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**THE COURAGE TO CHANGE:
STRIVING FOR MAGNET HOSPITAL RECOGNITION**

by

JANET M. JONES

A dissertation submitted in partial fulfillment
of the requirements for the degree of

Doctor of Education
University of San Diego

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Dissertation Committee

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Abstract

In the ever-changing environment of health care, good leaders are of utmost importance to the effective functioning of the hospital. Leadership in the hospital setting requires innovativeness and courage. This means the passion to discover, create and experience the unknown. Until recently why some hospitals attract and retain good nurses while others do not was unknown. The magnet hospital concept identified attributes that supported the professional practice of nursing which, in turn increased nurse recruitment and retention. The objective of this study was to compare Chief Nursing Officer (CNO) and Chief Executive Officer (CEO) perceptions of their innovativeness and leadership preferences in magnet hospitals and matched non-magnet hospitals as well as differences in the perceived organizational effectiveness.

This study was a survey-based cross-sectional, non-experimental study. The basic statistical design for testing the hypotheses was a 2 (Chief Officer type: CNO vs. CEO) x 2 (hospital type: magnet vs. non-magnet) mixed design ANOVA. A web-based survey supported the collection of leadership attributes, innovativeness, and perceived organizational effectiveness as well as obtained demographic information.

The two major findings were the predicted staff status (CNO vs. CEO) by hospital type (magnet vs. non-magnet) interactions for innovativeness and the leadership practice of “enabling.” The pattern of results suggests that most CNOs and some CEOs use innovative approaches and have the skills to develop co-operative relationships and teams. Magnet CNOs demonstrated the highest scores. This study supports the American Nurses Credentialing Center’s emphasis on the role of the CNO in adopting magnet standards and strategies. Further research on the “magnet CNO effect” is encouraged.

Dedication

This dissertation is dedicated to my parents. Although they did not have the benefit of a college education they recognized the importance of such an education. I wish you were here to share this time in my life. I miss you.

To John, Rachel and Nathaniel, you are the loves of my life. Your patience and support kept me in touch with reality. You are the “balance points” in my life. I couldn’t have done it without you! Rachel and Nathaniel remember: “It is not our abilities that determine who we are, it is our choices.” Love you!

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I wish to thank my colleagues and friends who provided encouragement along the way. Special thanks to Cathy, Kit, Barbara and JoAnne. Your support was invaluable and kept me going when I wanted to give up.

I am particularly appreciative of Dr. Tom Smith. Although you thought you were going to be my expert statistician, you were so much more. Without your insight, guidance, patience, and calm reassurance, the struggle would have been unbearable. Thank you.

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Chapter I Introduction

In the ever-changing environment of health care, good leaders are of paramount importance to the effective and efficient functioning of the hospital. One of the top priorities for hospital leaders has been maintaining a workforce of committed professionals. Nurses represent the largest segment of a hospital's workforce and nursing shortages became increasingly problematic for American hospitals over the last three decades. The shortages of the 1990's and early 2000's acted as catalysts for the in-depth study of hospitals and specifically the working environment of nurses in hospitals. The study revealed that there were differences in hospitals and it was also noted that some hospitals had difficulty recruiting and retaining while other hospitals did not. Ultimately these results lead to the concept of magnetism in hospitals. Information obtained from subsequent studies pointed out the differences in what would come to be known as "magnet" and "non-magnet" hospitals. These studies also facilitated a better understanding of what lead to *magnetism*, a school of thought that coalesced into what is currently known as the "forces of magnetism."

Magnet hospitals have been seen as bellwethers in the healthcare industry, specifically in the area of recruitment and retention of nurses. There is a growing hope that the incorporation of magnet strategies and the achievement of magnet recognition may stem the loss of nurses that leads to inefficient hospitals and less than optimum care in the healthcare industry.

In examining the differences in these hospitals, leadership within magnet hospitals was noted as acting as the driving force to achieving the coveted magnet designation. Additionally, