
<tr>
<td>Process of change</td>
<td>Rational; linear; purposeful</td>
<td>Adaption; slow; gradual; non-linear</td>
<td>First order followed by occasional second order; negotiation and power</td>
<td>Natural progression; results of training and motivation; altering habits and identity</td>
<td></td>
</tr>
<tr>
<td>Is the end state of the change process defined at the outset?</td>
<td>Yes, by the goal</td>
<td>No, end state emerges from process</td>
<td>No, end state emerges from process</td>
<td>Yes, final point in sequence</td>
<td></td>
</tr>
<tr>
<td>Change Process</td>
<td>Divergent</td>
<td>Convergent</td>
<td>Divergent</td>
<td>Convergent</td>
<td></td>
</tr>
<tr>
<td>Concept of Time</td>
<td>Event</td>
<td>Cyclical</td>
<td>Event</td>
<td>Cyclical</td>
<td></td>
</tr>
<tr>
<td>Outcomes of change</td>
<td>New structures and organizing principles</td>
<td>New structures and processes; first order</td>
<td>New organizational identity</td>
<td>New organizational identity</td>
<td></td>
</tr>
<tr>
<td>Key metaphor</td>
<td>Mechanistic</td>
<td>Organism</td>
<td>Social movement</td>
<td>Teacher</td>
<td></td>
</tr>
<tr>
<td>Examples</td>
<td>Intentional;</td>
<td>Darwinian;</td>
<td>Empowerment;</td>
<td>Logical;</td>
<td></td>
</tr>
<tr>
<td>Criticisms</td>
<td>Benefits</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>------------</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overly rational and linear; inability to explain second order change; plasticity of people</td>
<td>Importance of change agents; management techniques and strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of human emphasis; deterministic quality</td>
<td>Environmental emphasis; systems approach</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deterministic; lack of environmental concerns; little guidance for leaders</td>
<td>Change not always progressive; irrationality; role of power</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Little empirical proof; deterministic character</td>
<td>Change related to phases; temporal aspect; focus on people throughout the organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2.2.1 Teleological Change

A teleological process views development as a cycle of goal formation, implementation, evaluation, and modification of actions or goals based on what was learned or intended by the entity. This sequence emerges through the purposeful enactment or social construction of an envisioned end state among individuals within the entity (Poole, et al. 2004).

Despite the difference in names that can be used to describe the teleological perspective they all share common assumptions. It is assumed that organizations are purposeful and adaptive. Change occurs because leaders, change agents, and others see the necessity of change. The purpose for change is rational and linear, individual managers are seen as very instrumental to the change process (Carnall, 1995; Carr, Hard, & Trahant, 1996). Change is motivated from internal organizational features or decisions.
rather than the external environment; key aspects of the change process include planning, assessment, incentives and rewards, stakeholder analysis and engagement, leadership, scanning, strategy, restructuring, and reengineering (Huber & Glick, 1993; Carnall, 1995; Brill & Worth, 1997; Kezar, 2001). At the center of the change process is the leader, who aligns goals, sets expectations, models, communicates, engages, and rewards. Strategic choice and individual creativity are seen as key (Brill and Worth 1997). Goal formation, implementation, evaluation, and modification, when necessary, are ongoing. The outcome is new structures or organizing principles.

The key metaphor used to describe models of organizational change under the teleological perspective is mechanistic and leader driven. This “machine” metaphor leads us to a belief about how the system can be studied and improved; examine the parts separately and understand their mechanics. If the system is not performing as planned, identify the “broken” part and replace it. If the system is too costly, then work toward economies of scale. If the system is not working in a coordinated fashion, then tighten the interconnections between the parts of the system (Mick and Wyttenbach 2003). The leader is the focus; models place the change agent (leader) at the center and use rational scientific management tools (Kanter 1983).

Examples of teleological change theories can be found in the theories of epigenesist (Etzioni 1963), adaptive learning (March and Olsen 1976), and most models of strategic planning and decision making (Poole, et al. 2004). One of the best known strategies of organizational change under the teleological umbrella is organizational development (Goodman 1982). There is an extensive body of literature regarding organizational development. Organizational development states that problems are
diagnosed on an ongoing basis within the organization and that there is a simultaneous searching for solutions. Goals are set for addressing the change and there is a heavy emphasis on values, attitudes and organizational norms (Kezar 2001). Factors inhibiting change are a major emphasis; organizations proceed through distinct stages and it is the leaders’ role to manage the transition from one stable state to the next (Golembiewski 1989). Transition is a homogenously structured, step by step process (Kezar 2001) and organizational development tends to address incremental change over discontinuous change.

Scientific management approaches under this umbrella include continuous quality improvement, or total quality management (TQM). These emerged from studies in the manufacturing sector as American manufacturers struggled to compete with Japanese firms (Kezar 2001). Davenport (1993) notes that quality management, often referred to as total quality management or continuous improvement, refers to programs and initiatives that emphasize incremental improvement in processes and outputs over an open ended period of time. Authors within this tradition point out that most organizations pursue quality, but that they have not examined the obstacles that prevent the change necessary to create quality, such as embedded values and structural or cultural obstacles (Kezar 2001). Principles include many typical teleological strategies, such as (1) develop and focus on the vision, mission, and outcomes of the organization; (2) creative and supportive leadership; (3) retain individuals on an ongoing basis or implement systematic individual development; (4) make data driven decisions based on facts; (5) ensure collaboration; (6) delegate decision making; and (7) proactively plan change (Kezar 2001).
Reengineering is another example of organizational change under the teleological umbrella. Reengineering focuses on modifying aspects of the organizational structure as the key to creating change. Reengineering is a fundamental rethinking and radical redesign of business process to achieve dramatic improvements in critical measures of performance such as cost, service, and speed (Hammer and Champy 2003). Mapping processes is a key management technique for reengineering. Cross functional teams are utilized and all divisions involved hear the processes of other functional areas to help identify ways that processes can be collectively altered (Hammer, et al. 2003).

2.2.2 Evolutionary Change

An evolutionary model of development consists of a repetitive sequence of variation, selection, and retention events among entities in a designated population. This evolutionary cycle is generated by competition for scarce resources between entities inhabiting a population (Poole, et al. 2004). The evolutionary motor drives change through the core process of variation-selection-and retention.

The evolutionary perspective of organizational change utilizes one main assumption, that change is dependent on circumstances, situational variables, and the environment faced by each organization (Morgan 1986). Social systems as diversified, interdependent, complex systems evolve over time naturally, but, evolution is basically deterministic, and people have only a minor impact on the nature and direction of the change process (Hreblinaik & Joyce, 1985; Morgan, 1986). Evolutionary models of organizational change focus on the management of change as it occurs. The emphasis is on a slow continual process rather than discrete events or activities (Kieser 1989). Originally evolutionary models suggested that change only occurs due to environmental
demands but later models suggest that adaption can be proactive. Evolutionary assumptions range from managers having no ability to influence adaptability, to managers having significant ability to be proactive and anticipate changes in the environment (Cameron K. S., 1991; March J. G., 1994).

Key concepts include systems, interactivity between the organization and its environment, openness, homeostasis, and evolution (Morgan 1986). Kezer (2001) provides a clear description of these concepts and contends that the notion of systems reflects how organizations are perceived as having interdependent and interrelated structures. Changing one part of the structure has implications for other parts. Interactivity is similar to systems in terms of focusing on the connected nature of activities within organizations. Based on the notion of systems and interactivity, change is conceptualized as reaching throughout an organization rather than being isolated. Openness refers to the relationship between the environment and internal transformation, and tends to characterize change as highly dependent on the external environment. Homeostasis refers to self regulation and the ability to maintain a steady state by constantly seeking equilibrium between the system and environment. Based on the idea of homeostasis, incremental change is the most common form of change but it can also be associated with radical or discontinuous change; punctuated equilibrium (Utterback 1994).

The key metaphor used to describe models of organizational change under the evolutionary perspective is that of a self organizing organism (Kezar, 2001; Begun, Zimmerman, & Dooley, 2003). Some examples commonly used include the human immune system, a colony of termites, financial markets, as well as about any collection
of humans (Plsek and Greenhalgh 2001). This perspective presents a systemic, rational
approach of a stimuli and response cycle; the process is unplanned and reactive (Kezar
2001). Processes include developing sensors; determining organizational fitness; self
organizing; and local adaption (Morgan 1986). These models have a strong structural
emphasis. Processes are less important in evolutionary models than with other models;
change is unplanned for the most part, and change is an adaptive or selection based
process (Kezar 2001).

Evolutionary models are modified theories of natural selection applied to
organizational change (Kezar 2001). Examples include resource dependence models in
which leaders make choices to adapt to their environment. The organization is seen as
having an interdependent relationship with its environment and the focus is on
transactions that occur as part of this interdependent relationship (Goodman 1982).
Resource dependence theory presupposes that organizations are not self sustaining and
they rely on external resources.

Some strategy models are also represented under the evolutionary perspective. In
the strategic choice approach, managers can choose which environments they operate
within, scanning, predicting changes, and steering the course of the organization; the
planned management of uncertainty (Friend and Hickling 2005). Population ecology
(AKA organizational ecology) models are also reflected within this perspective,
examining how decisions and actions made by groups of organizations affect their
survival and success (Kezar 2001). These models focus on environmental niches and the
relative success of specialist organizations or generalist populations under change forces
such as resource partitioning, density dependence, and age dependence (Hannan &
One prominent notion that has developed out of this theory is diversification; the idea that generalist organizations perform better under certain environmental conditions because they have diverse customer bases, products, and services, and are thus less likely to feel the impact of changes in one part of the market (Kezar 2001).

More recently chaos theory has been applied to organizational change under the evolutionary perspective. Most of these models utilize the term complex adaptive systems. In these models, change is seen as inherent to biological systems; all organizations are constantly changing. The emphasis is on awareness of solutions inherent in the system through feedback loops, resiliency, self organization, and allowing structures to emerge within the system. Chaos and complex adaptive systems models suggest that planned change is mostly irrelevant and unhelpful, and that organizations should respond organically to environmental demands (Wheatley 1999).

### 2.2.3 Dialectical Change

In dialectical models conflicts emerge between entities espousing an opposing thesis and antithesis that collide to produce a synthesis, which in time becomes the thesis for the next cycle of dialectical progression (Poole, et al. 2004). Confrontation and conflict between opposing entities generates this dialectical cycle. Change emerges from a dialectical motor through efforts to deal with contradictions, conflict, or tensions within or around the unit (Poole, et al. 2004). Examples of dialectical theories include Marx’s (1954) theory of economic development, Smith and Bergs’s (1987) theory of paradoxes in group life, and Sztompka’s (1993) theory of social change (Poole, et al. 2004).
Unlike teleological and life cycle theories, dialectical theories do not have a clear end point or goal at the onset of the change process. With this perspective a pattern, value, idea, or norm in an organization is always present with its polar opposite (Kezar 2001). Organizations pass through long periods of evolutionary change (as the dialectical interaction between the polar opposites occurs) and short periods of second-order or revolutionary change, when there is an impasse between the two perspectives (Morgan 1986). An organization’s polar opposite belief systems eventually clash, resulting in radical change. Conflict is seen as an inherent attribute of human interaction and the outcome of change is a modified organizational ideology or identity (Kezar 2001).

Leaders play a key role within any social movement and are the central part of dialectical models; yet collective action is usually the primary focus. The developmental path of dialectically driven change is not predetermined; units react to and cope with conflicts, contradictions, and tensions in many different ways, and the resulting path will vary greatly from case to case (Poole, et al. 2004). Interestingly, progress and rationality are not necessarily part of this theory of change and dialectical conflict does not necessarily produce a “better” organization (Kezar 2001).

While basic moments of the dialectical process can be distinguished at a conceptual level (thesis, antithesis, and synthesis) they are often intertwined and can only be sorted out at the end of the change process (Poole, et al. 2004). Difference and the conflicts and struggles it spawns is at the heart of dialectical explanations of change. Dialectical theories, like teleological theories, incorporate an event based conception of time; the dialectic is driven by tensions and contradictions, whose occurrence at irregular intervals mark significant points in the process (Poole, et al. 2004).
Dialectical models also examine how a dominant culture can control organizations by shaping organizational processes. Some authors refer to this as the “power culture”. Organizations are perceived as political entities in which dominant coalitions manipulate their power to preserve the status quo and maintain their privilege (Kezar 2001). These models focus on human motivation and needs; intuition is just as important as the facts and figures that are emphasized within other models. The primary metaphor associated with dialectical models is political or social movement.

2.2.4 Life-Cycle Change

A life cycle model depicts the process of change in an entity as progressing through a necessary sequence of stages or phases. The specific content of these stages or phases is prescribed and regulated by an institutional, natural, or logical program prefigured at the beginning of the cycle (Poole, et al. 2004). Life cycle models share many assumptions with evolutionary models in terms of adaption and a systems approach. They differ in being less objective, focusing on the importance of human beings in the change process, and viewing changes that occur within the life cycles of people as well as those of the organizations they create (Kezar 2001).

A life cycle motor drives change through realizing a form or pattern that is either immanent in the developing entity or imposed on it by external institutions (Poole, et al. 2004). Change occurs as individuals within the organization adapt to its life cycle; management is much more central than in evolutionary models and management assists members of the organization to grow through training and motivational techniques (Rajagopalan and Spreitzer 1996). The environment is ambiguous and threatening within this model; to adjust to this environment, processes include training...
and development, communication, and other structures that allow growth (Bolman and Deal 1991). The outcome within this change process is a new organizational identity which interestingly has also been identified as a major reason for resistance to change by individuals within the organization (Van de Ven and Poole 1995).

Identification with the organization and personalization of work is reinforced with life cycle models; change is the result of staff development and leaders who bring people along to organizational maturity (Kezar 2001). The major metaphor is that of the teacher or guide.

Examples of life cycle theories include Bales’s model of group problem solving (Bales and Strodbeck 1951), Cameron and Whetten’s (1983) organizational life cycle, and Greiner’s (1972) model of organizational growth (Poole, et al. 2004). The goal and end point of the change process is defined from the start for a life cycle through a natural or logical development progression or through institutionally prescribed rules or regulations (Poole, et al. 2004).

Life cycle models shift emphasis from leaders or change agents to people throughout the organization. Change will not occur successfully unless all people are prepared for it. Each individual plays a critical role in adjusting to the life cycle; activities focus on individual development, overcoming fear of change training, and development. Leaders analyze the need for training, assess the institutional culture, and monitor the environment and life cycle (Kezar 2001).

2.2.5 Blending Change Perspectives

Studies of change in U.S. health care organizations, as with the broader literature of organizational change, have typically adopted one of the two dominant perspectives on
change, teleological and evolutionary. In health care specific research, change is either conceptualized as the outcome of a rational, strategic process of decision making in which the organization actively chooses one course of action over another, or change is the outcome of environmental selection processes that are outside the control of any individual organization (Fennell and Alexander 1993). In fact, these two perspectives were labeled as rational and population ecology by Kaluzny and Hernandez almost thirty years ago (1983).

A single approach to change may overlook essential elements and contain unarticulated assumptions. As we have seen, very few applied theories of change are built around a single ideal-type theory; most involve two or more theories operating together at different levels or during different time periods (Poole, et al. 2004). As Marshall Scott Poole so simply stated, the literature of change “…is a rich tapestry of theories, its warp the levels of analysis from individual to nation-state and its weft the time through which change and innovation processes unfold. As with many tapestries, what first strikes the eye is the amazing diversity of ideas and subject matter. But as we step back and look a little longer, patterns and central themes emerge” (Poole 2004).

Although it is difficult to clearly define what change is and to distinguish it from other similar phenomena, certain concepts such as the source of change, incremental/discontinuous change, proactive/reactive change, planned/unplanned change, outcomes of change, the focus of change, and the scale of change, are all common across various models. These common concepts are clearly noted within key sources of change literature (Goodman, 1982; Levy & Merry, 1986; Van de Ven &
Poole, 1995; Burns, 1996; Rajagopalan & Spreitzer, 1996; Kezar, 2001; Poole & Van de Ven, 2004).

In a recent report by Forbes approximately half of the two hundred surveyed hospital “C-suite” executives saw the experiences of other industries as applicable to them (Millenson 2012). Due to healthcare’s idiosyncratic business practices it is this authors’ conclusion that the strongest approach to understanding organizational change in the very specific context of major teaching hospitals requires the combination of all essential elements from the various approaches to guide the development of research questions and ultimately the final interview questions. Hospital efficiency and quality of care can each be viewed as a function of the hospital’s external environment, technology, and certain internal strategic operational variables. Relatively speaking, a hospital has little control in the short term over its external environment and available technology. However, it can exert considerable control over internal strategic operations (Shortell 1976).

The next section outlines the essential elements of organizational change. Aspects of these elements are present throughout the change literature. This outline builds on the extensive work of Adrianna Kezar (2001) as well as work done by Marshall Poole and Andrew Van de Ven (2004) in conjunction with a comprehensive review of the existent literature.
One of the widest characterizations of change involves what Weick and Quinn (1999) refer to as tempo. They define it as the characteristic rate, rhythm, or pattern of work or activity. Based off of this idea the authors make two differentiations: (1) episodic change; and (2) continuous change. Episodic change is infrequent and discontinuous while continuous change is ongoing, evolving and cumulative. This distinction is very similar to other characterizations of change including incremental
versus radical change and the concept of organizational ambidexterity (Benner and Tushman 2003); continuous versus discontinuous change; first order versus second order change (Meyer, Brooks and Goes 1990); and competence enhancing versus competence destroying change (Abernathy and Clark 1985).

A second fundamental facet of studying organizational change is the scale of change, which examines two aspects. Scale refers to the level of analysis and the level of integration required by the change initiative. There is a general consensus that organizations are multilevel phenomena. Kezar (2001) refers to this as the scale of change. White and Mitchell (1976) originally termed this the recipient of change and classified it into two facets, individual change and group change. Katz and Kahn (1978) classified three different levels of analysis for studying organizational change as individual level, group level, and organizational level. Goodman (1982) also offers three levels of analysis; individual level, interpersonal level, and the organizational level.

Dansereau, Yammarino, and Kohles (1999) contend that adequate theories of organizational phenomena should incorporate concepts from multiple levels and explain the relationships among levels. They take, as a starting point, groups of units (individual, groups, and organizations) on a single level of analysis and distinguish three types of groupings:

(1) A homogenous group is present when all members are merged into a single higher level unit and act “as one.” This level of analysis refers to when an organization or work unit act as a single entity.
(2) A *heterogeneous group* is composed of members that are interdependent, but not merged into a single unit. Heterogeneous groups may be composed of subgroups or of individuals who are interdependent, yet different and separable from one another.

(3) A *group of independent units* consists of independent units who act on their own without reference to the group as a whole.

It is important to remember that a major change could involve nothing more than a transformation of one group into another. For example, a group of independent individuals may be forged into a homogeneous group by a transformational leader (Dansereau, et al. 1999). Furthermore, change can be *active*, requiring many of the organizational participants to be involved or *static*, requiring only one or a few individuals to implement the change (Kezar 2001).

Another aspect of organization change deals with the focus of the change initiative.

Where the level of analysis examines different levels within and beyond the organization, focus identifies the phenomena affected (Kezar 2001). According to Watson and Johnson (1972) strategies that various theorists advocate regarding effective ways to influence organizations usually require change in at least one of three domains: (1) structure; (2) process; and (3) attitude. According to Bergquist (1992) *structure* refers to the organizational chart, the reward system, or institutional policies and procedures. A change in *process* involves alterations in the way that people operate within and relate to others within the existing structures of the organization. Process changes entail shifts in communication patterns, modes of decision making or conflict management, or styles of management. *Attitudes* has to do with how people feel about working with the existing structures and processes of the organization. Changes in attitudes usually involve
modifications in organizational culture, as well as personal growth and development among members of the organization (Watson & Johnson, 1972; Bergquist, 1992).

An additional part of change analysis and the ongoing organizational change conversation is the source of the change initiative. There are two different sources of organizational change, the internal environment and external environment. The external environment consists of conditions, entities, events, and factors surrounding an organization that influence its activities and choices, and determine its opportunities and threats. The external environment plays a large role in organizational change. The evolutionary models of organizational change focus on the interaction between the external environment and an organization. This interaction is seen as a major impetus for change.

An organization’s internal environment is composed of the elements within the organization, including current employees, management, and especially corporate culture, which defines employee behavior. Internal environmental sources that are noted for initiating change include the gathering of surplus resources, transformational leadership, and the readiness and willingness of a least a dominant coalition (Kezar 2001). The planned change literature tends to focus more on the internal environment and the need to change as a result of a new leader’s vision, change agents, and the like. Although planned change is often a response to external forces, the impetus for the change is usually internal (Kezar 2001).

Additionally there are the concepts of intentionality and responsiveness of organizational change. Organizational change can be either planned or unplanned. Planned or managed change refers to modifications that deliberately shape organization
members (Kezar 2001). There is a tremendous amount of research and writing on planned change in business and management literature. *Unplanned change* is an unexpected result of some large scale force beyond local control. Unplanned change is almost always an unanticipated reaction to outside influence or sudden internal events.

*Proactive* change is distinguished from planned change in that a proactive approach to change is often an attempt to avoid a potential future threat or capitalize on a future opportunity. *Reactive change* is difficult to distinguish from unplanned change. It is a change that occurs in response to some threat or opportunity that has already occurred.

Another classification of organizational change that follows with intentionality is that of responsiveness. Responsiveness refers to the change process as being adaptive or generative (Kezar 2001). *Adaptive change* tends to be a onetime response to the external environment and is associated with unplanned change. *Generative change* is ongoing and is reflected within the learning organization.

### 2.3 A Model of Organizational Change

A composite model of organizational change was developed to guide the creation of specific research questions. As mentioned previously, there are literally hundreds of models that can be used to understand, design, and drive change. The basic components of these models can be broken down into Figure 2-1. Organizational change at its most fundamental level is problem solving. Figure 2-1 is a compilation of the key components of the organizational change process. Small and simplified models can be extremely useful as metaphors for more complex situations, such as changing organizational behavior (Reynolds, Holwell and Holwell 2010).
Drivers for change refers to the triggers, or actions that awaken an organization and its leaders that change is necessary. Gap analysis refers to understanding where the organization currently stands and where the organization needs or wants to be; the distance between where the organization is and where the organization needs to be. Action planning is the identification of actions and behaviors that need to be undertaken to cross the gap and improve the current situation. Implementation is the process of putting the developed action plan into motion. Monitoring refers to the measurement of where the organization is compared to the goal of where the organization wants to be.

Figure 2-1: A Model of Organizational Change
2.3.1 Research Question and Research Objective

This research utilizes a mixed methods approach to understand and describe how the leadership of the nation’s top performing teaching hospitals drive real and rapid organizational change and improvement in regards to patient quality, outcomes, and experiences. Interviews will be conducted with the sampled hospital leaders to uncover common methods, principles, or factors that contribute to successful and sustainable organizational change in regards to performance improvement in patient quality, outcomes, and experiences.

This research approaches the central research question by purposefully sampling teaching hospitals that can produce the highest VBP process of care, HCAHPS and mortality scores the most efficiently utilizing the quantitative based method, Data Envelopment Analysis (DEA). Because a major aspect of this question is context, a qualitative in-depth (in person and on location) interview approach is utilized. The case study interview approach is suitable for such a question because of its intense focus on a single phenomenon within a real-life context. Case studies can be technically defined as research situations where the number of variables of interest far outstrips the number of data points(Yin 1999). In contrast to the role of the context in case studies, experimental designs have the opposite goal; to “control” the context. Survey designs can cover only limited aspects of the context, but they attempt to represent the universe of phenomenon being studied. In addition, in-depth interviews tolerate the condition whereby the boundary between a phenomenon and its context is not clear(Yin 1999).
2.3.2 Interview Questions

Opening Questions:

1. To what extent does public reporting of patient outcomes data drive quality improvement?
2. What makes your hospital different from other COTH member hospitals? What does this hospital have that other hospitals do not?
3. Is a specific approach to organizational change being used in this organization? If so, please describe it.

Drivers for Change:

4. What strategies are used to identify future threats and opportunities?
5. At what point did your organization come to the realization that connecting clinical quality outcomes to reimbursement models, as exemplified by Value Based Purchasing, would become the new standard? What triggered that realization?
6. At what point did your organization begin tracking the specific measures used in Value Based Purchasing? What triggered you to do so? How did these measures differ from what you have tracked in the past?

Gap Analysis:

7. How are goals developed at this organization?
   a. What role does your health care system, governing board, executive leadership, physicians, nurses, staff, and patients have in the formulation of goal development?
   b. What is your goal(s) in regards to Value Based Purchasing measures?
8. What were the major challenges with sorting through and figuring out where your organization stood based on the Value Based Purchasing metric? – How were they overcome?

Action Planning:

9. What actions and activities did your organization take to develop a plan to move your organization toward your goal in regards to Value Based Purchasing?
10. What role do physicians play in quality enhancement, performance improvement, managerial decision making, cost cutting activities, Etc.?
11. How are specific goals communicated throughout the organization?

Implementation:

12. How are specific goals translated into practice? –
   a. What are common challenges
      i. How are they overcome – Example?
b. How does culture influence this?

13. How are successes and failures addressed and communicated throughout the organization?

14. How is resistance to change overcome in your organization?

15. How is the organization implementing/enhancing a culture of quality care? How is the hospitals administrative and physician relationship developed to enhance this culture?

**Monitoring:**

16. What technologies or techniques have you adopted/adapted to measure, monitor, and improve Value Based Purchasing measures?
   a. How is this information being used and distributed throughout the organization?

17. What has been challenging with monitoring your performance regarding VBP? –How have these challenges been overcome?

18. How are ideas and concerns of front line employees being communicated to leadership?

19. Are there any reward systems in place to motivate front line employees to contribute toward continuous improvement?

**Concluding Questions:**

20. How would you describe this hospitals organizational structure?
   a. What role does organizational structure play in Value Based Purchasing performance?

21. Please define, in your own words, what high performance is at this institution.
   a. What are the top 5 factors that are driving high performance at this institution?

Please elaborate on the top 2 or 3 by giving specific examples.

22. Based on your experience, what are the top 5 factors required to successfully improve a hospitals Value Based Purchasing performance?

23. What are the three most important attributes of a successful hospital leader?

24. Where will your hospital be in 5 years? – What does the future hold and how is your organization positioning itself to be successful?

25. Are there any questions that I have not asked but that you feel I should have? (what would you want to ask these hospitals leaders)
Chapter 3

Research Methods

This research utilizes a mixed method approach to understand and describe how the leadership of the nation’s top performing teaching hospitals drive real and rapid organizational change and improvement in regards to patient quality, outcomes, and experiences. Sampling utilizes a quantitatively driven DEA methodology, while in-depth interviews rely on a qualitative, context rich, approach to understanding the phenomena under question. Interviews will be conducted with the sampled hospital leaders to uncover common methods, principles, or factors that contribute to successful and sustainable organizational change. In-depth interviewing can be classified as case study research. Case study research can be defined as rich empirical descriptions of particular instances of a phenomenon. Where a laboratory experiment seeks to isolate a phenomenon from its context a case study emphasizes the rich, real world context in which the phenomena under study occurs (Eisenhardt and Graebner 2007).

As Grol and colleagues state…“we need to learn about change in the real world of health care and the crucial determinants of successful improvement… new methods including the effects of problem based education or portfolio learning, TQM, breakthrough projects, risk management methods, business process redesign, leadership
enhancement, or sharing decisions with patients are not well studied. Studying the effects of specific strategies in controlled trials will provide some answers to some questions about effective change, but will not address the success factors in change processes” (Grol, Baker, & Moss, 2002, p.111). Qualitative description is a prerequisite of good quantitative research, particularly in areas that have received little previous investigation (Pope and Mays 1995). The goal of qualitative research is the development of concepts which help us to understand social phenomena in natural settings, giving due emphasis to the meanings, experiences, and views of all the participants (Pope, et al. 1995).

3.1 Population and Sampling Procedure

The Council of Teaching Hospitals and Health Systems (COTH) is currently composed of 376 major teaching hospitals and health systems that provide representation and services related to the special needs, concerns, and opportunities facing major teaching hospitals in the United States and Canada (AAMC 2011). Current COTH member hospitals located in the United States represent the population for this study. Unfortunately, there are several Veterans Affairs (VA) hospitals in this population that are controlled through the federal government and are not required to disclose quality, financial, or inpatient data required to complete this analysis. After removing VA hospitals and hospitals lacking adequate data from the population we are left with 277 major teaching hospitals with available data.

Sampling will be conducted using Data Envelopment Analysis (DEA). DEA establishes an efficiency frontier based on the population of decision making units (individual COTH member hospitals for this study). Based on the input and output
variables specified, DEA assigns an efficiency score to each decision making unit between zero and one, with one indicating the highest efficiency possible (the hospital resides on the efficiency frontier). The sample of hospitals for further investigation will be the hospitals that most efficiently produce top VBP scores. A sample of ten of the most efficient hospitals with the highest VBP scores will be taken. Input, output, and control variables used in the DEA selection process are discussed in the following sections.

3.1.1 Value Based Purchasing as a Proxy for Quality

Efficiency measurement represents an initial step toward the evaluation of hospital care and constitutes one of the basic means of audit for the rational distribution of human and economic resources (O'Neil, Rauner, Heidenberger and Kraus 2008). Common quantitative hospital performance evaluation methods include ratio analysis, least-squares regression, total factor productivity, stochastic frontier analysis, and data envelopment analysis (Ozcan 2008). Regardless of the performance evaluation method chosen, a common underlying problem has existed with hospital efficiency measurement; the lack of a widely accepted measure representing quality.

Quality, in regards to hospital output has been defined a number of ways over the past decades. Rosenau found in a literature review of hospital performance evaluation from 1990 through 2002 that researchers defined quality as the prevalence of adverse events, mortality rates, non-compliance notification rates, and the breadth of services offered by a hospital (Rosenau 2003). O’Neill and colleagues found that only six of seventy nine articles in a cross national review of hospital efficiency studies even included a quality measure. Those that did include quality used only one of the following

Efficiency of health care providers as measured by quality is of prime importance to many constituencies including patients, clinicians, administrators, and policy makers. The measurement of quality has proven problematic; until recently most quality measures, aside from mortality, were not reported on any systematic basis. Selected obstacles have precluded quality considerations in efficiency studies including the lack of a widely accepted quality measure, and the reluctance of many providers to release outcomes data (O'Neill, et al. 2008).

Medicare’s VBP program offers researchers a new proxy measure for hospital quality. Medicare has developed a number of quality measures that assess structural aspects of care, clinical processes, patient experiences with care, and patient outcomes of care. Medicare’s VBP measures give priority to performance measurement on: (FederalRegister 2011)

1) Conditions that result in the greatest mortality and morbidity in the Medicare population.

2) Conditions that are high volume and high cost for the Medicare program.

3) Conditions for which wide cost and treatment variations have been reported, despite established clinical guidelines.

By using a standardized composite measure of quality that requires mandatory reporting of all hospitals receiving Medicare reimbursement, it is this researcher’s belief
that a uniform comparison of hospital performance can be accomplished with greater accuracy than ever before.

### 3.1.2 Data Envelopment Analysis

Data Envelopment Analysis (DEA) can generate new alternatives to improve performance compared to other techniques. No other author has written as extensively on the subject of efficiency in healthcare using DEA than Yasar Ozcan. As Ozcan (2008) explains, linear programming is the backbone of DEA methodology which is based on an optimization platform. What differentiates DEA from other methods is that DEA identifies the optimal ways of performance rather than the averages; identification of optimal performance leads to benchmarking in a normative way (Ozcan 2008). Using DEA, scholars and hospital managers can not only identify top performing hospitals, but also discover alternative ways to stir poor performing hospitals into becoming one of the best performers.

DEA is a comparative approach for identifying performance, or components of performance, by considering multiple resources that are used to achieve outputs or outcomes in health care organizations (Ozcan 2008). DEA can help managers and scholars to:

1) Assess an organization’s relative performance and identify top performance in the health care market.

2) Identify ways to improve organizational performance.

In health care, the first application of Data Envelopment Analysis (DEA) dates to 1983, in the work of Nunamaker and Lewin(1983), who measured routine nursing service...
efficiency. Since then, DEA has been used widely in the assessment of hospital technical efficiency in the United States as well as around the world at different levels of decision making units (DMUs) (Ozcan 2008).

Table 3.1 summarizes and illustrates how DEA has been used with American hospitals to explore hospital efficiency in relation to ownership structure, competitive pressure, institutional characteristics, and to a limited extent, quality. Initial hospital specific DEA studies examined efficiency of public and private not-for-profit (NFP) hospitals. Grosskopf and Valdmanis (1987) found that within a sample of 82 California hospitals, that public hospitals tended to consume fewer resources. They concluded, however, that without a measure to reflect quality the efficiency results could reflect differences in quality. Valdmanis (1990) found similar results with a sample of 41 Michigan hospitals which indicated that public hospitals were more technically efficient than private NFP hospitals.

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Sample</th>
<th>Major Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grosskopf</td>
<td>1987</td>
<td>1982; California SMSA&gt;500,000 &amp; only acute-care general hospitals with &gt; 200 beds (AHA survey)</td>
<td>Public hospitals use fewer resources; no quality output variable was included and the authors mentioned that efficiency results could reflect differences in quality</td>
</tr>
<tr>
<td>Valdmanis</td>
<td>1990</td>
<td>1982; Michigan SMSA&gt;500,000 &amp; only acute-care general hospitals with &gt; 200 beds (AHA survey)</td>
<td>Public hospitals were found to be more technically efficient; no quality output variable</td>
</tr>
<tr>
<td>Ozcan</td>
<td>1992</td>
<td>1987 all SMSAs (national); only acute care general hospitals (AHA survey)</td>
<td>Government hospitals slightly more efficient than NFP hospitals &amp; both were much more efficient than for-profit hospitals; no quality output variable</td>
</tr>
<tr>
<td>Grosskopf</td>
<td>1993</td>
<td>1982; &gt;200 bed; SMSA&gt;500,000 in California and New York</td>
<td>Tested for the effect of case mix adjusting; case mix adjustments did not significantly alter the performance</td>
</tr>
<tr>
<td>Author</td>
<td>Year</td>
<td>Description</td>
<td>Summary</td>
</tr>
<tr>
<td>--------</td>
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</tr>
<tr>
<td>Hao</td>
<td>1994</td>
<td>All VA acute care hospitals with bed sizes of 100 to 1,300 (year not given)</td>
<td>Examined how inefficient hospitals can be identified to aid in their improvement</td>
</tr>
<tr>
<td>Chirikos</td>
<td>1994</td>
<td>1989; acute care hospitals in the state of Florida</td>
<td>Findings indicate that price leaders in highly competitive markets were shown to be more efficient. Proprietary hospitals, when shielded from competitive pressures showed a 7% advantage in efficiency. However, proprietary hospitals in very competitive markets showed no efficiency advantage.</td>
</tr>
<tr>
<td>Ozcan</td>
<td>1995</td>
<td>1990; all metropolitan areas in the U.S. with at least two acute care general hospitals</td>
<td>Researchers examine the effect of local metropolitan markets on aggregate hospital efficiency. Findings indicate that at least 3% of health care costs in the GDP are a result of inefficiencies created by the excessive buildup of providers (on a national level). Technical efficiency also showed improvement in markets with more than 10 hospitals.</td>
</tr>
<tr>
<td>White</td>
<td>1996</td>
<td>1992; all not-for-profit, non-governmental short-term general hospitals in California (AHA survey)</td>
<td>Church owner showed more efficient than secular ownership of NFP hospitals</td>
</tr>
<tr>
<td>Ozcan</td>
<td>1996</td>
<td>1986 &amp; 1990; short term psychiatric hospitals that remained in existence from 1986 to 1990 (AHA survey)</td>
<td>Researchers examined the technical efficiency of for-profit and NFP psychiatric hospitals for the years 1986 and 1990 (17 NFP &amp; 68 for-profit). Findings indicate that NFP ownership status was significantly more efficient than their for-profit counterparts and that regional differences in efficiency existed.</td>
</tr>
<tr>
<td>Burgess</td>
<td>1996</td>
<td>1988; &gt;100 beds (AHA survey &amp; Medicare cost reports)</td>
<td>VA hospitals were shown to be much more efficient than other ownership forms. Followed by for-profit, State and local government, and NFP (listed in efficiency rank) Authors note: &quot;Direct measures of quality are conspicuously absent in the specification described&quot;</td>
</tr>
<tr>
<td>Grosskopf</td>
<td>2001</td>
<td>1994; national (AHA survey)</td>
<td>Teaching hospitals were found to be less efficient</td>
</tr>
<tr>
<td>Grosskopf</td>
<td>2004</td>
<td>1995; national (AHA survey)</td>
<td>Examined whether variation in performance can be explained by</td>
</tr>
<tr>
<td>Author</td>
<td>Year</td>
<td>Methods</td>
<td>Findings</td>
</tr>
<tr>
<td>--------</td>
<td>------</td>
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<td>----------</td>
</tr>
<tr>
<td>Nayar</td>
<td>2008</td>
<td>2003; all non-federal acute care hospitals in Virginia (AHA survey &amp; Medicare cost reports)</td>
<td>Performed three DEA models: 1) efficiency for standard outputs; 2) efficiency for quality outputs; 3) efficiency for both. First article to use quality measures. Hospitals that were found to be efficiently producing outputs were also efficiently producing quality outputs. i.e., efficient hospitals were also producing quality outcomes (for pneumonia at least)</td>
</tr>
<tr>
<td>Valdmanis</td>
<td>2008</td>
<td>2004; national sample of urban short term community hospitals (AHA survey, Medicare cost reports, PSI, AHRQ, HCUP, SID)</td>
<td>Overall hospitals in the study would be able to increase outputs produced by an average of 26% by eliminating inefficiency. Researchers found quality of care could be improved by increasing the number of labor inputs in low-quality hospitals, whereas high-quality hospitals tended to have slacked on personnel.</td>
</tr>
<tr>
<td>Hsieh</td>
<td>2010</td>
<td>Non federal short term acute care hospitals operating in Virginia from 1998-2004</td>
<td>Researchers examined longitudinal data to uncover factors associated with efficiency and uncompensated care. Their findings suggest hospitals categorized as efficient are likely to provide more uncompensated care. In relation to hospital efficiency the results indicated that HMO penetration and Medicaid patients share reduced hospital efficiency.</td>
</tr>
<tr>
<td>Mutter</td>
<td>2010</td>
<td>2004; short term community urban hospitals operating in 34 states (AHA survey)</td>
<td>This research examined whether hospitals providing high quality care are associated with different environmental and organizational factors than hospitals providing lower quality of care. This research utilizes a &quot;limited dimension of quality&quot; and found that higher quality hospitals were associated with high technical efficiency</td>
</tr>
</tbody>
</table>
Ozcan et al. (1992) evaluated the technical efficiency of 3,000 acute care general hospitals across the U.S. and found that government owned hospitals were slightly more efficient than NFP hospitals and that both government and NFP hospitals were much more efficient than for-profit hospitals. White and Ozcan (1996) examined 170 church owned and secular NFP hospitals and found that church ownership tended to be more efficient. Burgess and Wilson (1996) brought Federal ownership into the mix and in a sample of 2,246 hospitals, found that federal ownership (VA) proved to be much more efficient than any other ownership structure. Their results deviate from previous findings in that for-profit ownership was found to be more efficient than public state owned hospitals and NFP hospitals. The authors note that any measure of quality was “conspicuously absent in efficiency specification” (Burgess & Wilson, 1996, p. 116).

Grosskopf, Margaritis and Valdmanis (2001) added teaching status as a new variable and found that with a sample of 792 teaching and non-teaching hospitals, that non-teaching hospitals were more efficient regardless of public or private ownership status. Nayar and Ozcan (2008) were the first to include quality as an outcome variable and found that in a sample of 53 hospitals those hospitals that were found to be technically efficient using quantitative outputs were also found to be efficiently producing quality outputs.

Valdmanis et al. (2008) examined whether trade-offs exist between quality and efficiency in a sample of 1,377 U.S. hospitals and found that high quality hospitals tended to have excess labor and vice versa. Hsieh and colleagues (2010) examined the effect of uncompensated care on hospital efficiency and interestingly found that hospitals which were categorized as efficient were more likely to provide more uncompensated
care than inefficient hospitals. Finally, Mutter and colleagues (2010) examined 1,371 U.S. community hospitals and found that higher quality hospitals were associated with high technical efficiency.

This study utilizes DEA as a sampling procedure. By utilizing well documented DEA input variables and output variables along with VBP scores as output variables DEA will uncover which teaching hospitals in the total population of teaching hospitals is able to produce the highest VBP scores the most efficiently. This ensures that the hospitals selected for further study have demonstrated their ability to successfully change to meet the demands of their operating environment in the most efficient manner possible. There would be little to glean from a hospital that was consuming vast resources to achieve high VBP scores.

3.1.2.1 The DEA Model

Dr. Yasar Ozcan has quite literally written the book on studying health care efficiency using data envelopment analysis. As Dr. Ozcan explains, DEA is a non-parametric approach to the estimation of individual or organizational performance (i.e., efficiency, productivity, quality, effectiveness) taking into consideration multiple inputs and outputs (Chou, Ozcan and White 2012). This gives DEA an advantageous position over single ratio analysis because DEA can provide a comprehensive evaluation of the performance of interest (Ozcan 2008). DEA identifies best performers (benchmarks) by maximizing the combination of the outputs given the combination of the inputs. Thus, DEA is able to provide performance frontier/benchmarking condition for a group of decision making units (DMUs) (Chou, et al. 2012).
In carrying out DEA, researchers need to select from either an input-oriented or an output-oriented model as well as from a constant return to scale or a variable return to scale model. An input-oriented model is appropriate when the DMUs have control over the inputs but not the outputs. In contrast, an output-oriented model is preferred if the DMUs can change their outputs based on their goals or strategies (Chou, et al. 2012). In addition, a constant return to scale model is applied in the situation that the returns of the inputs to the outputs are constant across all DMUs; there is a constant rate of substitution between inputs and outputs. A variable return to scale model is appropriate when rate of substitution between inputs and outputs is not constant. For example, if a proportional increase in one or more input variables can cause greater than proportional increase in outputs, then constant returns are not present (Ozcan 2008).

This research utilizes an input oriented variable return to scale DEA model. A variable return to scale specification is used to allow for the possibility of varying and extreme returns to scale from inputs and output among the study hospitals. An input oriented approach was chosen because a hospital’s efficiency and VBP scores (quality of care) can each be viewed as a function of the hospital’s external environment, technology, and certain internal strategic operational variables. Relatively speaking, a hospital has little control in the short term over its external environment and available technology. However, it can exert considerable control over internal strategic operations (Shortell and Hull 1996).

Table 3.2 lists the input, output, and control variables used in this study. The following three sections discuss each variable, reasons for the variables’ selection and variable calculation.
Table 3.2: Variables and measures of DEA analysis

<table>
<thead>
<tr>
<th>Variable Type</th>
<th>Variable Name</th>
<th>Operational Definition</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEA-Input Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Size</td>
<td>Number of operational</td>
<td>Number of operational general medical/surgical and special care beds</td>
<td>Medicare cost report FY10 (W/S S-3, Part I, col.1)</td>
</tr>
<tr>
<td>Service</td>
<td>A weighted index by</td>
<td>A weighted index by relative clinical and investment intensity of hospital services</td>
<td>American Hospital Association FY10 survey; Dr. Yasar Ozcan’s weighting scheme</td>
</tr>
<tr>
<td>Complexity</td>
<td>Number of non-physician</td>
<td>Number of non-physician FTEs employed</td>
<td>Medicare Cost Report FY10 (W/S S-3, part I, line 14, column 10)</td>
</tr>
<tr>
<td>Labor</td>
<td>Operating expenses less</td>
<td>Operating expenses less labor and capital expenses</td>
<td>Medicare cost report (W/S G2 and G3)</td>
</tr>
<tr>
<td>Supply</td>
<td>labor and capital expenses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEA-Output Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted</td>
<td>Case mix index adjusted</td>
<td>Case mix index adjusted discharges</td>
<td>Medicare case mix index (CMI) is based on the Medicare Hospital Inpatient Prospective Payment System for FY10; Medicare Cost Report FY10 (W/S S-3, part I, line 14, column 8)</td>
</tr>
<tr>
<td>Discharges</td>
<td>each appearance of a patient not lodged at the hospital while receiving medical services</td>
<td>American Hospital Association FY10 survey</td>
<td></td>
</tr>
<tr>
<td>Outpatient</td>
<td>Each appearance of a patient not lodged at the hospital while receiving medical services</td>
<td>American Hospital Association FY10 survey</td>
<td></td>
</tr>
<tr>
<td>Visits</td>
<td>Number of FTE residents and interns divided by total number of hospital beds</td>
<td>Medicare cost report FY10 (W/S S-3, Part I, col.1); Medicare Cost Report FY10 (W/S S-3 part I, line 14, col 9)</td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td>VBP process of care</td>
<td>VBP process of care achievement score</td>
<td>Hospital Compare data – score calculated</td>
</tr>
<tr>
<td>Intensity</td>
<td>achievement score</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VBP-PC</td>
<td>VBP HCAHPS achievement score</td>
<td>Hospital Compare data – score calculated</td>
<td></td>
</tr>
<tr>
<td>VBP-HCAHPS</td>
<td>VBP mortality achievement score</td>
<td>Hospital Compare data – score calculated</td>
<td></td>
</tr>
<tr>
<td>VBP-Mort</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Variables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ownership</td>
<td>Medicare hospital control</td>
<td>Medicare hospital control typology</td>
<td>Medicare cost report (HCRIS file)</td>
</tr>
<tr>
<td>Status</td>
<td>typology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System</td>
<td>Hospital is or is not a</td>
<td>Hospital is or is not a member of a multi-hospital system</td>
<td>Hospital affiliations are obtained from websites and other commercial sources</td>
</tr>
<tr>
<td>membership</td>
<td>member of a multi-hospital system</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### System Size

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of hospitals in system</th>
<th>Individual system website</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Administrative division</td>
<td></td>
<td>Medicare cost report FY10 (W/S S-3, part I, col 6-8); (W/S D-3, col 2, lines 30-42; 202);</td>
</tr>
</tbody>
</table>

### Medicare Share

<table>
<thead>
<tr>
<th>Medicare Share</th>
<th>Medicare inpatient days divided by total inpatient days</th>
<th>Medicare cost report FY10 (W/S S-3, part I, col 6-8); (W/S S-1, col 1, lines 2+5)</th>
</tr>
</thead>
</table>

### Medicaid Share

<table>
<thead>
<tr>
<th>Medicaid Share</th>
<th>Medicaid inpatient days divided by total inpatient days</th>
<th>Medicare cost report FY10 (W/S S-3, Part I, col.1)</th>
</tr>
</thead>
</table>

### Hospital Size

<table>
<thead>
<tr>
<th>Hospital Size</th>
<th>Number of operational general medical/surgical/and special care beds</th>
<th>Medicare cost report FY10 (W/S S-3, Part I, col.1)</th>
</tr>
</thead>
</table>

### 3.1.2.2 Input Variables

Ozcan and colleagues have identified three major categories of hospital inputs: capital investments; labor; and other operating costs (Ozcan, Luke, & Haksever, 1992; Ozcan Y. A., 2008). Similarly, O’Neill and colleagues (2008) taxonomy provides categories of inputs and outputs from seventy nine hospital DEA studies. They identify three broad categories of inputs; capital investment, labor, and operating expenses. These three categories of input variables have emerged over the years as the standard for hospital service production(Ozcan 2008).

**Capital Investments:**

**a. Beds:**

Numbers of staffed beds are taken from a hospital's most recent Medicare cost report FY10 (W/S S-3, Part I, col.1). Cost report instructions define staffed beds as the number of beds available for use by patients at the end of the cost reporting period. A bed means an adult bed, pediatric bed, birthing room, or newborn bed maintained in a patient care area for lodging patients in acute, long term, or domiciliary areas of the hospital.
Beds in labor room, birthing room, post anesthesia, postoperative recovery rooms, outpatient areas, emergency rooms, ancillary departments, nurses' and other staff residences, and other such areas which are regularly maintained and utilized for only a portion of the stay of patients (primarily for special procedures or not for inpatient lodging) are not termed a bed for these purposes.

   i. Number of general medical/surgical beds used for routine care

   ii. Number of special care beds – includes intensive care units, coronary care units, etc.

b. Plant Complexity – Hospital Service Complexity:

   Hospital services were ranked from 1 to 3 based on relative clinical and investment intensities. These weights were applied in calculating a service mix index. The index was provided by Dr. Yasar Ozcan from Virginia Commonwealth University. Three experts were asked to rate each of the services reported in the AHA Annual Survey, FY10. They scored the services based on two dimensions: 1) clinical intensity and 2) investment intensity. Final scores ranged from 1 to 9 and were assigned to each hospital’s reported services. These scores were summed across services, thereby producing a weighted service complexity score for each hospital (Chou, et al. 2012).

2. Labor:

   a. Clinical Staff:

      Since physicians are not generally hospital employee’s non-MD Full Time Equivalent (FTE) labor is included; total employee full time equivalent (FTE) staff for FY 2010 (Ozcan, 2008).

3. Operating Expenses
Operating expense excluding payroll and depreciation:

Financial information is obtained from a hospital's Medicare cost report FY10 (W/S G2 and G3). To eliminate double counting labor expenses and expenses related to capital investment (depreciation) are subtracted from total operating expense. This variable provides an account for medical supplies, utilities, and the like to provide services to patients; a representation of supply costs associated with the delivery of care (Ozcan, 2008).

\[ a. \text{Supply} = \text{total operating expense} - (\text{depreciation expense} + \text{salary expense}) \]

3.1.2.3 Output Variables

Inpatient and outpatient services constitute the majority of outputs for general hospitals that do not provide a teaching function (Ozcan 2008). Major teaching hospitals by definition view teaching as an important output, so teaching intensity also needs to be captured as an output variable. This research seeks to include quality as an additional outcome variable.

1. Inpatient

\[ a. \text{Adjusted Discharges:} \]

Inpatient services are easy to account for through admissions or discharges. However, not all patients arriving at the hospital require the same level of attention and service. Some come for a day for a minor ailment, yet others go through major medical or surgical procedures. In order to account for this diversity in health service demand or its provision, we must account for severity for the admissions. CMS publishes a case-mix index for hospitals each year. The case-mix indexed is calculated based on patient diagnostic related groups (DRGs) providing relative weight for acuity of the services
provided by a hospital. For instance, if case-mix for a hospital is equivalent to 1.2, this means the hospital served 20% more acute patients than a standard hospital (compared to hospital with case-mix index value of 1). This measure is calculated based on Medicare and Medicaid patients, and since a good portion of the hospital revenues come from this source, we could extrapolate the case-mix index for the other patients of the hospital (Ozcan 2008).

Case-mix adjusted discharges. This variable is created using FY10 discharge data from the hospitals Medicare cost report and multiplied by the Medicare case mix index (CMI), which is based on the Medicare Hospital Inpatient Prospective Payment System for FY10; Medicare Cost Report FY10. This way a hospital with 10,000 discharges a year and case-mix index of 1.2 would be reflected as 12,000 adjusted discharges. Similarly, a hospital with case-mix index of 0.9 and 10,000 discharges would be reflected as 9,000 adjusted discharges.

2. Outpatient

a. Outpatient Visits/Ambulatory Care:

Outpatient data does not have any case mix adjustments. Outpatient visits are derived from the FY10 AHA survey. This variable is defined as a visit by a patient who is not lodged in the hospital while receiving medical, dental, or other services. Each appearance of an outpatient in each unit constitutes one visit regardless of the number of diagnostic and/or therapeutic treatments that a patient receives.

3. Teaching

a. Teaching Intensity:
Teaching intensity reflects the number of interns and residents in relation to the size of the hospital. It is calculated as a ratio of the total number of intern and resident FTE’s divided by the total number of hospital beds.

4. Quality

This research utilizes the VBP achievement score for Process of Care, HCAHPS, and Mortality as specified in the 2011 federal register (FederalRegister 2011). The VBP measure identifications and descriptions are presented in table 3.3. The achievement thresholds and benchmarks established for the fiscal year of 2013 and 2014 are presented in table 3.4. As previously mentioned, there are twelve process of care measures that are chart-abstracted. These assess the quality of care furnished by hospitals in connection with four topics: Acute Myocardial Infarction (AMI); Heart Failure (HF), Pneumonia (PN), and Surgical Care Improvement.

There are eight composite measures of the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) patient experience of care survey. The HCAHPS survey asks discharged patients 27 questions about their recent hospital stay that are used to measure the experience of patients across 10 dimensions in the Hospital Inpatient Quality Reporting (IQR) program. The survey contains 18 core questions about critical aspects of patients’ 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 the hospital, and whether they would recommend the hospital). The survey also includes four items to direct patients to relevant questions if a patient did not have a particular experience covered by the survey (FederalRegister 2011).
Table 3.3 VBP measures and description

<table>
<thead>
<tr>
<th>Measure ID</th>
<th>Measure Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical Process of Care Measures</strong></td>
<td></td>
</tr>
<tr>
<td>AMI–7a</td>
<td>Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival</td>
</tr>
<tr>
<td>AMI–8a</td>
<td>Primary PCI Received Within 90 Minutes of Hospital Arrival</td>
</tr>
<tr>
<td>HF–1</td>
<td>Discharge Instructions</td>
</tr>
<tr>
<td>PN–3b</td>
<td>Blood Cultures Performed in the Emergency Department Prior to Initial Antibiotic Received in Hospital</td>
</tr>
<tr>
<td>PN–6</td>
<td>Initial Antibiotic Selection for CAP in Immunocompetent Patient</td>
</tr>
<tr>
<td>SCIP–Inf–1</td>
<td>Prophylactic Antibiotic Received Within One Hour Prior to Surgical Incision</td>
</tr>
<tr>
<td>SCIP–Inf–2</td>
<td>Prophylactic Antibiotic Selection for Surgical Patients</td>
</tr>
<tr>
<td>SCIP–Inf–3</td>
<td>Prophylactic Antibiotics Discontinued Within 24 Hours After Surgery End Time</td>
</tr>
<tr>
<td>SCIP–Inf–4</td>
<td>Cardiac Surgery Patients with Controlled 6AM Postoperative Serum Glucose</td>
</tr>
<tr>
<td>SCIP–VTE–1</td>
<td>Surgery Patients with Recommended Venous Thromboembolism Prophylaxis Ordered</td>
</tr>
<tr>
<td>SCIP–VTE–2</td>
<td>Surgery Patients Who Received Appropriate Venous Thromboembolism Prophylaxis Within 24 Hours Prior to Surgery to 24 Hours After Surgery</td>
</tr>
<tr>
<td>SCIP–Card–2</td>
<td>Surgery Patients on a Beta Blocker Prior to Arrival That Received a Beta Blocker During the Preoperative Period</td>
</tr>
<tr>
<td><strong>Patient Experience of Care Measures</strong></td>
<td></td>
</tr>
<tr>
<td>HCAHPS</td>
<td>Communication with Nurses</td>
</tr>
<tr>
<td>HCAHPS</td>
<td>Communication with Doctors</td>
</tr>
<tr>
<td>HCAHPS</td>
<td>Responsiveness of Hospital Staff</td>
</tr>
<tr>
<td>HCAHPS</td>
<td>Pain Management</td>
</tr>
<tr>
<td>HCAHPS</td>
<td>Communication About Medicines</td>
</tr>
<tr>
<td>HCAHPS</td>
<td>Cleanliness and Quietness of Hospital Environment</td>
</tr>
<tr>
<td>HCAHPS</td>
<td>Discharge Information</td>
</tr>
<tr>
<td>HCAHPS</td>
<td>Overall Rating of Hospital</td>
</tr>
</tbody>
</table>
Table 3.4 VBP achievement thresholds and benchmarks

<table>
<thead>
<tr>
<th>Process of Care Measures</th>
<th>Achievement Threshold</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMI-7a</td>
<td>0.6548</td>
<td>0.9191</td>
</tr>
<tr>
<td>AMI-8a</td>
<td>0.9186</td>
<td>1</td>
</tr>
<tr>
<td>HF-1</td>
<td>0.9077</td>
<td>1</td>
</tr>
<tr>
<td>PN-3b</td>
<td>0.9643</td>
<td>1</td>
</tr>
<tr>
<td>PN-6</td>
<td>0.9277</td>
<td>0.9958</td>
</tr>
<tr>
<td>SCIP-Inf-1</td>
<td>0.9735</td>
<td>0.9998</td>
</tr>
<tr>
<td>SCIP-Inf-2</td>
<td>0.9766</td>
<td>1</td>
</tr>
<tr>
<td>SCIP-Inf-3</td>
<td>0.9507</td>
<td>0.9968</td>
</tr>
<tr>
<td>SCIP-Inf-4</td>
<td>0.9428</td>
<td>0.9963</td>
</tr>
<tr>
<td>SCIP-VTE-1</td>
<td>0.95</td>
<td>1</td>
</tr>
<tr>
<td>SCIP-VTE-2</td>
<td>0.9307</td>
<td>0.9985</td>
</tr>
<tr>
<td>SCIP-Card-2</td>
<td>0.9399</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HCAHPS Dimension</th>
<th>Achievement Threshold</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication With Nurses</td>
<td>0.7518</td>
<td>0.8470</td>
</tr>
<tr>
<td>Communication With Doctor</td>
<td>0.7942</td>
<td>0.8895</td>
</tr>
<tr>
<td>Responsiveness of Hospital Staff</td>
<td>0.6182</td>
<td>0.7769</td>
</tr>
<tr>
<td>Pain Management</td>
<td>0.6875</td>
<td>0.7790</td>
</tr>
<tr>
<td>Communication About Medicines</td>
<td>0.5928</td>
<td>0.7042</td>
</tr>
<tr>
<td>Cleanliness and Quietness of Hospital Environment</td>
<td>0.6280</td>
<td>0.7764</td>
</tr>
<tr>
<td>Discharge Information</td>
<td>0.8193</td>
<td>0.8909</td>
</tr>
<tr>
<td>Overall Rating of Hospital</td>
<td>0.6602</td>
<td>0.8252</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mortality Measures</th>
<th>Achievement Threshold</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mort-30-AMI</td>
<td>84.8082%</td>
<td>86.9098%</td>
</tr>
<tr>
<td>Mort-30-HF</td>
<td>88.6109%</td>
<td>90.4861%</td>
</tr>
<tr>
<td>Mort-30-PN</td>
<td>88.1795%</td>
<td>90.2563%</td>
</tr>
</tbody>
</table>

The points earned for each measure are summed to establish a score for each domain (process of care, HCAHPS, and mortality). A 70% clinical process of care and 30% patient experience of care (HCAHPS) weighting scheme will be used for the fiscal year 2013 (FederalRegister 2011). Hospitals will receive an achievement and
improvement score for each clinical process of care dimension and for each HCAHPS dimension. Hospitals will earn between 0–10 points for achievement based on where its performance for the measure falls relative to the achievement threshold and the benchmark according to the following formula (Federal Register 2011):

\[9 \times \frac{(\text{Hospital’s performance period score} - \text{achievement threshold})}{(\text{benchmark} - \text{achievement threshold})} \] + .5 (where the hospital performance period score falls in the range from the achievement threshold to the benchmark)

All achievement points will be rounded to the nearest whole number (for example, an achievement score of 4.5 would be rounded to 5). If a hospital’s score is equal to or greater than the benchmark, the hospital will receive 10 points for achievement. If a hospital’s score is equal to or greater than the achievement threshold (but below the benchmark), the hospital will receive a score of 1–9 based on a linear scale established for the achievement range (Federal Register 2011).

If a hospital’s score is less than the achievement threshold (that is, the lower bound of the achievement range), the hospital will receive 0 points for achievement.

Hospitals will earn between 0–9 improvement points based on how much their performance on the measure during the performance period improves from their performance on the measure during the baseline period according to the following formula (Federal Register 2011):

\[10 \times \frac{(\text{Hospital performance period score} - \text{Hospital baseline period score})}{(\text{Benchmark} - \text{Hospital baseline period score})} \] + .5 (where the hospital performance score falls in the range from the hospital’s baseline period score to the benchmark)
All improvement points will be rounded to the nearest whole number. If a hospital’s score on the measure during the performance period is greater than its baseline period score but below the benchmark (within the improvement range), the hospital will receive a score of 0–9 based on the linear scale that defines the improvement range (Federal Register 2011).

If a hospital’s score is equal to or lower than its baseline period score on the measure, the hospital will receive 0 points for improvement. Hospitals will earn between 0–20 consistency points on the HCAHPS measure based on the lowest of its 8 HCAHPS dimension scores. A hospital will receive 0 consistency points if its performance on one or more HCAHPS dimensions during the performance period is at least as poor as the worst-performing hospital’s performance on that dimension during the baseline period. A hospital will receive a maximum score of 20 consistency points if its performance on all 8 HCAHPS dimensions is at or above the achievement threshold (Federal Register 2011).

For the purpose of this study only the achievement points will be calculated due to the fact that data is not yet available to calculate improvement or consistency scores. This study also will make minor adjustments in the calculation of the achievement score due to data availability. This study will calculate the HCAHPS measure “cleanliness and quietness of hospital environment” by averaging the two available measures “room and bath kept clean” and “area quite at night”. The current data available does not report a single measure but instead offers two measures. This study will also calculate achievement points for the three mortality measures set to be included in the VBP calculation FY 2014. A final score for each of the three domains; (1) process of care; (2)
HCAHPS and; (3) Mortality will be calculated and used as output variables in the DEA analysis. Process of care and HCAHPS data used for this analysis comes from the collection period beginning 04-01-2010 to 03-31-2011, posted on the Hospital Compare website on 01-20-2012. Thirty day risk adjusted mortality rate data used for this analysis comes from the collection period beginning 07-01-2007 to 06-30-2011, posted on the Hospital Compare website on 01-20-2012.

The final calculation of the clinical process of care and HCAHPS domain score’s are achieved by summing all points earned for each of the domain measures. This score is divided by the total number of domain measures that apply to the individual hospital multiplied by ten. For example, if a hospital only reported on eight of the twelve process of care measures and had a combined score of 50, their final domain score would equal 50/80 = .625.

3.1.2.4 Control Variables

Ownership status has widely been used in the literature as a control variable in hospital efficiency studies (Grosskopf & Valdmanis, 1987; Valdmanis V. G., 1990; Ozcan, Luke, & Haksever, 1992; Chirikos & Sear, 1994; Valdmanis, Rosko, & Mutter, 2008). This study will classify hospital ownership using Medicare’s hospital control typology. Medicare classifies hospital control into thirteen categories: (1) voluntary nonprofit, church; (2) voluntary nonprofit, other; (3) proprietary, individual; (4) proprietary, corporation; (5) proprietary, partner; (6) proprietary, other; (7) government, federal; (8) government, city-county; (9) government, county; (10) government, state; (11) government, hospital district; (12) government, city; (13) government, other.
The *region of location* has also been extensively used as a control variable in hospital efficiency studies (Ozcan Y., 1995; Ozcan Y. A., 2008). This study will utilize a broad classification of United States administrative divisions: northeast, south, pacific, mountain, and midwest.

*System Membership* is another important control variable to consider. Some variation of this variable has been applied in numerous hospital efficiency studies (Ozcan, Luke, & Haksever, 1992) (Chirikos & Sear, 1994; White & Ozcan, 1996; Grosskopf, Margaritis, & Valdmanis, 2004; Valdmanis, Rosko, & Mutter, 2008). It is believed that system affiliated hospitals tend to be more efficient than non-system hospitals because system membership can create opportunities to coordinate services across facilities to take advantage of economies of scope and scale and can allow hospitals to eliminate duplicative administrative functions (Hsieh, et al. 2010).

The measure of system membership used in this study follows earlier examples and captures two important dimensions; membership, and size of system. Three categories of system membership are used in this study. (1) none (not a system member); (2) small (member of a system that has four or less hospitals; (3) medium (member of a system that has between five and ten member hospitals; (4) large (member of a system that has eleven or more hospitals).

Hospital Size is yet another commonly used control and is simply a measure of the number of beds each hospital has. Size will be categorized specifically for this study due to the fact that the population of hospitals under examination is larger, on average, than the general population of hospitals. The average number of beds for the population is five hundred and fourteen beds. Three hospital size categories are used based on the
mean plus or minus one half of the standard deviation (SD = 268.9586). The categories are: (1 = Small) less than or equal to 380 beds; (2 = Medium) 381 to 647 beds; (3 = Large) 648 beds or more. There are 86 hospitals in category 1, 132 in category 2, and 59 in category 3.

Medicare share and Medicaid share will also be calculated and used as a control variable. Antidotal evidence suggests that a hospital with a disproportionate share of Medicare patients may be more financially inclined to be proactive at positioning themselves to reap the benefits of superior VBP performance. Following Hsieh and colleagues earlier work (2010) Medicare share is defined as Medicare inpatient days divided by total inpatient days. Medicaid share is defined as Medicaid inpatient days divided by total inpatient days.

3.2 The Final Sample

3.2.1 DEA Model Results

Using the four input variables and six output variables discussed, it was found that 39 hospitals (DMU’s) were efficient (efficiency score of 1.0) and 238 hospitals were inefficient (efficiency score of < 1.0). The average efficiency score of the inefficient hospitals was 0.691. The average efficiency for the entire population was 0.734 (table 3.5).

<table>
<thead>
<tr>
<th>Hospitals</th>
<th>Number</th>
<th>Percentage</th>
<th>Mean Efficiency Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficient</td>
<td>39</td>
<td>14.08%</td>
<td>1.0</td>
</tr>
<tr>
<td>Inefficient</td>
<td>238</td>
<td>85.92%</td>
<td>0.691</td>
</tr>
<tr>
<td>All</td>
<td>277</td>
<td>100%</td>
<td>0.734</td>
</tr>
</tbody>
</table>

The mean inputs for the efficient hospitals were 518 beds, 427.72 service mix complexity, 5,017 labor FTE’s, and supply costs of $519,824,870.00. The average
outputs for the efficient hospitals were 63,507 adjusted discharges, 735,465 outpatient visits, a teaching intensity of .69, a process of care achievement score of 49, an HCAHPS achievement score of 28, and a mortality achievement score of 67. The mean inputs for the inefficient hospitals were 513 beds, 440.58 service mix complexity, 4,099 labor FTE’s, and supply costs of $397,111,720.00.

The average outputs for the inefficient hospitals were 48,206 adjusted discharges, 494,123 outpatient visits, a teaching intensity of .49, a process of care achievement score of 38, an HCAHPS achievement score of 12, and a mortality achievement score of 35. A two-sample T-test was conducted to compare the means between the efficient hospitals and the inefficient hospitals, the results are listed in table 3.6. We see significant differences in the means of two out of the four input variables and significant differences in the means of every output variable. We also see large standard deviations relative to the means, suggesting a very scattered distribution.

Table 3.6: Input and output data of efficient vs. inefficient COTH hospitals

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Service Mix</th>
<th>Labor</th>
<th>Supply</th>
<th>Adjusted</th>
<th>Outpatient</th>
<th>Teaching</th>
<th>VBP-PC</th>
<th>VBP-HCAHPS</th>
<th>VBP-Mort</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Hospitals (n=277)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>513.73</td>
<td>438.77</td>
<td>4,228.16</td>
<td>$414,389,023</td>
<td>50,360.51</td>
<td>528,102.56</td>
<td>0.52</td>
<td>39.48</td>
<td>14.24</td>
</tr>
<tr>
<td>SD</td>
<td>268.96</td>
<td>131.67</td>
<td>2,692.34</td>
<td>$261,047,351</td>
<td>34,399.32</td>
<td>462,219.96</td>
<td>0.55</td>
<td>17.71</td>
<td>15.21</td>
</tr>
<tr>
<td>Efficient (n=39)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>518.26</td>
<td>427.72</td>
<td>5,016.69</td>
<td>$519,824,870</td>
<td>63,506.59</td>
<td>735,464.82</td>
<td>0.69</td>
<td>49.15</td>
<td>27.87</td>
</tr>
<tr>
<td>SD</td>
<td>381.43</td>
<td>160.75</td>
<td>4,588.88</td>
<td>$454,359,185</td>
<td>67,076.80</td>
<td>870,233.21</td>
<td>1.27</td>
<td>21.55</td>
<td>21.42</td>
</tr>
<tr>
<td>Inefficient (n=238)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>512.99</td>
<td>440.58</td>
<td>4,098.95</td>
<td>$397,111,720</td>
<td>48,206.28</td>
<td>494,123.03</td>
<td>0.49</td>
<td>37.89</td>
<td>12.01</td>
</tr>
<tr>
<td>SD</td>
<td>246.80</td>
<td>126.58</td>
<td>2,223.98</td>
<td>$210,071,478</td>
<td>24,970.57</td>
<td>345,173.28</td>
<td>0.29</td>
<td>16.52</td>
<td>12.66</td>
</tr>
</tbody>
</table>

The results of control variables of efficient and inefficient hospitals follow. Table 3.7 displays hospital control (Medicare hospital control classification) in relation to the entire population, efficient hospitals, and inefficient hospitals. We see that more than 70% of the efficient COTH hospitals are voluntary nonprofit hospitals. In table 3.8
system membership and size are examined in relation to the entire population, efficient hospitals, and inefficient hospitals. We see that the vast majority of efficient hospitals are members of a healthcare system and that the size of those systems is relatively evenly distributed between small, medium, and large health care systems.

Table 3.9 displays the geographic distribution of the hospitals in relation to efficiency and inefficiency. We see that the majority (over 1/3) of the population comes from the northeast, which also contains the majority of the efficient hospitals. Finally, table 3.10 presents the proportion of Medicare and Medicaid inpatient days in relation to total inpatient days for the entire population, efficient hospitals, and inefficient hospitals. A two-sample T-test was conducted to compare the means between the efficient hospitals and the inefficient hospitals. We find significant differences in both the Medicare and Medicaid share of inpatient days between the efficient and inefficient hospitals. The efficient hospitals have a greater proportion of Medicare inpatient days than the inefficient hospitals and the efficient hospitals have a lower proportion of Medicaid inpatient days than the inefficient hospitals, both differences were found to be highly statistically significant. Table 3.11 displays hospital size in relation to all hospitals, efficient hospitals, and inefficient hospitals. Interestingly we see that the largest category, medium, has the lowest percentage of efficient hospitals.
Table 3.7: Control of efficient vs. inefficient COTH hospitals

<table>
<thead>
<tr>
<th></th>
<th>All Hospitals (n=277)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary Nonprofit, Church</td>
<td>30</td>
<td>10.80%</td>
<td></td>
</tr>
<tr>
<td>Voluntary Nonprofit, Other</td>
<td>165</td>
<td>59.60%</td>
<td></td>
</tr>
<tr>
<td>Proprietary, Corporation</td>
<td>7</td>
<td>2.50%</td>
<td></td>
</tr>
<tr>
<td>Proprietary, Partnership</td>
<td>1</td>
<td>0.40%</td>
<td></td>
</tr>
<tr>
<td>Proprietary, Other</td>
<td>1</td>
<td>0.40%</td>
<td></td>
</tr>
<tr>
<td>Governmental, City-County</td>
<td>3</td>
<td>1.10%</td>
<td></td>
</tr>
<tr>
<td>Governmental, County</td>
<td>11</td>
<td>4.00%</td>
<td></td>
</tr>
<tr>
<td>Governmental, State</td>
<td>31</td>
<td>11.20%</td>
<td></td>
</tr>
<tr>
<td>Governmental, Hospital District</td>
<td>11</td>
<td>4.00%</td>
<td></td>
</tr>
<tr>
<td>Governmental, City</td>
<td>8</td>
<td>2.90%</td>
<td></td>
</tr>
<tr>
<td>Governmental, Other</td>
<td>9</td>
<td>3.20%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Efficient (n=39)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary Nonprofit, Church</td>
<td>3</td>
<td>7.70%</td>
<td></td>
</tr>
<tr>
<td>Voluntary Nonprofit, Other</td>
<td>28</td>
<td>71.80%</td>
<td></td>
</tr>
<tr>
<td>Proprietary, Corporation</td>
<td>1</td>
<td>2.60%</td>
<td></td>
</tr>
<tr>
<td>Proprietary, Partnership</td>
<td>0</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>Proprietary, Other</td>
<td>0</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>Governmental, City-County</td>
<td>0</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>Governmental, County</td>
<td>0</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>Governmental, State</td>
<td>5</td>
<td>12.80%</td>
<td></td>
</tr>
<tr>
<td>Governmental, Hospital District</td>
<td>0</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>Governmental, City</td>
<td>0</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>Governmental, Other</td>
<td>2</td>
<td>5.10%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Inefficient (n=238)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voluntary Nonprofit, Church</td>
<td>27</td>
<td>11.30%</td>
<td></td>
</tr>
<tr>
<td>Voluntary Nonprofit, Other</td>
<td>137</td>
<td>57.60%</td>
<td></td>
</tr>
<tr>
<td>Proprietary, Corporation</td>
<td>6</td>
<td>2.50%</td>
<td></td>
</tr>
<tr>
<td>Proprietary, Partnership</td>
<td>1</td>
<td>0.40%</td>
<td></td>
</tr>
<tr>
<td>Proprietary, Other</td>
<td>1</td>
<td>0.40%</td>
<td></td>
</tr>
<tr>
<td>Governmental, City-County</td>
<td>3</td>
<td>1.30%</td>
<td></td>
</tr>
<tr>
<td>Governmental, County</td>
<td>11</td>
<td>4.60%</td>
<td></td>
</tr>
<tr>
<td>Governmental, State</td>
<td>26</td>
<td>10.90%</td>
<td></td>
</tr>
<tr>
<td>Governmental, Hospital District</td>
<td>11</td>
<td>4.60%</td>
<td></td>
</tr>
<tr>
<td>Governmental, City</td>
<td>8</td>
<td>3.40%</td>
<td></td>
</tr>
<tr>
<td>Governmental, Other</td>
<td>7</td>
<td>2.90%</td>
<td></td>
</tr>
</tbody>
</table>
Table 3.8: System membership and system size of efficient and inefficient COTH hospitals

<table>
<thead>
<tr>
<th>All Hospitals (n=277)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member of Healthcare System</td>
<td>214</td>
<td>77.30%</td>
</tr>
<tr>
<td>Not a Member of Healthcare System</td>
<td>63</td>
<td>22.70%</td>
</tr>
<tr>
<td>Small Healthcare System (≤ 4 member hospitals)</td>
<td>72</td>
<td>26.00%</td>
</tr>
<tr>
<td>Medium Healthcare System (between 5 and 10 member hospitals)</td>
<td>69</td>
<td>24.90%</td>
</tr>
<tr>
<td>Large Healthcare System (≥ 11 member hospitals)</td>
<td>73</td>
<td>26.40%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Efficient (n=39)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member of Healthcare System</td>
<td>32</td>
<td>82.10%</td>
</tr>
<tr>
<td>Not a Member of Healthcare System</td>
<td>7</td>
<td>17.90%</td>
</tr>
<tr>
<td>Small Healthcare System (≤ 4 member hospitals)</td>
<td>10</td>
<td>25.60%</td>
</tr>
<tr>
<td>Medium Healthcare System (between 5 and 10 member hospitals)</td>
<td>12</td>
<td>30.80%</td>
</tr>
<tr>
<td>Large Healthcare System (≥ 11 member hospitals)</td>
<td>10</td>
<td>25.60%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inefficient (n=238)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Member of Healthcare System</td>
<td>182</td>
<td>76.50%</td>
</tr>
<tr>
<td>Not a Member of Healthcare System</td>
<td>56</td>
<td>23.50%</td>
</tr>
<tr>
<td>Small Healthcare System (≤ 4 member hospitals)</td>
<td>62</td>
<td>26.10%</td>
</tr>
<tr>
<td>Medium Healthcare System (between 5 and 10 member hospitals)</td>
<td>57</td>
<td>23.90%</td>
</tr>
<tr>
<td>Large Healthcare System (≥ 11 member hospitals)</td>
<td>63</td>
<td>26.50%</td>
</tr>
</tbody>
</table>

Table 3.9: Geographic distribution of efficient vs. inefficient COTH hospitals

<table>
<thead>
<tr>
<th>All Hospitals (n=277)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwest</td>
<td>68</td>
<td>24.50%</td>
</tr>
<tr>
<td>Mountain</td>
<td>11</td>
<td>4.00%</td>
</tr>
<tr>
<td>Northeast</td>
<td>97</td>
<td>35.00%</td>
</tr>
<tr>
<td>Pacific</td>
<td>22</td>
<td>7.90%</td>
</tr>
<tr>
<td>South</td>
<td>79</td>
<td>28.50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Efficient (n=39)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwest</td>
<td>7</td>
<td>17.90%</td>
</tr>
<tr>
<td>Mountain</td>
<td>1</td>
<td>2.60%</td>
</tr>
<tr>
<td>Northeast</td>
<td>17</td>
<td>43.60%</td>
</tr>
<tr>
<td>Pacific</td>
<td>4</td>
<td>10.30%</td>
</tr>
<tr>
<td>South</td>
<td>10</td>
<td>25.60%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inefficient (n=238)</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwest</td>
<td>61</td>
<td>25.60%</td>
</tr>
<tr>
<td>Mountain</td>
<td>10</td>
<td>4.20%</td>
</tr>
<tr>
<td>Northeast</td>
<td>80</td>
<td>33.60%</td>
</tr>
<tr>
<td>Pacific</td>
<td>18</td>
<td>7.60%</td>
</tr>
<tr>
<td>South</td>
<td>69</td>
<td>29.00%</td>
</tr>
</tbody>
</table>
Table 3.10: Proportion of Medicare and Medicaid inpatient days of efficient vs. inefficient hospitals

<table>
<thead>
<tr>
<th></th>
<th>Medicare Share</th>
<th>Medicaid Share</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Hospitals (n=277)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>29.78%</td>
<td>17.50%</td>
</tr>
<tr>
<td>SD</td>
<td>10.98%</td>
<td>12.10%</td>
</tr>
<tr>
<td><strong>Efficient (n=39)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>35.40%</td>
<td>10.59%</td>
</tr>
<tr>
<td>SD</td>
<td>10.17%</td>
<td>7.43%</td>
</tr>
<tr>
<td><strong>Inefficient (n=238)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>28.86%</td>
<td>18.64%</td>
</tr>
<tr>
<td>SD</td>
<td>10.85%</td>
<td>12.34%</td>
</tr>
</tbody>
</table>

sig p<.01 ^b
sig p<.05 ^a
Not Significant ^ns

Table 3.11: Hospital size comparison of efficient vs. inefficient COTH hospitals

<table>
<thead>
<tr>
<th><strong>All Hospitals (n=277)</strong></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small (≤ 380 beds)</td>
<td>86</td>
<td>31.05%</td>
</tr>
<tr>
<td>Medium (381 to 647 beds)</td>
<td>132</td>
<td>47.65%</td>
</tr>
<tr>
<td>Large (≥ 648 beds)</td>
<td>59</td>
<td>21.30%</td>
</tr>
<tr>
<td><strong>Efficient (n=39)</strong></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>Small (≤ 380 beds)</td>
<td>17</td>
<td>6.14%</td>
</tr>
<tr>
<td>Medium (381 to 647 beds)</td>
<td>10</td>
<td>3.61%</td>
</tr>
<tr>
<td>Large (≥ 648 beds)</td>
<td>12</td>
<td>4.33%</td>
</tr>
<tr>
<td><strong>Inefficient (n=238)</strong></td>
<td>Frequency</td>
<td>Percentage</td>
</tr>
<tr>
<td>Small (≤ 380 beds)</td>
<td>69</td>
<td>24.91%</td>
</tr>
<tr>
<td>Medium (381 to 647 beds)</td>
<td>122</td>
<td>44.04%</td>
</tr>
<tr>
<td>Large (≥ 648 beds)</td>
<td>47</td>
<td>16.97%</td>
</tr>
</tbody>
</table>

### 3.2.2 Sampling Data Reduction

Hospitals receiving a DEA score of less than 0.90 were removed. That resulted in 213 hospitals being dropped from the population. The remaining 64 hospitals were ranked from highest to lowest on their average achievement VBP total performance score for the following three performance periods:
1. 4-20-2011 posted on hospital compare – collection period beginning 7-1-2009 to 6-30-2010

2. 8-12-2011 posted on hospital compare – collection period beginning 10-1-2009 to 8-12-2011

3. 1-20-2012 posted on hospital compare - collection period beginning 04-01-2010 to 03-31-2011

The top twenty hospitals represent the final sample. They are listed in table 3.12 in alphabetical order by state and city. This research secured participation with nine of the hospitals listed in table 3.12 and one health system comprised of two flagship hospitals listed in table 3.12 for a total of ten institutions. From this point forward all ten of the institutions will be referred to as hospital A through hospital J to protect the identity of the organizations and individuals.
Table 3.1: Final Sample

<table>
<thead>
<tr>
<th>Hospital Name</th>
<th>State</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of South Alabama Medical Center</td>
<td>AL</td>
<td>Mobile</td>
</tr>
<tr>
<td>Mayo Clinic Hospital</td>
<td>AZ</td>
<td>Phoenix</td>
</tr>
<tr>
<td>Scripps Green Hospital</td>
<td>CA</td>
<td>La Jolla</td>
</tr>
<tr>
<td>Beth Israel Deaconess Medical Center</td>
<td>MA</td>
<td>Boston</td>
</tr>
<tr>
<td>Brigham and Women's Hospital</td>
<td>MA</td>
<td>Boston</td>
</tr>
<tr>
<td>Faulkner Hospital</td>
<td>MA</td>
<td>Boston</td>
</tr>
<tr>
<td>Lahey Clinic Medical Center</td>
<td>MA</td>
<td>Burlington</td>
</tr>
<tr>
<td>Berkshire Medical Center</td>
<td>MA</td>
<td>Pittsfield</td>
</tr>
<tr>
<td>Baystate Medical Center</td>
<td>MA</td>
<td>Springfield</td>
</tr>
<tr>
<td>University of Michigan Hospitals and Health Centers</td>
<td>MI</td>
<td>Ann Arbor</td>
</tr>
<tr>
<td>Duke University Hospital</td>
<td>NC</td>
<td>Durham</td>
</tr>
<tr>
<td>Newark Beth Israel Medical Center</td>
<td>NJ</td>
<td>Newark</td>
</tr>
<tr>
<td>New York University Langone Medical Center</td>
<td>NY</td>
<td>New York</td>
</tr>
<tr>
<td>Grant Medical Center</td>
<td>OH</td>
<td>Columbus</td>
</tr>
<tr>
<td>Riverside Methodist Hospital</td>
<td>OH</td>
<td>Columbus</td>
</tr>
<tr>
<td>Lehigh Valley Hospital - Cedar Crest</td>
<td>PA</td>
<td>Allentown</td>
</tr>
<tr>
<td>University of Pittsburgh Medical Center Presbyterian</td>
<td>PA</td>
<td>Pittsburgh</td>
</tr>
<tr>
<td>Lankenau Hospital</td>
<td>PA</td>
<td>Wynnewood</td>
</tr>
<tr>
<td>Vanderbilt University Medical Center</td>
<td>TN</td>
<td>Nashville</td>
</tr>
<tr>
<td>Virginia Mason Medical Center</td>
<td>WA</td>
<td>Seattle</td>
</tr>
</tbody>
</table>

3.3 Interview Data Collection

3.3.1 Selection of Interviewees

Interview participants at each hospital included numerous and highly knowledgeable informants who viewed the focal phenomena from diverse perspectives. According to Eisenhardt, these informants can include organizational actors from different hierarchical levels, functional areas, groups, and geographies (Eisenhardt and Graebner 2007). Each hospital CEO was asked to select the individuals who represent the nine other positions listed below.

Each identified potential participant was approached individually and asked to participate. Each participant was required to complete an approved consent form before
participation. The approved consent form can be seen in appendix A. Interview participants included but were not limited to:

1. CEO/President/Administrator
2. COO/Chief Operation Officer
3. CFO/Financial Manager
4. CIO/IT Manager
5. CNO/Director of Nursing
6. CMO/Chief of Staff
7. Vice President of Human Resources
8. Vice President of Marketing
9. Director of Strategy/Business Development
10. Director of Quality/Value Based Purchasing Director

Additional interviews were added based on their relevance to the research topic. For example Winthrop University Hospital has recently created an internal Value Based Purchasing Program directed by Marc Adler (Martines 2011). Participation of every subject was 100% voluntary. Each participant was approached individually and asked to participate. Each participant was required to complete an approved consent form before participation. All participant responses are to be kept confidential.

3.3.2 The Interview Process and Gaining Access

Interviews took place at the location of the participating hospital. The interviews were scheduled in 60 to 45 minute blocks and every attempt was made to conclude with each participating hospital in 1 to 2 business days. Interviews were conducted in person (1-on-1) and all interview participants completed an approved informed consent form.
before the interview began. Interviews were audio recorded. Initial contact was achieved using a paper letter addressed to the hospital CEO describing the study and seeking interest in participation. The initial contact letter can be seen in appendix B.

Additional contact with participating hospitals and managers took place through phone calls and/or emails to finalize scheduling of the interviews. All identifiers of hospital and interview participants were coded and will be kept strictly confidential. Any material that includes participant identifiers will be destroyed at the conclusion of the study. The participation sample was not disclosed to participating hospitals.

3.3.3 Titles of the Final Interview Participants

**Hospital A**

President and Chief Executive Officer

Chief Operating Officer

Chief Information Officer & Chief Medical Information Officer

Chief Nursing Officer

Senior Vice President of Communications

Vice President for Business Development and Planning

Senior Vice President for Healthcare Quality

Chief Marketing Officer

**Hospital B**

President

Senior Vice President for Hospital Operations

Chief Financial Officer
Chief Medical Information Officer
Chief Medical Officer for
Chief Nursing Officer
Chief Human Resources Officer
Professor of Medicine and the Chief of Cardiology
Associate Vice President for Heart and Vascular Services
Vice President for Performance Services
Senior Director within the Performance Services Department

**Hospital C**
President
Chief Operating Officer
Chief Nursing Officer
Vice President of Surgery and Anesthesia
Vice President of Medical Education and Clinical Excellence

**Hospital D**
President and Chief Executive Officer
Chief Operating Officer
Chief Financial Officer
Chief Information Officer
Chief Medical Officer
Chief Quality and Safety Officer
Chief Human Resources Officer
Vice President Communications and Marketing
Hospital E
Chief Executive Officer
Chief Operating Officer
Chief Nursing Officer
Chief Medical Officer
Director of Performance Assessment and Clinical Effectiveness

Hospital F
Chief Operating Officer
Chief Medical Officer
Vice President of Quality and Safety
Vice President of Human Resources
Vice President of Marketing Communications

Hospital G
President and Chief Executive Officer
Chief Operating Officer
Vice President of Finance
Chief Nursing Officer
Vice President of Growth and Business Development
IT Business Relationship Manager

Hospital H
Chief Executive Officer
Chief Financial Officer
Medical Director of Performance Improvement in Risk
Chief Nurse Executive in Operations

Chief of Staff

Senior Director for Quality and Performance Improvement

Medical Director, Clinical Computer Development

Senior Director of Human Resources

Hospital I

Chief Executive Officer

Associate Vice Chancellor of Health Affairs

Chief Operating Officer

Senior Vice President of Finance

Chief Medical Information Officer

Executive Chief Nursing Officer

Chief Nursing Officer

Chief of Staff

Chief Human Resources Officer

Chief Marketing Officer

Senior Director of Strategic Planning

Administrator for Quality and Patient Safety

Director of Human Resource Systems

Hospital J

Chairman and Chief Executive Officer

Executive Vice President, Chief Financial Officer and Chief Information Officer

Chief Operating Officer
3.4 Data Analysis

3.4.1 Identification of Concepts and Themes

Section 3.4.1 and 3.4.2 describes the foundation that was utilized to guide this research while it was being conducted. Section 3.5 describe how the data was analyzed after all of the interviews were complete.

Content analysis is a summarizing of messages that relies on the scientific method (including attention to objectivity, inter subjectivity, a priori design, reliability, validity, generalizability, and hypothesis testing) and is not limited as to the types of variables that may be measured or the context in which the messages are created or presented (Neuendorf 2002). The assumption is that words and phrases mentioned most often are those reflecting important concerns in every communication.

The procedures of grounded theory provide some guidance in this regard and are designed to develop a well integrated set of concepts that provide a thorough explanation of the social phenomena under study. Grounded theory seeks not only to uncover relevant conditions, but also to determine how the actors respond to changing conditions and to the consequences of their actions (Corbin and Strauss 1990). A constant comparison method was employed to develop code structure, which requires data to be reviewed line by line in detail and as a concept becomes apparent, a code is assigned (see table 3.13). Upon further review of data, the analyst continues to assign codes that reflect
the concepts that emerge, highlighting and coding lines, paragraphs, or segments that illustrate the chosen concept. As more data is reviewed, the specifications of codes are developed and refined to fit the data.

To ascertain whether a code is appropriately assigned, the analyst compares text segments to segments that have been previously assigned the same code and decides whether they reflect the same concept. Using this “constant comparison” method, the researchers refine dimensions of existing codes and identify new codes (Glaser and Strauss 1967). Through this process, the code structure evolves inductively, reflecting “the ground,” i.e., the experiences of participants (Bradley, Curry and Devers 2007).

Table 3.13 Taxonomy of coding schemes; adapted from: (Bradley, et al. 2007)

<table>
<thead>
<tr>
<th>Code Scheme</th>
<th>Characterization</th>
<th>Application/Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptual codes/sub codes</td>
<td>Key conceptual domains and essential conceptual dimensions of the domains</td>
<td>Developing taxonomies; useful in themes and theory</td>
</tr>
<tr>
<td>Relationship codes</td>
<td>Links among conceptual codes/sub codes</td>
<td>Generating themes and theory</td>
</tr>
<tr>
<td>Participant perspectives</td>
<td>Directional views (positive, negative, or indifferent) of participants</td>
<td>Generating themes and theory</td>
</tr>
<tr>
<td>Participant characteristics</td>
<td>Characteristics that identify participants</td>
<td>Comparing key concepts across types of participants</td>
</tr>
<tr>
<td>Setting codes</td>
<td>Characteristics that identify settings</td>
<td>Comparing key concepts across types of settings</td>
</tr>
</tbody>
</table>

Taxonomies, themes, and theory produced with rigorous qualitative methods can be particularly useful in health services research. Taxonomies improve our description and hence, measurement and evaluation, of real-world phenomena by allowing for multiple domains and dimensions of multifaceted interventions. Themes and theory guide our research to explain and predict various outcomes within diverse contexts of the
health care system. This highlights an integrated approach to qualitative data analysis, which applies the principles of inductive reasoning and the constant comparison method while employing predetermined code types (conceptual, relationship, perspective, participant characteristics, and setting codes) to analyze data (Glaser & Strauss, 1967; Bradley, Curry, & Devers, 2007).

As described by Eben Weitzman and depicted in figure 3-1 the major steps in the analysis process utilizing codes follow a general pattern (Weitzman 1999). Weitzman states that in general, researchers begin with a set of research questions and move toward reaching conclusions. Data are collected in order to answer the research questions, and in qualitative studies the data are often voluminous. The researcher then faces the task of somehow reducing the data into a form in which it can be examined for patterns and relationships.

In most approaches, the researcher will go about this through developing some sort of coding scheme: a set of tags or labels representing the conceptual categories into which to sort the data. These may be developed either a priori from the conceptual framework driving the study, inductively as the analysis proceeds and the analyst begins to identify issues in the data, or by some combination of the two. Segments of the data are marked with relevant codes (coded). In many cases, researchers write memos as they code, recording emerging ideas and early conclusions about both theory and methods. As insights accrue, it often becomes useful to search back through the data for places where specific words or phrases are used, and to locate related phenomena in the text, in order to both code these new segments of text and check the validity of emerging conclusions. It may sometimes be useful to create pointers (or links) between different places in the
text where the same issues arise, as, for example, when in one interview a patient describes an episode that is elsewhere also described by his or her caregiver. This whole process will in many cases give rise to modification of any a priori coding scheme, and many researchers follow an iterative process, making repeated coding passes through the data.

The next step in reducing the data is often to retrieve the segments of text associated with particular codes, reading these passages to refine the understanding of that conceptual category. It may also be desirable to retrieve text according to combinations of codes—for example, to see where a concept having to do with a particular caregiver attitude, say, "empathizes with patient," coincides with a particular context, say, "extended one-on-one caregiver-patient contact." The researcher would then be able to read all of the text passages where both of these codes had been applied, to see what, if any, relationship might exist between the two. Depending on the nature of the study, it might also be desirable to identify all of the cases where both of these codes apply, even if the two concepts do not happen to emerge from the same text segment.

In this way, the researcher begins to be able to write summaries of the main conceptual issues that appear in the data. These preliminary write-ups have the virtue of being much smaller in physical length than the original transcripts, making them that much more accessible to the researcher's scrutiny. They also have the disadvantage of being one step removed from the original data. It is therefore important for the researcher to have the ability to examine and re-examine the underlying data as analysis and write-up proceeds, in order to continually check interpretations against the data. Finally, many researchers enter their summaries into displays, for example, text matrices or network
diagrams, that aid in identifying patterns and relationships in the data (Miles and Huberman 1994).

In Figure 3-1, the displays are offered as an example, and the categories are adapted from the work of Huberman and Miles. The example matrix is composed of rows representing several conditions for success of a school innovation (commitment, understanding, mastery) and columns representing some key stakeholder groups: users of the innovation (teachers) and the school administrators. The cells of the matrix would be filled with summaries of each stakeholder group's views of each condition, allowing the researcher to look for patterns across the data. The network diagram, similarly, shows the researcher's representation of the connections among the different conditions.

From these summaries of the data, which may now exist in memos, code "definitions," mini write-ups, and/or displays, the researcher draws conclusions. Depending on the methodology being employed, the researcher may then embark on a new round of searching through the data to verify whether the conclusions reached are in fact supported by the data. And, finally, a report is produced.
Figure 3-1 Major steps in the analysis process utilizing coding schemes; Copyright (Weitzman and Miles 1995)
3.4.2 Ensuring Quality Standards

Qualitative methods are more suitable for understanding the different components of the system, how these components relate to each other, and the strategic decision making of key stakeholders (Cunningham, Felland, Ginsburg and Pham 2011). The recipe like standardization that one sees in textbooks devoted to quantitative methods is unavailable in relation to qualitative methods (Svensson 1995).

Interviews are commonly used in both quantitative and qualitative methodologies. Quantitative researchers administer interviews or questionnaires to random samples of the population. Fixed choice questions (e.g. 'yes' or 'no') may be preferred because the answers they produce lend themselves to simple tabulation, unlike open-ended questions which produce answers which need to be subsequently coded. A central methodological issue for quantitative researchers is the reliability of the interview schedule and the representativeness of the sample. Authenticity rather than reliability is often the issue in qualitative research. The aim is usually to gather an 'authentic' understanding of people's experiences and it is believed that open-ended questions are the most effective route towards this end (Svensson 1995).

Qualitative research is an iterative rather than linear process. Morse and colleagues (2002) contend that good qualitative researchers move back and forth between design and implementation to ensure congruence among question formulation, literature, recruitment, data collection strategies, and analysis. Data is systematically checked, focus is maintained, and the fit of data and the conceptual work of analysis and interpretation is monitored and confirmed constantly (Morse, et al. 2002). Verification
strategies help the researcher to identify when to stop or modify the research process in order to achieve reliability and validity and ensure rigor.

The traditional approach to ensuring rigor in qualitative studies is the post-hoc evaluation. Rigor is supported by tangible evidence using audit trails, member checks, memos, and so forth. More recently authors have contended that this approach to ensuring rigor have little to do with the actual attainment of reliability and validity. Rigor does not rely on special procedures external to the research process itself (Morse, et al. 2002). The use of verification strategies by the researcher during the process of inquiry allows the attainment of reliability and validity instead of the proclamation of validity and reliability by external reviewers after the completion of the research project.

Morse and colleagues argue that verification strategies such as investigator responsiveness, methodological coherence, theoretical sampling and sampling adequacy, an active analytic stance, and saturation should be built into the research process, thus ensuring reliability, validity, and rigor of the final study.

Research is only as good as the investigator; investigator responsiveness refers to the researcher’s creativity, sensitivity, flexibility and skill in using the verification strategies that will determine the reliability and validity of the study (Morse, et al. 2002). Methodological coherence is to ensure congruence between the research question and the components of the method. The interdependence of qualitative research demands that the question match the method, which matches the data and the analytical procedures used (Morse, et al. 2002). As the research unfolds, the process may not be linear; data may demand to be treated differently so that the question or method may then require modification. As mentioned this may not be a linear process but an iterative process.
The sample must be appropriate. The sample must consist of participants who best represent or have knowledge of the research topic. Eisenhardt contends that the assumption that cases should be representative of some population is faulty and that sampling should be chosen for the likelihood that the sampled cases will offer theoretical insight (Eisenhardt, et al. 2007). This ensures the efficient and effective saturation of categories with optimal data quality and minimum dross (Morse, et al. 2002). Seidman (1998) contends that saturation is the point in the research process when the interviewer begins to hear the same information being reported again and again. Sampling adequacy is evidenced by saturation and replication, meaning that sufficient data has been collected to account for all aspects of the phenomenon under study. By definition, saturating data ensures replication in categories; replication verifies, and ensures comprehension and completeness (Morse, et al. 2002).

The concurrent collection and analysis of data is the essence of attaining reliability and validity. It enables the researcher to form a mutual interaction between what is known and what one needs to know. A constant comparison approach allows theoretically thinking to develop. Ideas emerging from data are reconfirmed in new data which gives rise to new ideas and in turn must be verified in data already collected. Thinking theoretically requires macro-micro perspectives, inching forward without making cognitive leaps, constantly checking and rechecking, and building a solid foundation (Morse, et al. 2002).

Finally, the aspect of theory development is to move with deliberation between a micro perspective of the data and a macro conceptual/theoretical understanding. According to Morse and colleagues (2002) theory can be developed through two
mechanisms: (1) as an outcome of the research process, rather than being adopted as a framework to move the analysis along; and (2) as a template for comparison and further development of the theory.

3.5 Analysis Techniques Employed

At the conclusion of the interviewing stage of this research, seventy five individuals representing the senior most leadership at ten different healthcare institutions yielded more than fifty five hours of audio recordings and more than one thousand pages of single spaced transcripts. Analysis of the transcripts represented an enormous task. That task was accomplished with the assistance of a software program called QSR NVivo 10. This software allows for the storage, retrieval, and coding of the transcript files.

There is a widely held perception that use of a computer helps to ensure rigor in the analysis process. Insofar as computer software will find and include in a query procedure, for example, every recorded use of a term or every coded instance of a concept, it ensures a more complete set of data for interpretation than might occur when working manually. Even so, human factors are very much involved. A deep emersion into the data over and over and over again is required to assign meaning to a mountain of information.

By conducting repetitive passes through the entire volume of data, segments of text representing various concepts or themes were coded. Examples of common concepts identified include leadership, leadership development, strategy, culture, alignment, accountability, and population health to just name a few. Each code was then examined for underlying concepts or themes and further coded. This process lasted more than two
months and yielded one hundred sixty unique codes. Once a common theme was identified several techniques were employed to gain a deeper understanding of the data. Word frequency queries, dendrograms, matrix coding, text searches, word tree diagrams, tree maps, and tag clouds were all utilized to supplement the investigation of the concept. Compounded queries were also utilized to examine more complex concepts.

For example, *The Patient Experience*, was a complex theme identified. To explore what concepts the interview participants most commonly associated to “the patient experience” multiple compounded text queries were utilized. The compounded queries examined combinations of key words identified through word frequency analysis (patient, patients, experience, experiences, satisfaction, driven, centered). The combinations included stemmed words, and were comprised of the following combinations of words occurring within 10 words of each other: “patient” and “experience”; “patient” and “satisfaction”; “patient” and “driven”; “patient” and “center”. The queries resulted in 210 references. A word frequency query was then conducted within the 25 words proceeding and the 25 words following each of the previously mentioned word combinations to explore the common themes associated with “the patient experience”.

The word frequency query searched for the 200 most frequently used words with a minimum length of 4 characters. The query was adjusted to find not only exact word matches but also words with the same stem. The top 10 results are displayed in table 3.14.
Table 3.14: Word Frequency Query Table - Patient

<table>
<thead>
<tr>
<th>Word</th>
<th>Count</th>
<th>Weighted Percentage (%)</th>
<th>Similar Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>quality</td>
<td>106</td>
<td>2.22</td>
<td>quality</td>
</tr>
<tr>
<td>goals</td>
<td>69</td>
<td>1.44</td>
<td>goal, goals</td>
</tr>
<tr>
<td>care</td>
<td>66</td>
<td>1.38</td>
<td>care, cared, carefully, caring</td>
</tr>
<tr>
<td>measuring</td>
<td>50</td>
<td>1.04</td>
<td>measurable, measurably, measure, measured, measurement, measures, measuring</td>
</tr>
<tr>
<td>performance</td>
<td>49</td>
<td>1.02</td>
<td>performance, performer, performers, performing</td>
</tr>
<tr>
<td>improve</td>
<td>46</td>
<td>0.96</td>
<td>improve, improvement, improvements, improving</td>
</tr>
<tr>
<td>look</td>
<td>43</td>
<td>0.9</td>
<td>look, looked, looking, looks</td>
</tr>
<tr>
<td>physician</td>
<td>42</td>
<td>0.88</td>
<td>physician, physicians</td>
</tr>
<tr>
<td>center</td>
<td>40</td>
<td>0.84</td>
<td>center, centered, centers</td>
</tr>
<tr>
<td>organization</td>
<td>37</td>
<td>0.77</td>
<td>organization, organizations</td>
</tr>
</tbody>
</table>

Various methods were employed to explore the relationships between codes (codes are also referred to as nodes). Figure 3-2 displays a word tree exploring the use of the word “patient” in the text of the coded concept “alignment”. In this example it becomes clear that the concepts of alignment and patient safety have a connection.
Cluster analysis is another method of exploration used, and was performed utilizing Person correlation coefficient to identify statistically significant similarities in word usage between coded concepts to also further investigation. This analysis examines the similarity of the words in text segments coded for a concept or theme. As an example, table 3.15 and figures 3-3, 3-4, and 3-5 display the graphical representation of the relationship among some of the prominent concepts.
Table 3.15: Cluster Analysis Summary Report

<table>
<thead>
<tr>
<th>Node A</th>
<th>Node B</th>
<th>Pearson correlation coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transition from fee-for-service to VBP</td>
<td>Population Health</td>
<td>0.835425</td>
</tr>
<tr>
<td>Alignment</td>
<td>Administration and Physician Relationship</td>
<td>0.826241</td>
</tr>
<tr>
<td>leadership</td>
<td>Culture</td>
<td>0.814632</td>
</tr>
<tr>
<td>leadership</td>
<td>Alignment</td>
<td>0.799573</td>
</tr>
<tr>
<td>leadership</td>
<td>Consistent Communication Methods</td>
<td>0.79696</td>
</tr>
<tr>
<td>Consistent Communication Methods</td>
<td>Alignment</td>
<td>0.786547</td>
</tr>
<tr>
<td>Culture</td>
<td>Alignment</td>
<td>0.760553</td>
</tr>
<tr>
<td>Success translation</td>
<td>Consistent Communication Methods</td>
<td>0.760142</td>
</tr>
<tr>
<td>Culture</td>
<td>Consistent Communication Methods</td>
<td>0.745628</td>
</tr>
<tr>
<td>Success translation</td>
<td>Alignment</td>
<td>0.736179</td>
</tr>
<tr>
<td>Living our Values</td>
<td>Culture</td>
<td>0.723566</td>
</tr>
<tr>
<td>Success translation</td>
<td>leadership</td>
<td>0.718424</td>
</tr>
</tbody>
</table>
Figure 3-3: Circle Graph Displaying Cluster Analysis Results
Figure 3-4: Horizontal Dendrogram Displaying Cluster Analysis Results
Figure 3-5: 3D Cluster Map Displaying Cluster Analysis Results
Chapter 4

Findings

4.1 Initial Observation

This research has put me in contact with the senior leadership of America’s, arguably the world’s, top performing teaching hospitals. During my one-on-one interviews there were several occasions where individuals would openly show the powerful emotions and passion that drive them. It’s the accomplishments and the tragedies, the joy and sorrow; the underlying sense of purpose that gets them out of bed in the morning. I speculate that there are precious few industries in the world that draw people with such passion.

The ability to help those in need is powerful beyond description and it draws a specific type of individual with its calling. I believe, what made the hospitals I visited special was their leader’s ability to tap into that underlying passion. These leaders were able to set a vision, empower their workforce, remove obstacles from their path, and achieve greatness.

(Senior VP of HR – Hospital - F)
“I think a lot of associates here are drawn to kind of a higher calling, doing the right thing from a belief perspective.”
4.2 Overall Themes in relation to Model of Organization Change

Findings are discussed in relation to the model of organizational change previously discussed in section 2.3 and displayed in greater detail in figure 4-1. It is important to mention that specific topics are discussed in relation to various aspects of the model. That does not infer that a specific topic only applies to an exact aspect of the model, quite the opposite. Concepts like culture, engagement, and accountability, to name just a few, are all encompassing. They play a role in, and they touch everything.

For the sake of simplicity and to tell a story, topics are discussed in accordance to logical inclusion in the model. For further clarification, definitions of every aspect of the model are provided in table 4.1. These definitions are either derived from the Werriam-Webster dictionary, the work of the author, or a combination of both. The definitions are specific to the model and the discussion thereafter.

The model depicts a series of five blue boxes representing the steps in the change process and various aspects of each of those steps. Those five boxes are surrounded in a black oval representing the concept of strategy; strategy encompasses all of the steps in the change process. Finally, there is a blue oval encasing the entire model with the word “Leadership”. Again, this represents that the concept of leadership encompasses everything else in the model.
Figure 4-1: Model of Organizational Change Major Themes
<table>
<thead>
<tr>
<th>Word or Phrase</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>The organization of a group of individuals and/or teams to achieve a common goal.</td>
</tr>
<tr>
<td>Articulate The Vision</td>
<td>Fluently and coherently painting a word picture of the future.</td>
</tr>
<tr>
<td>Clinical Leadership</td>
<td>Clinician participation in leadership practices.</td>
</tr>
<tr>
<td>Frontline Pull</td>
<td>Engagement, planning, and improvement from associates on the front lines.</td>
</tr>
<tr>
<td>Strategy</td>
<td>The attempt to obtain desirable ends with available means.</td>
</tr>
<tr>
<td>Strategic Planning Process</td>
<td>Deciding what is important for the organization and achieving consensus as to what that is.</td>
</tr>
<tr>
<td>Drivers for Change</td>
<td>Triggers, or actions that awaken an organization and its leaders that change is necessary.</td>
</tr>
<tr>
<td>Vision</td>
<td>The act or power of anticipating that which will or may come to be.</td>
</tr>
<tr>
<td>Mission</td>
<td>The framework or context for the formulation of strategy.</td>
</tr>
<tr>
<td>Values</td>
<td>Important and lasting beliefs or ideas shared by the members of a culture about what is good or bad and desirable or undesirable.</td>
</tr>
<tr>
<td>Culture</td>
<td>The characteristic features of everyday existence shared by people in a place; shared attitudes, values, goals, and practices that characterize an organization.</td>
</tr>
<tr>
<td>Law/Regulation</td>
<td>A system of rules and guidelines which are enforced through social institutions to govern behavior.</td>
</tr>
<tr>
<td>Competitive Forces</td>
<td>The efforts of patients or subscribers to health plans, health plans, employers, physicians or other professional care providers, and hospitals acting in concert or independently to attract and manage the health of populations and secure business by offering the most favorable terms.</td>
</tr>
<tr>
<td>Gap Analysis</td>
<td>The understanding of where an organization currently exists in relation to the desired end state.</td>
</tr>
<tr>
<td>The Surprise</td>
<td>The realization that performance previously believed to be optimal is in fact suboptimal.</td>
</tr>
<tr>
<td>Crystallizing Moment</td>
<td>A significant event which results in a cultural shift, changing the trajectory of the organization's future.</td>
</tr>
<tr>
<td>The Patient Experience</td>
<td>Transitioning from a culture of physician centric care delivery to one of patient centric care delivery.</td>
</tr>
<tr>
<td>Processes to Capture Data</td>
<td>The human workflow required to record desired data.</td>
</tr>
<tr>
<td>Systems to Capture Data</td>
<td>Electronic and computerized networks required to record, process, and retrieve desired data.</td>
</tr>
<tr>
<td>Action Planning</td>
<td>The identification of actions and behaviors required to improve the current situation and obtain the desired end state.</td>
</tr>
<tr>
<td>Transparency</td>
<td>A management method whereby the decision making process is made public and decisions and/or outcomes are publically made.</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td>Employee participation and contribution to setting organizational goals/targets and decision making.</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Expectations</strong></td>
<td>The explicit communication and definition of desired outcomes.</td>
</tr>
<tr>
<td><strong>Consensus for Goals</strong></td>
<td>General agreement of opinion that the stated organizational goals are the right path for the organization</td>
</tr>
<tr>
<td><strong>Consensus for the Targets</strong></td>
<td>General agreement of opinion that the stated targets are valid and appropriate measures of goal success.</td>
</tr>
<tr>
<td><strong>Alignment</strong></td>
<td>Activities of individuals, groups, and business units composing the workforce are in the correct relative position to accomplish a common organizational goal.</td>
</tr>
<tr>
<td><strong>Empowerment</strong></td>
<td>Investment in individuals and/or groups the authority and resources to carry out stated objectives.</td>
</tr>
<tr>
<td><strong>Incentivize</strong></td>
<td>To provide something that incites the desired action.</td>
</tr>
<tr>
<td><strong>Implementation</strong></td>
<td>The process of putting the developed action plan into motion.</td>
</tr>
<tr>
<td><strong>Focus on the Goal</strong></td>
<td>The relentless pursuit of the desired outcome.</td>
</tr>
<tr>
<td><strong>Accountability</strong></td>
<td>Holding an individual or group responsible for successful completion of a specific function and delivering rewards or repercussions in response to the results.</td>
</tr>
<tr>
<td><strong>Goal Relevance</strong></td>
<td>Communicating organizational goals in a manner that has significant and demonstrable bearing to workforce members in their daily activities.</td>
</tr>
<tr>
<td><strong>Line of Sight</strong></td>
<td>Communicating goal relevance in terms specific to a business function to demonstrate how individual activities within that business function are contributing to the achievement of the organizations goals.</td>
</tr>
<tr>
<td><strong>Monitoring</strong></td>
<td>The measurement of where the organization is compared to the goal of the desired end state.</td>
</tr>
<tr>
<td><strong>High Reliability Learning Organization</strong></td>
<td>Consistent excellence in quality and safety across all service lines for both patients and staff through a culture that encourages and supports continuous employee learning, critical thinking, taking risks with new ideas, embracing mistakes as opportunities, valuing employee contributions, disseminating knowledge throughout the organization, and the incorporation of new knowledge into everyday activities.</td>
</tr>
<tr>
<td><strong>Living our Values</strong></td>
<td>The carrying out of daily workforce activities in congruence with the organizations shared beliefs and ideas.</td>
</tr>
<tr>
<td><strong>Building a Community</strong></td>
<td>Instilling a sense in every member of the workforce that they are part of something greater than just their job description; everyone plays a role in caring for patients</td>
</tr>
</tbody>
</table>
4.3 Description of Overall Themes

4.3.1 Leadership

Leadership is defined as the organization of a group of individuals and/or teams to achieve a common goal. The resounding consensus of the interview participants in this research was that leadership drives everything. People are in health care for a reason. It’s a noble cause to want to help those in need. In the hospitals I visited the leadership was able to tap into that underlying passion and rally thousands of people behind the vision. As the CEO of one of the hospitals told me: “Our mission is to improve the health of those we serve. Those are eight words that are not up on the wall. If you go down and you talk to the 3,000 associates, or the 500 physicians, there’s a culture that gets to, ‘Are we doing the right thing every time with every patient?’ A lot of companies say the same thing. Are you doing it? Where’s the execution? Is it led? And I think we differentiate ourselves that way.”

The leaders of the hospitals I visited modeled the behaviors that they were expecting from the rest of the organization. They were open, honest, transparent, and engaged. They did not only hold their associates accountable with clear expectations they held themselves accountable.

(Chief Human Resources Officer – Hospital – B)
“Our CEO is one who's been very transparent. Enough to say, ‘You want to know what my targets are? Let me tell you.’ And so we are very aware of where we have to drive as an institution.”

Figure 4-2, is a Tag Cloud displaying the most frequently used words connected to every sentence containing any of the words: leader, leaders, leadership, leaderships, or leading. It provides a visualization of what the most common themes surrounding the
The Tag Cloud displays the most frequently used descriptors that interview participants used when speaking about leaders or leadership. The Tag Cloud includes the top seventy five words listed alphabetically in varying font sizes, where larger font is attributed to higher frequency.
Figure 4-2: Tag Cloud Word Frequency – Description of Leadership
• **Articulating the Vision:**

Three specific words appear with high frequency in relation to leadership: goals, change, and communication. Analysis reveals a central theme encompassing these words; the role of leadership to set the vision, communicate the vision and build consensus that it’s the right vision. I call this articulating the vision, and define it as fluently and coherently painting a word picture of the future.

The leaders of the hospitals I visited had a sense of “true north” that resonated with the workforce. The concepts of organizational vision, mission, values, and culture are discussed momentarily, under the heading *Drivers for Change*, but are central to leadership and leaderships ability to articulate the vision. The ability of senior leadership to articulate the vision encompasses all of those aspects, the vision, mission, values, and culture; its envisioning the desired future and succinctly communicating that concept, that idea, that vision, to the right audience, at the right time, in the right language.

Communicating how the activities of the various stakeholders are moving the organization toward that desired end state; the role of each individual working in concert towards the goal.

(President – Hospital - B)

“At the end of the day, one of the most important things I do in this hospital is my ability to listen, be emphatic, and be direct when I need to be direct. But it’s managing those relationships at all levels of the organization – not just physicians, from the housekeeper all the way up to the most senior leader and board member within our organization. And so you have to be able to do that and translate how their work then makes the organization successful.”

What do I mean by the right audience, the right time, and the right language? The leaders I met with are able to tailor their message to have the most meaning to the
individual/group/audience and communicate that message in a language that resonates with clinicians, or administrators, or researchers, or teachers, or patients, or front line care providers, or members of the community, or peer organizations, or whoever the audience was. To say it in other words, they could make a connection that rallied people behind the vision; they could articulate the vision.

(COO – Hospital - B)

“Building buy-in that the priority is important. And so that often requires us to have good data and be able to explain. So you have, I think the word is you have to have your elevator speech. You have to be able to say in kind of three sentences or less to the average person in the workforce what does this mean for you.”

• Clinical Leadership:

The word physician is the most frequently used word in conjunction with leadership. This represents a very important concept; clinical/physician leadership and is defined plainly as clinician participation in leadership practices. The results indicate that physician leadership is the number one way to foster physician buy-in; alignment between the hospital and the physicians who command the lion’s share of the hospitals resources. It was made clear that without physicians being involved in the leadership of the hospital, progress would never be optimal.

Of the hospitals I visited, almost half of the CEOs/Presidents had medical degrees. If we include nursing backgrounds, more than half of the CEOs/Presidents had either an M.D. or were a R.N. More than one third of the total leadership positions I interviewed were held by medical doctors. One thing that was not common was the methods employed by the hospitals to engage physicians and place physicians in
leadership positions. Each organization approached the physician/hospitals relationship a little differently.

The Majority of physicians who occupied the senior most leadership positions were not currently practicing medicine but they all had long and distinguished medical careers. Other leadership positions, at least one step removed from the CEO or President were often supplemented with a hybrid type of physician leadership. This would typically be a dyadic type of partnership. For example, the COO position for a hospital might have one individual with a purely administrative background. The individual with the administrative background would be partnered with a physician who would be charged with dedicating a percentage of their time working together to make decisions in unison.

(COO – Hospital – J)
“At every level in the organization, there’s a dyad, where there’s a physician leader. So, that physician leader maybe only has ten percent of their time as a physician leader, and they’re a practicing physician 90 percent. But they do have leadership time. They’re matched with perhaps a manager who’s a full-time manager. But they work together in whatever part of the organization, and they work as a team. So, the idea is that if the physician only has ten percent time as a leader, you want to leverage that ten percent of the time, have them knowledgeable about all of the issues, but pull them in when there specifically are things that they could be helpful with.”

(CEO – Hospital – I)
“A central tenet of the way we operate this organization is through a paired leadership model. So, virtually at every level of the organization, no matter what we’re talking about, you’ll find that there’s a doctor, an administrator and, usually, a nurse in a paired leadership model.”

The common difficulty centered on freeing up time and “bandwidth” of practicing physicians to engage in leadership and administrative functions. Physicians’ primary role is to care for patients; the administrative piece is viewed as secondary. Some of the
hospitals I visited employed physicians, some altered their structure to more closely align with physician groups, some used affiliations with independent physician networks, some created compacts, some created contracts, and some utilized committee structures to ensure physician participation in leadership and administrative functions. There was no common thread. State regulations varied, allowing more or less freedom and elaboration in contractual and employment arrangements between physicians and hospitals.

(Associate Vice Chancellor of Health Affairs – Hospital - I)

“What you have to do is free up, give people the bandwidth to spend some of their time treating the system that lets them be more effective using the system to care for patients. So, you’ve got to shift the – that kind of work from a midnight committee’s assignment, disconnected from the health system, to something that’s joined at the hip to them using the system in practice.”

Although strategies used to ensure physician participation in leadership varied, the dyadic approach seemed to be the most effective means of securing physician engagement in leadership and administrative functions. The dyadic approach can be implemented across the spectrum; from states allowing full physician employment to states where physician employment is illegal. In the hospitals that did not have significant physician employment, this was best implemented through education, internal physician development and compacts or contracts that establish expectations of physician engagement in leadership positions.

(CEO – Hospital – D)

“We’ve tried to do that in almost every department. We’ve got a – what I call the – dyad model, where we’ve got physician leadership partnered with administrative leadership. They each bring their respective skills and experience to the table, its proved to be a very effective way to drive the performance of the organization.”
(CFO & CIO – Hospital – J)  
“We have paired leadership teams where doctor and administrators work together. So in the clinic there’s a senior VP of the clinic and there’s a clinic medical director. In the hospital there’s a senior executive for the hospital and there’s a medical director. So, we pair up all the way down the organization in that way.”

- **Frontline Pull:**

A third major aspect of the leadership I met with was their ability to initiate frontline pull. Frontline pull is defined simply as engagement, planning, and improvement from associates on the front lines.

(Associate Vice Chancellor of Health Affairs - I)  
“We do a lot of top-guided vision development. And that provides context for a broad base of bottom-up planning. And the two sort of come together.”

This goes back to why people get into healthcare in the first place, and leaderships’ ability to fan that spark into a flame. The workforce is there to make a difference for patients. One of the most commonly cited extinguishers of that internal spark was resistance that exists within the internal organizational system; things that get in their own personal way of trying to do the right thing for their patient; obstacles. The leaders I met with had a wonderful ability to listen to people and act to remove obstacles.

(CEO – Hospital - I)  
“If you’re listening to an individual say, as a healthcare professional, ‘I need the following to do a better job for my patient.’ Now, you’re successful as an organization when you listen to that and actually make something happen because you heard it; you helped make a change happen. Now, you’ve got some optimism going. And that starts the flywheel.”

There was a multitude of ways this communication occurred from one-on-one discussions to organization wide forums. The extent that associate
ideas/comments/concerns were utilized and the methods for extracting those ideas/comments/concerns varied among the organizations I visited. However, every single organization recognized the value of frontline pull and was working to improve their ability to harness the creative power in their workforce.

(President – Hospital - B)
“You have to be willing to have the dialogue, and you can't place judgment – you have to listen and understand and come to a commonplace of what you’re going to do to take the next step towards improving the situation.”

One hospital in particular has implemented a “stopping the line” program. They decided that “stopping the line” sounded to manufacturing so they called it the patient safety alert system. The hospital implemented this system more eleven years ago for adverse events, near misses, and system issues. In 2002 they averaged three patient safety alerts a month, it was a slow start. Now they are averaging over 800 patient safety alerts per month with a goal of 1,000 per month. They are no longer adverse events or major near misses, it is the hospitals way of identifying system issues that are getting in the way of people taking care of their patients.

(Senior VP for Quality and Compliance – Hospital - J)
“So what we saw when we visited Toyota Motor Company is that basically high school trained operators had not only the accountability but the authority to stop a moving line, the manufacturing line that was probably the size of five football fields, and at any given second, they'll be 300 to 350 cars on that line, and each car has about 30,000 parts going into it. when we saw that, and particularly [our CEO], later challenged us the very first meeting that the executive team came together – it was called the management committee in those days – we came together and the discussion was can we, should we implement a stop the line process here? And we argued. We said, ‘Well, what’s a complication?’ Because your particular anatomy is the way it is, and there are certain things that are complications versus what’s a defect? We didn't really know yet what was a defect versus what was a complication. But [our CEO], said, ‘If our
patient was at the top of our pyramid [the strategic plan], then we must do this for our patients.”

4.3.2  Strategy

Strategy is defined as the attempt to obtain desirable ends with available means. Where leadership sets the vision, strategy maps the path to the vision.

- **Strategic Planning Process:**

  Each hospital had an organizational process of planning and goal setting. Several of the hospitals referred to this as a strategic planning process but others specifically resisted that label. One individual said “we think the idea of strategic planning is far too rigid for the environment we live in. We use a portfolio of methods.” Another hospital leader said that they employ Hoshin Kanri, which is Japanese for ‘management compass’ and is a slightly different approach to strategic planning and organizational goal setting. In the most simplistic language, I define this process as deciding what is important for the organization and achieving consensus as to what that is.

  Regardless of what the process was labeled there were many similar characteristics. This is a constant cycle; there was no five year plan created and put on a shelf. It was a living breathing part of the organization. Everyone understood the process and everyone took part in the process in some way. Things like leadership retreats where broad strategy and organizational vision were discussed, leading experts or consultants might discuss possible regulatory issues or industry trends. Internal forums, meetings or town hall discussions were also cited, where open communication and associate engagement might discuss the strategic direction or goals of the hospital. What was clear is that long term strategic thinking was prevalent throughout the leadership of
these hospitals. This was an integral part of daily thinking, talking, and engaging activities. The long term vision or overarching goal of the hospital was always front of mind.

Some of the more detailed aspects of the planning processes from an external perspective that were discussed revolved around tuning into the national conversation. This was accomplished through a variety of methods including environmental scanning, competitive analysis, staying abreast of state and federal regulatory changes, changes in accreditation, commercial insurance changes, technological developments, patient population trends, population demographic changes/trends, disease trends, performance measurement, benchmarking/expert consultation, public reporting, and networking.

Methods from an internal perspective included the identification of human resource opportunities or challenges regarding talent recruitment and management, employee/associate engagement, moral, and satisfaction, associate development, education, empowerment, leadership identification and development, physician and administrative collaboration, trust, and communication, relationship development, patient engagement, and product and payer mix changes and trends, to name but a few.

This planning process culminated with the development of new, or the confirmation of existing, overreaching goals for the organization. The hospitals that I visited referred to these as either foundational or pillar goals and on average there were either four or five of these foundational or pillar goals and they covered the following areas: 1) people/work culture/workforce development, 2) quality/patient safety, 3) service/customer/physician relations, 4) innovation/meeting community needs, and 5) growth/finance. These overreaching goals were cascaded down through the organization
and goals specific to the various service lines, departments, and workgroups, etcetera were then developed around these foundational or pillar goals.

4.3.3 Drivers for Change

Drivers for change refers to the triggers, or actions that awaken an organization and its leaders that change is necessary. Results of the analysis indicate three major forces that are driving change in the hospitals I visited. The first two forces are not easily separated; similar to the chicken and the egg conundrum. Which comes first, vision, mission, and values or organizational culture? It is the belief of this researcher that leadership set the organizational vision, mission and values to communicate the organizational culture they aspire to embody.

The third major force driving change for these hospitals is law and competitive forces. Again, these are difficult to separate. Some aspects of the 2010 Patient Protection and Affordable Care Act require compliance of various actors in the healthcare industry. Other aspects of the 2010 law work to incentive desired behavior through Medicare reimbursement. Medicare, a federal program, is the nation’s largest third party payer of health care and has enormous clout with care providers; a competitive force. This is an example of a hybrid type of approach between law and competitive force.

- Vision, Mission, & Values:

Vision, mission, and values are three distinct concepts that congeal into a synergetic expression of what an organization stands for. Vision is defined as the act or power of anticipating that which will, or may, come to be. Mission is defined as the framework or context for the formulation of strategy. Values are defined as important
and lasting beliefs or ideas shared by the members of a culture about what is good or bad and desirable or undesirable. Moral and ethical standards are imbedded values.

The vision, mission, and values set the foundation that culture is built from. These were all not-for-profit organizations and several had current or prior religious affiliations that had significant influence on the vision, mission, values and culture. Said in other words, all of these institutions existed to help their fellow human. That is the driving force that attracts the incredible people who make up these institutions. That is the driving force that pushes these organizations to continually strive for safer, higher quality patient care. That being said, it has to be done in an economically sustainable model – no margin, no mission.

(CEO – Hospital - A)

“High performance means that we continue to provide the best quality care as objectively measured in the most efficient manner.”

This is where the value equation comes into play. High quality, appropriate healthcare with exemplary service, delivered efficiently with consistent reliability. With this foundation these hospitals have built and continue to reinforce a culture of value.

(COO – Hospital - A)

“...we’re trying to move toward being a system of care, that delivers the highest value, and we’re actually very intentionally trying to educate the organization about the language of value...”

• **Culture:**

Culture is defined as the characteristic features of everyday existence shared by people in a place; shared attitudes, values, goals, and practices that characterize an organization. Analysis revealed three prominent themes surrounding organizational
culture: 1) quality and safety, 2) work culture (trust and respect), and 3) change, specifically in regards to the patient experience. This is by no means an all inclusive list. Other major themes identified include engagement, transparency, data-driven, culture as an aspect of organizational goals, and etcetera. What it all boiled down to was high quality patient care and patient safety is simply the right thing to do. The concepts of quality and safety and work culture are discussed presently. The third dominant concept is cultural change in regards to the patient experience. This concept is discussed under the heading gap analysis.

The notion of quality and safety was the most dominant theme. Common phrases I heard include:

“It takes everybody to identify and prevent errors.”

“Are you going to do the right thing when nobody’s looking?”

“Are we doing the right thing every time with every patient?”

“We have a culture of safety.”

“You change the culture when you come together for the patient.”

I think that it can all be boiled down into the following quote:

(Senior VP Marketing – Hospital - 1)

“...the overarching idea is that we want to treat everybody as we would want our mother treated or our family member treated. So that’s kind of an overarching promise, if you would.”

The second most dominant theme was work culture. This theme centers around respect for co-workers and trust. Trust in the organization, the workforce, your peers, and your team. A collegial culture of teamwork and support; often referred to as a just culture. Four of the organizations I visited have been recognized by Fortune magazine as a top 100 best places to work.
(CMO – Hospital - D)
“*Our culture is that we place a very high priority on people being treated with respect and collegiality*”

Beyond simply respecting each other is the notion of taking care of each other and yourself. Making sure work shifts are not compromising someone’s ability to perform, identifying “burnout” and prolonged stress and promoting a culture that allows people to take care of themselves before moving forward. An appropriate analogy is when you board an airplane and the attendant goes through the safety procedures. They instruct you to put your oxygen mask on before helping others. These hospitals are moving in that direction; taking care of one another before taking care of the patient.

(Senior VP of HR – Hospital - F)
“*When people are tired, I think they don’t understand you know, when you work so hard, when you’re tired and you’re intention is to do the best for the patients, but you need to look out for your own burnout and I think we’re trying to kind of put the mirror in front of our clinicians and say: Wait a minute. Time out. We want you to take time to just look for this and then address it and try to heal yourself first before moving forward.*”

(CMO – Hospital - J)
“*Respect for people, so doing work in a way that's humane, that doesn't set you up for making mistakes, so not asking somebody to be up all night [referring to a resident who has worked all night] and then come in and do some high motor skill task that requires a lot of attentiveness and expect them to be able to perform.*”

All of the hospitals are measuring their work culture in one way or another, but one hospital in particular is really driving this concept of respect further than any other. It came about after an organizational wide push for improving service behaviors. Every employee had mandatory training on service behavior in regards to improving customer satisfaction. The training went better
than expected and the employees asked: “when are we going to start treating each other with respect?”

(Senior VP for Quality and Compliance – Hospital - J)

“Everybody was trained on service behaviors. Because we weren't happy with our customer satisfaction. And it went really well. The staff loved it. We were so afraid that they would hate the mandatory word. And they thought it was great, and they gave us feedback. Okay. We get this. We can do this for our patients. Now when are we going to start treating each other respectfully?”

That brought about an organizational goal that, for the first time, spanned across all of the organizations pillars, respect for people. Every member of the workforce from the Chairman of the board to the front line has undergone mandatory training. Everyone has identified two behaviors they are working to improve in regards to the respect for people initiative.

(CIO & CFO – Hospital - J)

“The one that goes across all 5,500 people is this one that’s called respect for people. It’s an initiative that we started a couple of years ago and it’s aimed at not only respecting our patients and their wishes and needs, but how we interact with each other because if you can develop a cohesive, respectful workforce in terms of how you do your work, it’s shown that quality will improve because people aren’t afraid to speak up. They know what they need to say.”

Culture was the overarching driver of change in the hospitals I visited. These are organizations whose mission and vision is to provide care that is second to none. They each embody a culture that constantly strives to be better. They all pursue high quality because it’s the right thing to do.

• **Law and Competitive Forces:**

These two concepts can be difficult to separate when you consider the role of Medicare. They represent a fundamental transformation occurring in health care; the
transition from volume to value through population health management. For the purposes of clarification they are defined separately. Law is simply a system of rules and guidelines which are enforced through social institutions to govern behavior.

Competitive forces go beyond the concept of competition, it represents the affect on hospitals from the behavior of the various actors in the healthcare industry. Competitive forces is defined as the efforts of patients or subscribers to health plans, health plans, employers, physicians or other professional care providers, and hospitals acting in concert or independently to attract and manage the health of populations and secure business by offering the most favorable terms.

The regulatory changes currently underway by the 2010 federal law: The Patient Protection and Affordable Care Act, as well as various state laws and regulations governing healthcare providers generally have three primary objectives; these were often referred to by interview participants as the triple aim: The first aspect of the triple aim is to reduce, or at least control the per capita cost of care, the second is to enhance the patient experience of care, and the third is to improve the health of the population served.

These three objectives are presenting varying levels of difficulty for the hospitals I visited. Massachusetts introduced state legislation that federal regulation now mirrors, well before the federal regulation came out. This has given hospitals in Massachusetts a head start, putting them at the bleeding edge of healthcare reform. Massachusetts offers an intriguing case study of what the rest of the nation will likely go through in the coming years, but that is a story for another day.

The first aspect of the triple aim is to reduce the cost of care. Value Based Purchasing is a major aspect of this initiative by fundamentally shifting healthcare
reimbursement models; connecting clinical quality outcomes to reimbursement. The financial ramifications of VBP have gotten the attention of the health care providers I spoke with.

(Senior VP for Healthcare Quality – Hospital - A)  
“*The compensation has demonstrated that there are priorities out there and I would not say that the dollars on the table have meant all that much more than just the public reporting in and of itself until very recently when the stakes have gotten high enough that it really does hit. So I would say it was relatively recently. I would say it’s maybe within the last two years because the dollar figures are such that it really does cause you to drive your priorities beyond just the public reporting.*”

The second aspect of the triple aim is the patient experience. This has been a major shift in the mindset and culture of healthcare providers. Value Based Purchasing has connected reimbursement to aspects of the patient experience with HCAHPS measures evaluating patient satisfaction with communication between the patient, physicians and nurses, the level of noise at night, the cleanliness of the facility, pain management, and etcetera. Several of the leaders I spoke with commented about how significant this shift is. One hospital CEO who was an ER physician in the late 1980’s and early 1990’s told me that they had tee shirts that read “I am here to fix your ass, not kiss your ass”. Other physicians spoke of their hospital motto during the early 1990’s “We’re going to give you great care, but boy are you lucky to get it.”

(Senior VP for Quality & Compliance – Hospital - J)  
“*...in those days in health care, it was normal for patients to fall and break their hips. It was normal for a certain number of ventilator acquired pneumonia or central line bloodstream infections, or whatever. It was normal. We were a normal harming factory, not only our hospital, but across the country.*”

The third, largest, and least understood aspect of the triple aim is population health. No one knows exactly what this means or how to accomplish it.
(CEO – Hospital - J)
“I think it’s something [population health management] that’s very poorly defined really across the country. So it’s probably the biggest challenge, the biggest component of the Triple Aim or the least understood component of the Triple Aim.”

( CMIO/CIO – Hospital - A)
“Does anyone really know how to be successful as an ACO? Yeah, right, not really. But, it’s clear that fee-for-service medicine isn’t going to actually carry us into the future.”

Value Based Purchasing will soon tie readmission rates to reimbursement. That may sound straightforward but it introduces a host of issues for the leadership I spoke with. Collaboration in fiercely competitive markets will have to occur for hospitals to accurately track patient readmissions across a community. Only in Massachusetts has such collaboration begun in a meaningful way. In competitive markets the resounding answer to population health is consolidation; growth vertically, horizontally and geographically.

(CEO – Hospital - D)
“...you're no longer getting paid in the old fee for service model. You're getting paid to take care of a population of patients. So, you've got to have geographic spread in your services, and you've got to have size to be able to be fully integrated in the types of services that you're able to deliver. So, big is really important going forward, much more important than it's ever been before.
If you assume for a second that we're going to get paid a whole lot less for the care that we deliver, because the federal and state governments are broke – and they are – if you assume that, then you're never going to have much more than a one or a two percent operating margin down the road. And if you've got a two percent operating margin on a $5 billion business, you don't have enough money to do everything, but you've got enough money to do anything that makes sense. But if you've only got a two percent operating margin on a $0.5 billion business or a $1 billion business, it's not enough money to keep up with the resources that are necessary to be successful.”

Competitive forces are also actively shaping the future of healthcare. The hospitals and health systems that I spoke with view themselves as community stewards.
Community business leaders, major employers, and insurers have made it clear that business as usual will not be acceptable. Major community employers cannot sustain the increases in healthcare cost that have been occurring and private insurers have begun to move to global risk contracts. Healthcare competition is focused on the value equation.

(CMIO/CIO – Hospital - A)
“...it is such a competitive marketplace - if we don’t innovate we’re going to die...”

Dr. Kaplan, the Chairman and CEO of Virginia Mason Medical Center offers a definition of health care quality that was very similar to what I heard from the leaders I spoke with.

Dr. Kaplan’s definition (Kaplan 2010):

\[
Q = A \times \frac{(O + S)}{W}
\]

Q = Quality; A = Appropriateness; O = Outcomes; S = Service; W = Waste

(CMO – Hospital - F)
“We were convinced that quality was fundamental to answering the conundrum of how do you improve costs in healthcare because of this value equation. And we really believed that it really is about quality, it really is about being a high reliability learning organization, it really is about value. We have to be conscious about our cost infrastructure. We have to drive everything through the lens of outcomes and quality is the key to arriving at a much more efficient healthcare delivery system.”

(CMIO/CIO – Hospital - A)
“We’re not going to compete on anything related to physical plans or quality or service. However, you can absolutely in today’s marketplace compete on cost. And of course, as we’ve said, it has to be value, because offering low quality at low cost, that’s not going to impress anybody.”

(CEO – Hospital - G)
“It’s one thing to talk about quality and talk about cost in different paragraphs or a different chapter in the book. Trying to put them in the same chapter in the book and talk value, that’s been fairly recent, I’d say in the last three or four years and I think that’s directly in response to changes in the competitive landscape, changes in government, you know, the impact of federal regulation.”
4.3.4 Gap Analysis

Gap analysis is defined as the understanding of where an organization currently exists in relation to the desired end state. Three of the four components of gap analysis were common to almost all of the hospitals. *The surprise*, where public reporting revealed that performance was not as good as previously believed. *The patient experience*, which represents a cultural paradigm shift in the industry, the transition from physician centered care to patient centered care. The third common component is *processes and systems to capture data*. This may sound easy but in reality it’s a continuing headache for hospitals. The fourth component of gap analysis, *crystallizing moment*, was only found in three of the hospitals I visited but it played such a significant role in the development of those hospitals that I felt it should be included.

- *The Surprise:*

  The surprise is defined as the realization that performance previously believed to be optimal is in fact suboptimal. Said in other words, you’re not as good as you thought. Prior to the 2003 legislation that kicked off public reporting of standardized measures across hospitals, most hospitals viewed quality as a synonym of their reputation and prestige. Outside of mortality measurement there was a lack of consensus in just defining quality, let alone measuring quality. External benchmarking of standardized quality related measures offered a new perspective; a way to remove themselves and view their organization from the outside. Often times what they saw fell short of their expectations.

(Senior VP of Performance Services – Hospital - B)

“This was a transition as well, where we went from only looking internally at ourselves and how we did, and thought we were a top hospital and all that, to a shift to, ‘Well, let’s make sure we understand how we look from the outside looking in.’ And so that was a big shift in terms of the culture.
Because it’s hard to look in the mirror sometimes and then say, ‘Geez, we don’t look very good from the outside.”

(Senior VP Medical Education & Clinical Excellence – Hospital - C)  
“I would say we started, you know, eight or ten years ago, because we realized that – we began seeing the – looking at the data, and managing it, instead of from a subjective approach, that, hey, we're high quality. You know, our reputation is good in the city and among other systems. We started looking at the data and said we weren't as good as we thought we were.”

•  **Crystallizing Moment:**

Crystallizing moment is defined as a significant event which results in a cultural shift, changing the trajectory of the organizations future. There were three examples of crystallizing moments in the hospitals I visited. Each of the three crystallizing moments happened more than ten years ago in their respective hospital but each was cited as a major catalyst for change that propelled them toward their current state. Two of the hospitals spoke of quality related catastrophes that rapidly changed the trajectory of the hospitals future. These were medical errors; one resulted in the death of an adult patient and one resulted in the near death of a pediatric patient. These two events happened long ago but they still continue to hold strong emotional connections to people inside those medical centers.

(President – Hospital - B)  
“...that was a horrific event in the life of this organization and in the life of that child and her parents and everyone in the community. But we made a mistake. We made a huge medical error. And here we are one of the top ten programs in the country, or top ten hospitals, and we made that kind of medical error. So it made us stop and really question do we really have the right level of commitment within our culture to quality and safety? I actually think while it was a horrific event, I also think it was the thing that catapulted us to say, ‘What do we do so that never happens again?’”
The other event was related to an organizational near death episode. The hospital found itself at the brink of bankruptcy and precariously close to being taken over by the state. It was described as an event that facilitated the removal of individuals from the organization who were not connected to the mission at a deep level. These people left on their own, those that stayed and those who came aboard were willing to work hard, take risks, and adapt to ensure the mission survived. I was told that this event has left them agile and an organization that embraces change.

(Senior VP for Healthcare Quality – Hospital - A)
“A lot of people that are resistant to change just didn't stick around. A lot of new people came, and if you're going to come to work voluntarily at a place that almost went broke or is about to go broke, you have to be someone who is pretty comfortable with change.”

• The Patient Experience:

(CEO – Hospital - G)
“Shifting from a system where you’re trying to get people to like you, to a system where you’re providing high quality – if you think of customer service as just another measure of quality - trying to get people to think of it that way and trying to have people understand that measuring responsiveness is a function of quality – it is going to help people not get up out of bed to go to the bathroom and they’re not going to fall and they’re not going to break their hips, therefore they’re not going to die. That’s a whole different thing than just getting people to say you were nice.”

The patient experience is defined as the transitioning from a culture of physician centric care delivery to one of patient centric care delivery. This represents a major shift in the mentality of clinical care providers. Traditionally, healthcare has been designed around physicians. Waiting rooms designed to que patients for physicians, doctors’ offices triple booked on Tuesday and empty Friday afternoon, and patients not being actively involved in the care their receiving.
Every hospital is struggling with this transition. The HCAHPS score, used to measure patient satisfaction, can range from 0 to 100. Of the 277 hospitals that represented the population for this study the average score was 27.7, the average for the hospitals I visited was 38.4. This is a transformation that is occurring now and the opportunity that this represents is enormous. Two examples of approaches to the patient experience that are being implemented by some of the hospitals I visited include a multidisciplinary approach to care and same day access to care:

Multidisciplinary approaches to setting up the patient visit. This is organizing the care around the patient. A cancer patient for example, would have a visit organized around their needs in order to get a diagnosis as early as possible. Creating a team based approach to treating a patient who is participating as an active member of the team. The patient would come in a see a medical oncologist, a surgical oncologist, and a radiation oncologist together, during one visit so that the physician services are provided to center around the patient needs to again, get a diagnosis and start treatment as early as possible; trying to make the entire patient experience more value added – for the patient.

The importance of patient access was another example. There are several instances where quick access to a medical professional will not change the outcome. If a woman discovers a lump in her breast the outcome will likely not change if she gets in to see a physician today, tomorrow, or next week. There is a cultural mindset in care providers who say that it “doesn’t really matter, the outcome is not different.” There is nothing more personal than an individual’s health; the old clinical mindset does not make the personal connection. For the patient who discovers a lump it’s a crisis; not only for the patient, but the patients family and loved ones. The leaders I spoke with do
understand that health is personal and healthcare is personal, they are working to build models of patient centered care that reflect that. Other examples ranged from eliminating billing hassles, to the speed at which patient telephone calls were answered, to the design and layout of patient floors and rooms.

(Senior VP Business Development & Planning – Hospital - A) “The goal is that if somebody has a lump, if they identify or their PCP or somebody identifies a lump, they should be able to get in today, if possible, or tomorrow to get a diagnostic. Now, you don't need a screening mammography appointment today because you don't. But if there's a problem, can you begin it? If there's a problem can you get in to see a surgeon or somebody to tell you if this is a problem or not? So, we're working towards same day access because for a patient with a lump, that's a crisis.”

There was also a common grumbling across the hospitals voicing their frustration about the measures being used in Value Based Purchasing. Regarding the process of care measures common complaints centered around whether the measures are actually a representation of quality, or that the measures are shallow and only examine a minute aspect of care.

(CMO – Hospital - E) “On a national level, I think we were involved in it, but this was given to us. ‘These are the things you will be measured on.’ Now I frankly think they're a little superficial, you know? If it was completely up to me, I'm not taking those measures, right? Whether or not you get an aspirin on admission? You know, something like that is just the tip of the iceberg...”

(CEO – Hospital - A) “The fact that we give aspirin after an MI in 100 percent of the cases really is not really relevant anymore. The metrics being used that are publically reported, for the most part, I think lag the science, and they're more around what's easy to collect than really what's important to measure.”

The HCAHPS complaints focused around the belief that patients are judging hospitals not on the care they receive but the inconsequential aspects of
the services provided to patients during their stay at the hospital. About how patients are basing their experience on whether or not they had enough blankets, or if their coffee was hot, or if they had trouble parking, instead of the actual medical care they received. There is recognition though, that the measures are here and that the time for grumbling is over. This is the current reality; it is a cultural shift that everyone is undergoing.

(Senior VP of HR – Hospital - H)
“Everybody [patients] expects the excellent medical care and patients don’t rate us on, ‘Oh, my gosh, the doctor was thoroughly knowledgeable of that heart procedure I had.’ No, they rate us on – ‘And then, when the doctor left, the nurse came in and put a warm blanket over my feet.’ I mean, it’s like, ‘Talked to my daughter’, you know, this sort of thing. So, how do you convince employees that this is where we need to go? So, we need to do the same quality care and having patients leave highly satisfied.”

- **Processes and Systems to Capture Data:**

(Chief of Staff – Hospital - H)
“...meaningful use requirements want you to track something that goes across the systems. So how do you do it? A little piece from this computer, a little piece from this computer, paper here. It's a good idea but not easy to track and implement.”

Processes and systems to capture data represent both the human and machine aspects of data acquisition. Processes to capture data is defined as the human workflow required to record desired data. Systems to capture data is defined as electronic and computerized networks required to record, process, and retrieve desired data.

On the human side a major opportunity still exists surrounding the actual capturing of needed data during the process of delivering care without impeding or interfering with the actual delivery of care. Improvements in efficiency and care quality were some of the benefits touted from adopting an electronic medical record but many of
the physicians I spoke with remained skeptical. The greatest opportunity is finding ways to incorporate electronic clinical applications into the various clinical disciplines daily workflow in consistent locations inside the electronic media using codified or normalized language.

(Chief of Staff – Hospital - H)
“I think the biggest impact that the doctors have is that the usage of the electronic medical record is not improving efficiency of their practice. It takes more time for us. And probably most would question whether it's really improving care.”

(Associate Vice Chancellor of Health Affairs and Chief Strategy Officer – Hospital - I)
“So, once people understand system-based care is not cookbook. What system-based care is, is giving you a simple enough process, with some informatics to help jog your memory, to let you really focus on what’s different about this person so that you can actually customize the system to what they need. But you’re putting all your energy into the human’s ability to pattern recognize, judge, recognize value. Those are the kind of things that a good human piece of the health system does. And if you’ve got the process – if you got the people – the role, the process, and the technology to let you really do that, then you’ve got the right partnership between the human and the system or the standards or whatever. The trick is to actually help people understand this is how you empower them. But that takes a fair amount of work.”

Beyond the challenge of getting clinicians to adopt and use electronic systems while delivering care were the issues just mentioned. Entering the data in specific fields so that the data can be accurately retrieved at a later date and entering the data using a normalized language and doing all of this while interacting with patients and delivering medical care.

(CMIO – Hospital - H)
“We struggle with the clinical applications to incorporate into the various clinical disciplines daily workflow. The ability to enter information we need in, I’ll say, codified way that is in a field that you can capture, without intruding on that persons workflow excessively. That remains our biggest challenge.”
Normalization of data is simply using the same language to describe the same phenomena. What I might call high blood pressure you might call hypertension and someone else might call elevated blood pressure. Normalization can be a very labor intensive process. To add to this, clinicians may not record the necessary data in similar locations and they may be recorded in a way that is not electronically retrievable.

(Chief of Staff – Hospital - H)

“So much documentation is manual, un-coded, and it's extremely difficult to retrieve it. It may be very labor-intensive, but that's still difficult. You're still depending on a person, as opposed to having a machine do something like that, which is what they're made for.”

A lack of a common data platform or lack of interoperability between IT/EHR systems was a major frustration for the leaders I spoke with. Of the hospitals I visited a single vender electronic data system was the most common approach. Eight of the ten organizations were either already using a single vender system or were in the process of implementing a single vender system. Epic was the most common system, but Cerner and GE Centricity were among the others. Those currently using or soon adopting a single vender system wanted a common data platform that communicated well and that allowed them to build customized additions on top to suit their needs.

(CMIO – Hospital - B)

“...we’re going into this [Epic implementation] up front trying to think about how we are going to compile our data, how are we going to normalize and standardize our data so that we can start asking very innovative and interesting questions about how we can improve our process and our quality and ultimately get to better outcomes as opposed to just improving the process.”

The other two hospitals were very adamant about creating in-house data systems in conjunction with a best-of-breed approach. One CMIO was clear of his dissatisfaction of commercially available electronic health records. They felt that creating their own
systems allowed more agility to change, create, and implement new ideas and approaches to data collection and management.

(CMIO/CIO – Hospital - A)  
“...you're talking to an IT guy so for me what I want in place are the IT systems that make work faster and more accurate so I achieve good patient outcomes as well as good physician satisfaction. I don’t know how much you’ve studied EHRs, but most EHRs in the marketplace are horrible.”

Time lags of CMS data were a common irritation. Across the board this frustration was evident; the availability of CMS data was often cited as lagging behind the collection period by weeks or months. For hospitals to be able to monitor, interpret, and correct performance in quality measures, near real time data is required. Healthcare is fast paced, how is an individual going to recall why the timing of an antibiotic was off for a pneumonia patient that was discharged three weeks ago?

(CMIO – Hospital - B)  
“One of our challenges is the lag time between the data that CMS uses, for example, and what we’re doing today. So, understanding performance in near real-time, or closer to real-time, to be able to measure whether our activities for improvement have made a difference.”

(CNO – Hospital - J)  
“When we first started, we sent these metrics out, and people are, ‘What do you want me to do with this? You know, first of all, they’re a month old, I don’t know why they failed. I don’t recall the case well enough. I don’t own that. You know, you’re talking about critical care, I work in the operating room.’ So, we had to get way more deliberate and accountable for that.”

### 4.3.5 Action Planning

Action planning is the identification of actions and behaviors required to improve the current situation and obtain the desired end state. Analysis revealed three prominent themes consisting of multiple concepts. The first theme is transparency, engagement, and expectations. This refers to an open and highly inclusive planning process with
clear, actionable, and attainable outcomes. The second theme is *consensus for goals and targets*. This refers to the idea that everyone believes that the goals are the correct direction for the organization and the stated targets reflect progress toward those goals. The third theme is *alignment, empowerment, and incentivize*. This refers to the idea of positioning, providing tools, resources and authority, and incentivizing everyone to “row” in the same direction.

(CEO – Hospital - J)

“It’s about leadership work and engagement, and then it’s about frontline tier three reporting and engagement at the sharp end of care so that every work unit - the goal, the objective, is for every work unit to understand our organizational work, their role in it, and feel valued for their role, a critical and important role, and have input in setting that work going forward.”

- *Transparency, Engagement, & Expectations:*

  Transparency is defined as a management method whereby the decision making process is made public and decisions and/or outcomes are publically archived.

  Engagement is defined as employee participation and contribution to setting organizational goals/targets and decision making. Expectations is defined as the explicit communication and definition of desired outcomes.

  Each hospital had some type of mechanism to engage diverse inter-professional teams within the organization; physicians, nurses, faculty, and administrators; to contemplate the future and plan. Not just a planning process but aligning that process to a sort of true north vision; three to five year goals that guide the planning process. A planning process that is open and clear to all employees, engages a large number of employees, and results in clear actionable goals with measurable outcomes.
Transparency was reported as one of the most significant tools for change. Transparency, both internal and external, was reported as playing very important roles in helping to change the organization. When an organization is making progress toward a goal and the measures are open for all to see, it increases pride and moral inside the organization. When things are not going well and everyone knows it inside and outside the organization it motivates change. Clinicians are data driven, even more so when the data reflects on them and is available for all to see.

(CIO & CFO – Hospital - J)
“This was several years ago now – but we were challenged, we got the preliminary data from an external organization that was going to publish some data. We had a choice to have our data in or out and at that point in time our data didn’t look very good. We made a conscious choice to [have our data included]: doesn’t matter if it doesn’t look good, we’re so committed to transparency as a means to have things change that we will do this.”

One hospital has a specific weekly meeting that examines the hospital’s most complex patients, any patients that have been admitted greater than X number of days to try and understand why. It began a few years ago with just the CEO, the CNO, the CMO and the team caring for the patient. Since then it has been opened up to all senior leaders, clinicians, and clinical care providers. At first members of the team caring for the patient were reluctant, “why do I have to go in and have this discussion with senior leadership about my patient, I know what I ’m doing with my patient.” As the CEO explains it… “it’s, once again, your willingness to be open and be willing to have the dialogue. The issue was not around what we could do to save someone’s life; the issue was really around what we should do to save someone’s life – two very different things.”
Once the senior leaders made it clear that they were not interested in
telling the care providers how to care for the patient, they wanted to understand
the challenges that the care providers were facing and begin the open dialog that
creates new and different approaches. The leadership wanted to understand so
they could better put resources in place to support them. The CEO told me that
“...now, Wednesday mornings, it’s a packed house. You can't get into the room
because everybody wants to hear the case and how we’re going to deal with it.”
This is just an example of leadership engaging in dialog, listening, and supporting
the people on the front lines.

Engagement varied from hospital to hospital but the planning process would
always involve all relevant leadership across all business units and all clinical service
units. Some hospitals were more focused on clinical practice; others were equally
focused around clinical practice, research, and education. Two thirds of the hospitals
described themselves as matrixed. Nine of the ten organizations belonged to a multi-
hospital system; this is when the idea of a matrixed organizational structure really took
shape. The cross pollination and collaboration across care sites and service lines in
interactions, strategizing, planning, reporting, and communication resulted in the sharing
of ideas, consistent communication schemas, and the translation of concepts and practices
throughout individual hospitals and throughout the health system.

(Associate Vice Chancellor of Health Affairs - I)”This is not a hierarchical organization; this is a matrix collaborative organization.
And we just had the medical schools accreditation people – team here, and they all came from state schools, and they wanted to know, ‘Who carries this message from here to here.’ We said, “It’s just not how we work. We have people from all levels together in the planning, and they each then know what to carry. It’s not like somebody’s carrying it from point A to point B.”
I believe that at the heart of the idea of a matrixed organizational structure is personal relationships. Better quality, services, strategies, technologies, cost structures all contribute to success, but all can be copied over time. The one thing that creates a sustainable competitive advantage is the workforce, the people who are the hospital. Results indicate that employees who are engaged significantly outperform workgroups that are not engaged. Again, this is about relationships. Relationships with peers/coworkers, relationships with immediate supervisor, relationships with immediate reports; healthy working relationships foster trust, they foster a belief that people are not just looking out for themselves but they are engaged in an organization that they participate in, they believe in, and they take pride in.

(CNO – Hospital - C)
“What it’s really about is building relationships, because when you build relationships, that's how you influence people.”

(CNO – Hospital - H)
“What differentiates [our hospital] is truly the relationships that we have with our staff, with each other, with our colleagues, and particularly with our physicians. And I think that’s the essence. Nothing can be done without the support of each other.”

Expectations drive performance. How can you ever measure performance if there are no clear expectations to base it off of? It seems a simple concept but without the ability to communicate the message and communicate the goals throughout the organization so that there is no ambiguity about what is expected high performance cannot be achieved.

(CEO – Hospital - D)
[Speaking of when he joined the organization as CEO] “So, there were no goals. There were no expectations. There were no incentives for anybody. There was a ton of data that was available that was not being reviewed or utilized to manage anybody's behavior. So, we made some
very basic changes to create some accountability for folks, and define expectations that didn't exist previously. And [we had] huge improvement in the performance, because people want goals, and people want to have incentives, and none of it existed. So, just introduce some very basic management tools that didn't exist previously.”

- **Consensus for the Goals & Targets:**

Consensus for the goals and targets are defined separately for clarification.

Consensus for Goals is defined as the general agreement of opinion that the stated organizational goals are the right path for the organization. Consensus for the Targets is defined as the general agreement of opinion that the stated targets are valid and appropriate measures of goal success.

All of the hospitals seemed to excel at garnering agreement that the goals are the right path for the organization; that they embody the vision and mission of the hospital/health system. The goals of these hospitals simply boiled down to doing the right thing and ensuring sustainability. Across the board there was no ambiguity when it came to the goals. Every hospital had simple goals that were clear, concise, and tied to measurable outcomes.

(COO – Hospital - E)

"Once we get to clarifying the goal then the consensus drives it forward into action.”

The two most important aspects of any strategic planning process are first figuring out what is important for the organization to do and second, obtaining consensus as to what that is. This was often referred to as ‘buy-in’. This is where transparency played a key role. The most common tool for building buy-in or obtaining consensus was data; having good data and being able to explain the why. This is especially true in the environment of a major teaching hospital; an environment of elite thinkers who are very
knowledgeable. One CEO said that he comes to work every day and is surrounded by valedictorians. That is important to remember because if you give valedictorians the data, they will figure out how to fix the problem or to address the issue.

(President – Hospital - B)
“I mean nothing makes a valedictorian more upset than to tell them what they should think.”

- Alignment, Empowerment, & Incentivize:

(CEO – Hospital - A)
“Alignment is important and the absence of alignment almost necessarily means you’re not going to be able to achieve many of the things you want to achieve.”

(CEO – Hospital - J)
“So if you empower with tools and methods and support and coaching and prioritizing alignment of the front line staff then they’re able to redesign their work. They should come to work every day with two jobs – to do their job and improve their job.”

Together align, empower, and incentivize refers to the idea of positioning, providing tools, resources and authority, and enticing everyone to “row” in the same direction. Alignment is defined as the activities of individuals, groups, and business units composing the workforce are in the correct relative position to accomplish a common organizational goal. Empowerment is defined as the investment in individuals and/or groups the authority and resources to carry out stated objectives. Incentivize is defined as providing something that incites the desired action.

As previously discussed, obtaining physician alignment to the organizational goals and objectives was primarily accomplished through leadership roles and engagement of physicians. It was made very clear that without physician engagement and integration into decision making success cannot be fully realized. The dyad
leadership model seemed the most effective method for fostering alignment between physicians and the hospital.

(President – Hospital - B)

“They [physicians] have to be partners with the hospital. Because, at the end of the day, they are the drivers of many of those things you just mentioned. So you can try to do it in isolation, but you won't be successful. But if I’ve learned anything about working with physicians, is if you show them the data, they will respond to the data.”

The number of employees at the hospitals I visited ranged from 1,263 to 13,480 and averaged 6,084. Obviously, getting that many people to focus their activities in one direction is no easy feat. The leaders I met with commonly referred to a cascading approach to goal setting. This required varying levels of empowerment throughout the organization. Once the top level goals are set, they are trickled down to the next level of management. That level then determines goals, measures, targets, and actions required for them to achieve those top level goals. This process of cascading, goals setting, target identification, and required actions is then repeated down to the front line associate.

(CNO – Hospital - A)

“So what we’ve done as a process is at the leadership level, we’ve developed the top half of this [annual operating plan]— and then we say to local departments, ‘Okay, this is your road map, but you have to populate the detail, and you, in particular, need to be having measurable, specific, one-year attainable goals to populate this with.’ And so it’s a combination; people go back to their work areas, each division, department, specialty group, or whatever work group that made sense to have a series of goals; got this, [annual operating plan] and then a blank piece under it. And so our job, as a department or a division or a workgroup or a committee was to come up with goals that could track back to each of these pillars.”

(CEO – Hospital - D)

“So, those five, six major buckets, and everybody's got goals related to each of those. And the key really is getting consistency across the organization. If you really want to drive the behavior of a large complicated organization, you have to get everybody's goals lined up in the same direction. Otherwise, you create a lot of random motion.”
“I’ve always really allowed the units to focus on their goals for their own. So, say patient satisfaction. If you have a med surg floor, you’re in OR or you have an oncology floor, the goals for patient satisfaction will be similar for the most part across the board, but, you know, there’s going to be nuances that are very specific to that patient population. And I think it’s very important for those people who take care of those patients to identify what are they?”

Every hospital I visited had some method for capturing employee ideas and thoughts regarding improvements. One hospital went above and beyond all of the other with their initiative “everyday lean.” It’s a cultural approach that focuses on continuous improvement. The everyday lean initiative is an approach to employee process improvement in a specific area; it’s about what the staff has control of in their area. If they think there is a better way of doing something than they are charged with conducting an experiment. This requires some data collection to demonstrate the effectiveness of the new idea. Someone might measure time reduction, the reduced number of steps needed to complete a task, the number of reams of paper saved, etcetera by implementing their idea. The staff will demonstrate the improvement, if it is successful, they will implement that improvement and demonstrate the benefit, be it resource reduction or efficiency improvement and then they have a specific organizational wide “supermarket” where they post what they did and anybody can shamelessly steal the idea and apply it to their work.

“So part of [this hospital’s management system] and one of the other constructs of the Toyota production system which we’re trying to adopt is if you go to Toyota, they get about 100,000 suggestions from their staff every single year, and they implement 98 percent of them. So that’s where we’re trying to go.”
Economic incentives were used at every organization I visited. They ranged from including just senior levels of management to every employee in the organization. Other non-economic types of incentives such as recognition are discussed under the heading *monitoring*. Incentives were commonly tied to performance in regards to goals. One organization took an approach to evaluation and compensation that was unique to all of the hospitals I visited. Their compensation philosophy was based on a performance template; half on goal obtainment and half on behavior. From the top to the front line, compensation was not only tied to achieving goals, but achieving goals in a manner and using behaviors that reflect the organizations values. The president of the organization told me that they do this because behavior is a critical part of creating a work culture where people want to stay and be a part of.

(CNO – Hospital - B)

“So every staff member in this organization goes through a process, whereby, which their performance evaluation is 50 percent based upon behaviors, whether or not you’re achieving our core value of caring for our patients or loved ones and each other, and how you demonstrate teamwork, integrity, diversity, excellence and safety, very clearly articulated. That’s half of our evaluations; because if you don’t establish that and you don’t do that, it’s really hard to get to the outcomes. The other 50 percent of that evaluative process are very clear outcomes according to the organizations balanced scorecard. So we’ve driven that process down to the frontline so there’s a lot of consistency. That whole process down to the frontline came after a true embeddedness at the global system level and entity leader level around compensation philosophy.”

Another incentive program that was unique to only one organization was called “success shares”. This program was set up as a challenge to the entire workforce, if the hospital met their patient satisfaction and financial goals for the year every employee was awarded an additional five days pay. They have paid
out four of the five years since the program was rolled out. They actually have increased the payout to eight days pay for the current fiscal year.

A third incentive program that stood out as very successful, was unique in the sense that it fostered a real feeling of team. It’s a management variable compensation plan tied to all organizational goals at a specific level. For example, part of the CFO’s compensation is tied to glycemic control in the hospital.

(CIO & CFO – Hospital - J)
“...collectively as senior leaders we believe that the work that we say is important here is everybody’s work.”

4.3.6 Implementation
Implementation refers to the process of putting the developed action plan into motion. Where the previous two steps, gap analysis and action planning have emphasized planning, implementation emphasizes action. Focus, accountability, and communicating the organizations goals in a manner that resonated with the workforce were concepts that were repeatedly identified throughout the interviews.

- Focus on the Goal:

(CEO – Hospital - D)
“Everybody's goals are the same, or variations on the same thing. So, everybody is focused. Everybody has quality goals. Everybody has financial goals. Everybody's got patient experience goals and the strategy is you want to move the bell curve to the right. You want to constantly strive to improve the overall performance of the organization, and if everybody's making incremental changes but all pointed in the same direction, that's how you shift the overall performance, enhance the profitability, improve the patient satisfaction scores, reduce the mortality rate, and reduce your costs. And I think, for the last two years, we've got pretty good evidence that it works.”
Focus on the goal is defined as the relentless pursuit of the desired outcome. The hospitals I visited, like all the other hospitals in this country are constantly being measured and evaluated by a multitude of sources. It was reported that with so much external measuring of everything the hospitals are doing, that it was very easy for leadership to slip into a ‘reactive mode’ where they were responding to external entities like the Joint Commission or Health Grades or some other organization. Leadership resoundingly expressed the importance of pursuing their stated goals and not be sidetracked by passing fads.

(CEO – Hospital - H)
“I think what’s really important is to, kind of, get ahead of that curve in the minds of, not only organizational, but in the minds of your staff that say, ‘We’re going to define quality and we’re going to relentlessly pursue that set and not to be sidetracked with the flavor of the month.’”

The ability for leadership to stay the course and continue to pursue their goals was not reported as being an easy task. By far the number one tool for maintaining organizational focus was communication; the leadership’s ability to communicate a consistent message cascaded throughout the organization. This is our goal, this why we are pursuing this goal, this is what will happen if we do not achieve our goal.

(CEO – Hospital - D)
“You need to over communicate, so that there's no ambiguity about what the message is, no ambiguity about what the expectation is. And most organizations under communicate by a factor of ten. You need to communicate, communicate, communicate. And just when you think you've said it too many times, say it another five or ten times so that everybody understands what direction we're going in.”

(Senior VP Quality & Safety – Hospital - F)
“Here’s the one-year-goal, here’s the two-year goal, and by golly if you don’t meet the one-year-goal, the two-year goal still stands unless something has dramatically changed in the environment.”

• Accountability:
Accountability is defined as holding an individual or group responsible for successful completion of a specific function and delivering repercussions if successful completion is not delivered in the time frame specified. Results indicate that accountability cascaded down to the front line was a must. Someone must be made ultimately responsible for achieving the desired outcomes. Even if it’s a committee or a group working on something, an individual must be charged with accountability for that committee or group.

(Director of Performance Services – Hospital - B)
“No job is done well unless someone is held accountable to it. So if I say that we are not performing well in terms of documentation of surgical incision times with the new residents that come on board in July. Somebody’s got to be held accountable to training those residents and getting them on-board.”

This was readily apparent when leadership spoke about the specific measures in VBP. Within each hospital someone would “own” a set of measures and be held accountable on the performance of those measures. That set of measures would then be broken down into each individual measure and another individual who was the closest to the point of contact with the patient in regards to that particular measure would be assigned ownership and held accountable.

(CNO – Hospital - J)
“Then I have to get down into the metric. Who actually has control over that element within critical care, or who has control over that element in the operating room? So, then we get down another layer to say, ‘You are the accountable person for the success of this metric, and we’re going to work with you to improve it,’ but it’s getting to the right – getting the accountability nailed in how we’re going to figure that out.”

- **Goal Relevance & Line of Sight:**

(CEO – Hospital - A)
“Well, I think the most important thing is to translate the larger goals and objectives into things that are meaningful to line employees. If you can’t
do that, you're not going to get people involved. If you manage to translate these things into things that have meaning to them, and that are actionable by them, then you will get involvement. You'll get substantial involvement. So, that's probably the most important piece of the way to get people involved.”

Goals relevance is defined as communicating organizational goals in a manner that has significant and demonstrable bearing to workforce members in their daily activities. Line of sight is defined as communicating goal relevance in terms specific to a business function to demonstrate how individual activities within that business function are contributing to the achievement of one or more specific organizational goals.

As goals get cascaded down to the department or work unit level, specific goals and targets are often times difficult for front line staff to relate to. Perhaps an example would best describe this. Reduction of CLABSI rates were a very common quality related goal for the hospitals I visited. These are Central line-Associated Bloodstream Infections, a type of hospital acquired infection. These infections are very serious and reducing them to the lowest possible occurrence is a priority for hospitals. Although hospital acquired infections are not currently included in VBP, they will be introduced as a set of VBP measures in the future. When the number of CLABSI events is reported, it is documented as the number of infections per 1,000 central line days. If the hospital has a goal of reducing CLABSI events by 10%, what does that mean to the front line care provider? It was common in the hospitals I visited for that to be translated in a meaningful way by service line or department or floor. Communicating the number of days without an event or the number of lives saved.

(CNO – Hospital - I)
“Making a high level goal meaningful to a frontline person. So, how do you, when you’re talking about – so, an example would be we’re talking about hospital acquired conditions and hospital acquired infections and
there’s a number for that and you create a number that’s like, ‘How many infections per 1,000 patient days?’ And so, I’ve taken to translating that by unit to, ‘How many days have we gone without a central line infection?’ ‘How many lives have we saved if we don’t have any ventilator associated pneumonia?’ ‘And so, if our mortality rate goes from 1.2 to .75, how many lives did we save? And then, let’s put faces on those.”

(CNO – Hospital - B)
“’The measure for patient falls in an organization is the number – the ratio; it’s a number of falls per one thousand patient days. Well, tell a nursing assistant or an environment service person, ‘Here is your fall rate of falls per thousand days.’ They just look at you like – you know, their eyes glaze over. ‘Well, what does that mean?’ What they want to know is how many falls have you had in the past month, or when was your last fall? So you’ve got to be able to take the measure and translate it into something that people understand at the local level”

The care providers I spoke with said that putting faces to the measures, or getting measures down to a granular level helps the front line care giver equate the measure to the lives of the patients in their rooms was very powerful. It taps into the underlying passion and drive that brought these individuals into healthcare in the first place.

(President – Hospital - C)
[Discussing heart failure readmission rates] “Well, I think the next question you need to ask is, ‘What’s the denominator?’ If the denominator is 45 a month, does that mean that I have 9 or 10 a month – 9 or 10 heart failure readmissions - readmitted per month? Okay, then how am I going to change nine or ten people’s and families lives? When you take it to that cultural aspect, then you begin to change. You know, a 20 percent readmission rate sounds pretty cold. Do you understand what it means in somebody’s life? And so, when you think about it that way, then you begin to say, ‘Well, why can’t that number be four or five a month,’ which is about a ten percent factor. Why can’t it be zero?”

The second aspect of this theme is line of sight. Line of sight is simply a front line employee’s ability to draw a straight line from their work activities to one of the organizational goals. It is very similar to goal relevance but was reported as being much more difficult to achieve for the non clinical staff. It’s like the old NASA story when
someone who was mopping the floor was asked ‘what are you doing?’, and responded by saying, ‘I’m trying to put a man on the moon.’

(CNO – Hospital - B)
“I’ll, sometimes, round in the children’s hospital and I’ll ask the housekeeper, ‘Well, what do you do here, the unit looks great, you know, tell me about your job.’ ‘Well, I help children not get infections.’

4.3.7 Monitoring

Monitoring is defined as the measurement of where the organization is compared to the desired end state. The major themes identified center around organizational culture. Results revealed three prominent themes. The first is the concept of a high reliability learning organization. This is a multifaceted concept that will be discussed shortly. The second theme is living our values, which embodies the idea that organizational activities are undertaken in a moral and ethical manner. The third is building a community; this exemplifies the fact that providing patient care takes an effort that is organization wide.

- **High Reliability Learning Organization:**

  A high reliability learning organization is defined as consistent excellence in quality and safety across all services lines for both patients and staff through a culture that encourages and supports continuous employee learning, critical thinking, taking risks with new ideas, embracing mistakes as opportunities, valuing employee contributions, disseminating knowledge throughout the organization and the incorporation of new knowledge into everyday activities. The idea of a high reliability learning organization encompasses two distinct notions; a high reliability organization and a learning organization. The two notions of reliability and learning have a synergistic potential that
really drives the flywheel of progress. Reliability centers on the reduction of variance to the smallest level possible. Learning centers on identifying areas of variance.

Only three of the institutions I visited specifically identified themselves as a high reliability learning organization. The other hospitals spoke of the two different aspects, reliability and learning, separately without integrating them together. I think they were striving to become high reliability learning organizations but just did not use those specific words. I heard the concept of a high reliability learning organization described over and over in different ways.

(Senior VP Marketing and Communications – Hospital - D)
“But when you really look at it and see that you got six or seven departments in the high 90s, and you’ve got a bunch of departments in the 50s, a couple in the 40s, what are they doing up there in the 90s? What are they doing there in the 40s? How can we figure out and get it to the point that we take that variance and squish it to the point that the highest is at 97 and the lowest is at like 85. That's relentless consistency.”

(COO – Hospital - A)
“We’re trying to move toward being a system of care, that delivers the highest value, and we’re actually very intentionally trying to educate the organization about the language of value – then you’ll actually see in a minute how we’re trying to bring that together for people more. ‘Creating and sustaining a culture of improvement,’ so people being focused on improving. ‘The engagement of employees, physicians, patients, and families,’ and we and many organizations are really focused on engaging patients in the work we do at a very deep level.”

The identification of variance or opportunities for improvement is rooted in the culture; a respectful culture where trust, honesty, and self respect are prevalent. Where there is a strong willingness of organizational members to show consideration and appreciation to their fellow workforce members. A no-blame culture that demands and celebrates individuals who speak up and “stop the line” if they suspect something is
wrong. This no-blame and respecting culture is required to embrace failure and to utilize every failure, mistake, or error as a learning opportunity to grow and enrich the organization and its members.

Reducing variance requires learning new knowledge, disseminating that knowledge, and the utilization of the newly acquired knowledge in daily activity. It’s having the people, the systems, and the data to understand the challenges embedded in variance, and then a systematic process to review, to understand, and to develop strategies that reduce that variance and spread that understanding throughout the organization through the engagement of others.

(CMO – Hospital - F)

“Our organization is one that is highly integrated and committed to being a high reliability learning organization. We’ve had that commitment, that philosophy for many years. And as a result of both our degree of integration and that philosophic commitment to be a high reliability learning organization, we do two very important things. One is that we’re very proactive about looking for opportunities for improvement inside the organization and that pro-activity does not come from the top down. It comes from throughout the organization. So opportunities for improvement are routinely identified at all levels of the organization and discussed, vetted and we decide what we most need to focus on together as a team. So that’s one piece. The other piece that goes with that is what we call inside our organization, lateral integration, which is everything that we learn, we share across the organization so that innovations don’t stay locked in one part of the organization, but rather, are distributed across the whole.”

The idea of disseminating knowledge throughout the organization often led to the conversation of how ideas and best practices are transplanted from one service line or department to another service line or department. This sound fairly simple right? I was often told why it can’t work, why it can’t be done. “There working with pediatric patients, we have adult patients.” “There floor is set up differently, that process will not work here.” “What you did in sports medicine is
not going to work in geriatrics.” There were legitimate reasons why ideas or processes or whatever, that worked in one area could not be used in another area, that’s not what I am getting at. What I am getting at is the almost instantaneous response of “no, it can’t happen because of this and that and the other thing.”

The common approach to testing a new idea or process was to pilot the idea or process in one area, if it worked, it would be pushed throughout the organization to other areas where it was believed that it could work. I believe that this vertical approach to change was the cause of a lot of the resistance I just mentioned. The hospitals that had the most success with translating ideas or processes or practices across the organization approached this differently. They took a horizontal approach to change. All areas that might benefit from a new idea/process/practice were brought in on day one to engage in dialog. The following quote describes the process much better than I can:

(COO – Hospital - E)

“It’s a challenge in big organizations because even if you think about going from one patient care unit to another, one will say well, that worked well there but let me tell you why we’re different, so that creates a dialogue and a conversation. And what we try to do there is to speak to the potential of change on the front end. Where you might have 10 different areas that share the same process oh, lo and behold, you all take care of patients; ah, lo and behold, patients are admitted, patients are treated, patients are discharged. They’re following the same stream. Okay, unit A wants to be the pilot in this but let’s bring A through L into the room on the front end and say here’s what our vision is. We’re going to start here let’s get input and feedback about how this will look and how it would feel but it seems that because you share common processes that we would expect, hope for success here. And if so other’s will be in line to anticipate that this is going to have a rhythm that continues towards the other areas so that you have an organizational wide change. As opposed to saying okay, we’re going to have this isolated conversation with unit A, they’re going to do it very well and then we’re going to say okay, unit B let’s talk to you about it. So you try to create that awareness and anticipation up front about the change
that may be of value to many and then it’s not a surprise when you get through this area to then move on to the others. So it’s more horizontal thinking as opposed to vertical thinking in terms of managing change.”

• **Living our Values:**

Living our values is defined as the carrying out of daily workforce activities in congruence with the organizations shared beliefs and ideas. Table 4.2 offers just some of the stated values publically declared at the hospitals I visited. This is by no means a complete representation of the stated values for these hospitals but a sample, to illustrate what it means for these organizations to live their values. Every leader spoke to the importance of achieving the desired objective without compromising values.

(President – Hospital - B)
“Because we realize that behavior becomes a critical part of creating a work culture where people want to stay and be a part of that. Because I’ve seen some teams meet some targets that have some pretty nasty people on them, and the work environment is not one in which it cultivates teamwork and all those things you look for in successful teams. So it’s not just did you meet the targets, its how did you behave while you were meeting the targets.”

(Senior VP of HR – Hospital - G)
“A lot of places have values that are just words on a piece of paper. But we actually live our values, so there’s not one day that goes by where we don’t make a decision that cites our values. And associates know compassion and excellence, stewardship, integrity. So we will make decisions and we will say, ‘Wait a minute. Think about our values. How is this demonstrating compassion towards X, or are we demonstrating excellence when we do Y?’ So that values driven organization, I think, makes a huge difference. I think a lot of associates here are drawn to kind of a higher calling, doing the right thing from a belief perspective.”

Table 4.2: A Sample of Stated Values at Sampled Hospitals

<table>
<thead>
<tr>
<th>Value</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrity</td>
<td>• Our decisions, actions, and behaviors are based on honesty, trust,</td>
</tr>
<tr>
<td></td>
<td>fairness, and the highest ethical standards.</td>
</tr>
<tr>
<td></td>
<td>• Live the mission and core values</td>
</tr>
<tr>
<td></td>
<td>• Keep promises</td>
</tr>
<tr>
<td></td>
<td>• Be viewed by self and others as ethical and trustworthy</td>
</tr>
</tbody>
</table>
| Respect | • Show consistency between your words and actions  
|         | • Maintain privacy and confidentiality  
|         | • Treat patients and each other with dignity, kindness and significance  
|         | • Introduce yourself, be welcoming, call people by name  
|         | • Answer questions, respond to requests or find someone who can  
|         | • Value people’s time  
|         | • Honor religious belief and cultural practices  
| Compassion | • We honor the dignity and worth of each person  
|          | • Communicate with sensitivity  
|          | • Take the time to listen carefully without rushing  
|          | • Keep people informed about plans, progress and delays  
|          | • Apologize when necessary  
| Excellence | • We strive to achieve excellence in all that we do  
|           | • Take accountability for excellence, both as an individual and as part of a team  
|           | • Commit to high standards, do not accept mediocrity  
|           | • Strive to exceed your colleagues' and patients' expectations  
|           | • Don't wait for others to fix problems  
|           | • Provide service of the highest quality to patients, customers and colleagues  
|           | • Work as a team, because excellence is usually the result of team effort, not individual heroics  
| Stewardship | • Take responsibility for the stewardship of resources  
|            | • The resources we have are entrusted to us by our community; use them wisely  
|            | • Respect the organization's and patient's property  
|            | • Look for cost saving opportunities  
| Community | • Practice culturally sensitive care with patients and their families  
|           | • Support community partnerships - they are critical to our success  
| Safety | • We hold each other accountable to constantly improve a culture that ensures the safety and welfare of all patients, visitors, and staff.  
| Diversity | • We embrace differences among people.  
| Teamwork | • We have to depend on each other and work well together with mutual respect to achieve common goals.  
| Our Goal | To care for our patients:  
|         | • With compassion and openness  
|         | • With unsurpassed expertise  
|         | • With a drive for continuous learning and improvement  
|         | 150 |
With respect, caring, teamwork, excellence and commitment to personal best.

(CMO – Hospital - F)
“...values that are real and that are lived every day and really drive what people do. If you were to ask people in [this organization] about the importance of improving the health of those we serve, I think all of them would speak very well to that. It really does guide our conversations, our thinking, etcetera.”

Each of the hospitals communicates the importance of conducting daily work activities that embody the organizations values out to the workforce in a variety of methods. As previously mentioned, one hospital has taken this notion to a higher level. Half of the employee compensation structure is tied to behaviors that represent the values of the organization. The other half is tied to performance in regards to goals. It not just about results, it’s about getting results while embodying the organizational values.

(President – Hospital - B)
“Once they are approved by the board [goals], those actually go all the way down the frontline employees and align on their performance template. And 50 percent of our employees, and including mine, performance is rated upon how we perform to the metrics; the other 50 percent is around behaviors and behaviors that link back to our values as an organization.”

Building a Community:

Building a community is defined as instilling a sense in every member of the workforce that they are part of something greater than just their job description; everyone plays a role in caring for patients. Analysis revealed a variety of methods that the hospitals employed to build a sense of community within their organizations. Most commonly cited was recognition of success and desired behaviors as well as simply bringing people together from across the organization.
There was no shortage of methods of celebration; from personal thank you notes to organization wide picnics and parties. Some examples include recognition lunches and celebrations, electronic and paper newsletters that highlight stories of success, staff designed commemorative coins and pins celebrating goal attainment and/or years of service, appreciation letters, assemblies, the list goes on and on. It was clear that the importance of recognition and building/maintaining a sense of community was taken very seriously at these hospitals.

The rituals the traditions and the celebrations build a sense of familiarity. When budgets tighten these are tempting expenses to eliminate but there preservation is very important. These rituals, traditions and celebrations bring people together and remind them of why they are there. That they are part of something that is bigger than themselves; that everyone plays a role in caring for patients and their families.

(CHRO – Hospital - I)
“A picnic, an ice cream social, things that bring people together to cross paths – you know, it isn’t just, ‘Oh, that’s what you’re supposed to do,’ but we really think about the fact that it brings people together from all over the organization. We do what – a holiday event, where the leaders toss, to each person who wants one, a turkey. And literally, it’s called the Turkey Toss. Huge Hit. And I display that on any presentation that I do - that the rituals and the traditions and the celebrations have to be preserved. Because when you’re in the hardest times and have the most challenges, people need something that’s familiar. They know that it comes that time of year that there’s a chance for people to come together and remember why they’re here. And don’t wipe those out just because, you know, you’re squeezed. You can’t underestimate how important they are. Because if everything else feels different, and then you take that away, too, it’s like nothing feels like the place that they know.”

(CNO – Hospital - J)
“Our teams are not heavy party teams. You know, they like acknowledgement, ‘You did a great job’. You know, ‘look at the difference you made for this patient.’ One of the things they love is reading patient letters, or having us read patient letters, or reading their patient letters out to the rest of the group and acknowledging the work.
So, when you can see it all come together from the patient or the family’s perspective, you know, that, for most healthcare providers, is what makes the difference. ‘You know, I made a difference; that’s what I’m here to do. That’s what makes me feel good.’ And then you forget all the pain. It’s like, ‘Wow, it’s really happening.”

One hospital, like the others had a specific committee that reviewed events that may have caused harm to a patient or near misses. There would be a dozen or more leaders and clinicians around the table that would review the events and their associated root cause analyses. This group would alter existing policy or create a new policy based on this committee’s review of the events. Those policy changes would then be sent out into the organization without telling the story of what had happened. The policy would change and people would have no idea why. As the president of the hospitals explains it: “One day I left the meeting and I thought, you know, how are we going to change the culture if our employees don’t know that these events occurred? Because there is a small group of us sitting in this room in here, and we all know, and the people who were involved know, and we’re changing policy, but people have no idea why the policy is being changed because we’re not telling them the story of what happened.”

So he created a new program called Safe Choices. The hospital president and the CNO began taking 150-200 employees at a time and, as he puts it…”put the events that have happened [at our hospital] on the table and let them problem solve as to what went wrong.” It not about just telling the story, it’s about understanding what went wrong so it does not happen to them. The hospital has reported this as a huge success. The event now happens six times a year and more than half of the entire workforce has participated.
(President – Hospital - B)

“I always tell them, I can't create a culture of safety and quality by myself. It takes each and every one of us.”
4.4 Key Takeaways

- Live the values you espouse your organization to embody. Lead with passion and conviction. Fan the spark into a flame.
- Don’t wait for your crystallizing moment, have the courage to be proactive and relentlessly pursue the highest level of quality and safety. The finances will follow.
- Operate your organization and lead with complete transparency.
- Create clinician leaders, ensure clinician involvement in all decision making.
- Empower your workforce to remove obstacles for their ability to care for their patients.
- Tap into the creative power of your workforce. Ask, listen, and ACT.

4.5 Final Thought

Today’s top performing hospitals long ago recognized that Medicare was shifting from a volume based reimbursement methodology to a value based reimbursement methodology; that hospital reimbursement models were aligning with clinical quality and patient experience indicators. They understood that change was necessary. The hospitals I visited have been on this journey for years. They made quality a number one goal and have been pursuing that goal relentlessly without being side tracked by the flavor of the month.

For hospitals that have not yet taken this paradigm shift seriously, the transparency of their performance and the financial hit that they will soon take will be their crystallizing moment. Half of all the hospitals in the country are performing below average and now the world is watching. The leaders of the nation’s hospitals must embrace this new transparency and use it to
lead their organizations to a better future. They must articulate the vision and build a ground
swell of support by listening to their workforce, aligning with their clinicians, and empowering
their people.

A gap in organizational performance cannot be identified until a performance goal
has been established. Goals must be objective and measurable; there must be no
confusion about what the goal is. It is imperative that organizational goals be in
alignment from the board to the front line employees. This requires goal relevance and
line of sight; a front line associate should be able to identify a direct line from their
activities to the organizational goals.

The development of goals offers a critical opportunity to cultivate a cooperative
and successful relationship between administration and physicians. It is essential that
physician leaders play a major role in goal development. Physician and clinical staff
must have ownership of organizational goals for successful implementation.

Once goals are established they need to be over communicated. Once senior
leadership thinks that they have communicated the organizations goals enough, they need
to say it ten more times. Everyone must know and understand what direction the
organization is moving in. Performance must then be measured in relation to the stated
goals. Positive organizational change cannot occur without a clear understanding of
where the organization is in relation to where the organization needs to be.

A plan of action must be developed to identify the behaviors and actions that must
be undertaken to cross the gap and improve the current situation. Successful hospitals
cascade organizational goals down levels of management and empower individual
managers and employees with time, resources, and authority to identify their goals and
actions that align with the overall organizational goals, and hold them accountable.
Every department level goal is either the same as the organizational goals or variations on the same objective; everyone is focused in the same direction.

Expectations must be established and clearly defined. Employees at every level must understand their goals, their expectations, and that they will be held accountable. Incentive systems must be established. These can be financial incentives, non financial recognition or some type of combination. Open lines of communication must be established and utilized. If a front line employee identifies something of concern, they must be encouraged to speak up. Employees should be comfortable approaching senior leadership; they must have a sense of ownership.

Leadership must embrace and cultivate a culture that embodies the concept of a high reliability learning organization. Actively search out variance and squash it to the lowest possible level. Create new knowledge and to disseminate that knowledge throughout the organization. Empower individuals to show up every day with two goals, to do their job and to improve their job.

Top performing hospitals monitor their goals constantly. Goals are monitored at every level and within every department. Ideas, techniques, and implementation strategies that prove successful in one department are communicated throughout the organization. Data must be utilized, shared, and made available.

Transparency is vital. Not only does transparency help to foster buy in, it helps to motivate continuous improvement. Organizational goals and progress toward those goals should not only be transparent within the organization, they should be open to outside scrutiny. Some hospitals have developed websites that publically display their quality
metrics in far more detail than CMS data. This has helped to increase continuous internal improvement

Clearly every hospital needs to identify their performance scores and know how they compare to other hospitals, communicate the importance of the performance measures to all stakeholders, develop benchmarks or goals for the score they wish to achieve for each performance indicator and take the appropriate steps to achieve those performance measures. Hospitals that are top VBP performing organizations are not chasing financial incentives. They embody a mission that pushes them with relentless consistency to deliver the highest quality of patient care and community health.
Chapter 5

Contributions, Implications, Limitations, and Future Research

5.1 Contributions

There is no universal understanding of the strategic components that drive VBP challenges to meet quality goals. “There may be no greater challenge than taking a healthcare organization whose clinicians, staff and managers have all grown up with the autonomy and economic rewards of visit-based, fee-for-service medicine and helping those people change the working assumptions of their professional lives” (Millenson, 2012 p. 16).

Healthcare is changing at a rapid pace, but hospital collaboration on the implications and best practices in this work is moving slowly, or stagnant. The hospitals I visited are not openly communicating with each other. The leaders I spoke with want to know what other hospitals are doing, what do they do that’s common, and what’s different. No one has ever identified top performing hospitals using DEA, no one has ever gotten access to the leadership, and no one has ever asked the questions in person and on location. I can assure you the responses, duration, and outcome of an interview are not the same when conducted over the phone versus in person. The dress, the demeanor, even the office furnishings speak to the values and culture of the organization.
By definition qualitative research seeks to explore and describe phenomena. It serves as a foundation for good quantitative research. It is this author’s belief that this research seeks authenticity rather than reliability. The mixed methods approach utilized in this research provides a solid foundation to justify the findings. Purposeful sampling of healthcare institutions that represent the phenomena under question offers a context rich understanding to help inform the research question. This approach offers a unique strength that allowed the researcher to understand the complex interworkings of leading healthcare change; much more so than either approach alone could facilitate.

This work verifies and extends the work done by Shortell and colleagues (1995), Boerstler and colleagues (1996), Walston and colleagues (2000), the Health Services Advisory Group (2005), and the 2007 Commonwealth report. Shortell and colleagues (1995) most significant finding was that a participative, flexible, risk taking organizational culture was significantly related to quality improvement implementation. Boerstler and colleagues (1996) found that hospital cultures that emphasized member participation, decision making and team work, adaptability, flexibility, and growth had a greater degree of TQM/CQI implementation success than those that emphasized control, stability, and rules. The Health Services Advisory Group (2005) found that high performing hospitals had a culture of quality improvement, executive level responsibility for quality improvement program implementation, and absolute goals of excellence. The 2007 Commonwealth report found that top performing hospitals had undergone a change effort triggered by an event that had awakened the hospitals to a new drive for quality. Additionally they found that initial changes helped to spread a culture of quality by
equipping the institution to identify problems and develop solutions through a team approach by identifying root causes.

5.2 Implications

The Modern American hospital operates in an industry that is unlike any other. There is competition among for-profit, not-for-profit, federal, state, and local government hospitals. There are severe regulatory burdens. Physician models are different in each hospital, but they play the same role in resource consumption. Typical hospitals do not employ physicians yet physicians have huge amounts of power in directing the consumption and use of hospital resources. As a service provider there are severe limits to economies of scale; health care is provided to one patient at a time by highly skilled health care practitioners. American hospitals have been operating in an environment that has been under a constant state of change since the 1960’s and the pace of change has only accelerated since then.

While the typical American hospital operates under one primary mission; the provision of quality health care. Americas major teaching hospitals operate under three primary missions; the provision of quality health care, education, and research. Major teaching hospitals represent less than 7% of all American hospitals yet they provide the lion’s share of charity care. They stand ready to deliver highly specialized care like burn centers, and sever trauma centers that most hospitals are unable to provide. They are the front lines in the discovery of new treatments and cures and they do all of this while training more than three quarters of the next generation of physicians and other health care providers.
The interviews for this research were conducted under the absolute guarantee of confidentiality, for both the hospitals and the individual participants. As I conducted the interviews during the course of this research I was taken aback time and time again by the openness and generosity of the interview participants. Healthcare is a fiercely competitive industry and without even asking these hospitals gave me confidential documents and information. I conducted this research in the hope that I could learn and share something of value. If I am able to communicate just one thing that could somehow someway be used by a care provider to help just one person than it was worth it. I have no motive, no incentive, no reason to alter or skew any of the data I was privileged enough to receive.

5.3 Limitations

DEA has been criticized for being sensitive to random noise, whereas parametric techniques like stochastic frontier analysis allow for statistical noise (Nayar, et al. 2008). Jacobs (2001) examined both DEA and Stochastic frontier Analysis and concluded that both approaches have their own unique strengths and weaknesses and that they both may potentially measure slightly different aspects of efficiency. Additionally, Linna found that both approaches gave comparable results for individual efficiency scores (Linna 1997).

The sampling procedure utilized for this research sought the top performing hospitals for selection as interview participants. A preferred approach would have been to sample both the top performing and the worst performing hospitals; a process known as polar sampling. In theory this approach sounds great, interview the leaders of the best performing hospitals, interview the leaders of the worst performing hospitals and
compare their answers. In practice, how do you approach poor performing hospitals and not completely insult their leadership when you describe the study and the potential role they could play. With honest disclosure of the relevant facts it just will not work. Value Based Purchasing scores play a central role in the sampling procedure, the worst performing hospitals are currently losing money because of value based purchasing. They know how they are performing.

5.4 Future Research

A longitudinal study utilizing the same sampling procedure would offer insight into the continued performance of major teaching hospitals. Hospitals identified as consistently improving their standing compared to their peers would offer additional insight.

Mass customization in healthcare: Standardization is not a word that is embraced by most clinical care providers. Some of the individuals I interviewed referred to it as a curse word. Some call the introduction of standardized processes and techniques “cookbook medicine”. I think that most clinical care providers view healthcare as a purely customized system that delivers unique care to unique patients. What I see is neither custom nor standardized, but rather a hybrid of the two approaches. I have a research background in manufacturing systems and we call such an approach mass customization. Mass customization sounds like an oxymoron but it actually makes perfect sense and I think that it is a concept made for healthcare.

Tu and colleagues (2001) define mass customization for manufacturing as the ability of a firm to quickly produce customized products on a large scale at a cost comparable to non-customized products. They further explain that a firm’s mass
customization capability is determined by its ability to produce differentiated products with cost effectiveness, volume effectiveness, and responsiveness. The number one aspirational of the largest academic medical center I visited is “Constantly innovate a healthcare services model that is systems-based and personalized to each individual. To me, they are the same statement, just transferred from a product to a service.

Several of the hospitals I visited have adopted manufacturing practices with great success. Approaches like lean, six-sigma, rapid process improvement, kaizen, and etcetera all have roots in manufacturing. To me, mass customization describes what healthcare providers need to be doing. It’s not cookbook medicine, it’s not the standardization of medicine, it’s providing customizable patient care from a common platform that enhances efficiency, adds value and allows care providers to focus on the differentiating factor of each patient.

Another interesting topic of research would be analysis into what is happening in Massachusetts. The hospitals I visited in the state of Massachusetts were far ahead of the hospitals in the rest of the country. They were active in global risk contracts, there was mass consolidation occurring, there were functioning state data exchanges, and there was active collaboration among fierce competitors. Massachusetts is the canary in the coal mine; pay attention.
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Appendix A

Adult Research Subject Informed Consent Form

IRB# 107628
ICF Version Date: 10/03/12

Department of Management
Stranahan Hall Room 2007
College of Business and Innovation
The University of Toledo
Toledo, Ohio 43614
Phone (419)
530-2366
Fax (419) 530-2365

ADULT RESEARCH SUBJECT - INFORMED CONSENT FORM

In Search of Healthcare Excellence

Principal Investigator:  Dr. Clinton Longenecker, Professor of Management, (419) 530-2368

Student Researcher:  Jonathan S. Chatfield, Doctoral Candidate, (419) 308-8888
**Purpose:** You are invited to participate in the research project entitled, “In Search of Healthcare Excellence” which is being conducted at the University of Toledo under the direction of Dr. Clinton Longenecker and Jonathan S. Chatfield. The purpose of this study is to identify overlapping key variables of superior hospital performance.

**Description of Procedures:** This one time research interview will take place at the hospital of your employment and require 45 minutes of participation. You will be asked to answer semi-structured open ended questions regarding hospital management.

Will you permit the researcher to audio record during this interview?

YES □  NO □

Initial Here  Initial Here

Name_________________________

After completion of this study, Jonathan S. Chatfield will debrief you about the data, theory and research area under study and answer any questions you may have about the research.

**Potential Risks:** There are minimal risks to participation in this study, including loss of confidentiality.
**Potential Benefits:** This study seeks to identify common approaches, strategies and techniques to improving the quality of patient care delivered and reduce costs associated with the delivery of health care. As a participant, your hospital will be provided with a copy of the final research.

**Confidentiality:** The researchers will make every effort to prevent anyone who is not on the research team from knowing that you provided this information, or what that information is. The consent forms with signatures will be kept separate from responses. Responses will not include names and which will be presented to others only when combined with other responses. Although we will make every effort to protect your confidentiality, there is a risk that this might be breached.

**Voluntary Participation:** Your refusal to participate in this study will involve no penalty or loss of benefits to which you are otherwise entitled and will not affect your relationship with The University of Toledo. In addition, you may discontinue participation at any time without any penalty or loss of benefits.

**Contact Information:** Before you decide to accept this invitation to take part in this study, you may ask any questions that you might have. If you have any questions at any time before, during or after your participation you should contact a member of the research team.
Principal Investigator: Dr. Clinton Longenecker, Professor of Management, (419) 530-2368

Student Researcher: Jonathan S. Chatfield, Doctoral Candidate, (419) 308-8888

If you have questions beyond those answered by the research team or your rights as a research subject or research-related injuries, the Chairperson of the SBE Institutional Review Board may be contacted through the Office of Research on the University of Toledo’s main campus at (419) 530-2844.

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

SIGNATURE SECTION – Please read carefully

You are making a decision whether or not to participate in this research study. Your signature indicates that you have read the information provided above, you have had all your questions answered, and you have decided to take part in this research.

The date you sign this document to enroll in this study, that is, today's date must fall between the dates indicated at the bottom of the page.
This Adult Research Informed Consent document has been reviewed and approved by the University of Toledo Social, Behavioral and Educational IRB for the period of time specified in the box below.

Approved Number of Subjects: 100
Appendix B

Initial Contact Letter

Dear CEO NAME,

the University of Toledo would like to invite your participation in a research study designed to ascertain how leadership in top performing teaching hospitals drive real and rapid organizational change. Specifically, how does senior leadership make operational the new Value Based Purchasing (VBP) reimbursement method in terms of the organization and administration of service delivery. HOSPITAL NAME has been identified as producing VBP scores that are higher and more efficiently achieved than 90% of COTH member hospitals.

This research seeks to conduct in person, on location interviews with

1. CEO/President/Administrator
2. CFO/Financial manager
3. CIO/IT manager
4. CNO/Director of nursing
5. CMO/chief of staff
6. Vice President of Human Resources
7. Vice President of Marketing
8. Director of strategy/Business Development
9. Director of Quality/Value Based Purchasing Director

Participation of every subject is 100% voluntary and all participant responses will be kept confidential.

The goal of this research is conduct interviews with approximately twenty of Americas top performing teaching hospitals to identify common principles or methods of how hospital leadership can proactively change their organization to achieve successful and sustainable outcomes. COTH member teaching hospitals represent a small fraction of our nation’s hospitals that confront unique obstacles in the face of VBP. The opportunity to study how organizations with, arguably, the largest hurdles to overcome can succeed in the paradigm shift of VBP should not be overlooked. Their factors of success will be applicable to all hospitals and their lessons will be instilled in future generations of health care providers.

As a participant, HOSPITAL NAME will receive a complete in-person debriefing of all findings as well as a benchmarking report that examines HOSPITAL NAME in relation to all other sampled hospitals.

Thank you for your time and consideration,

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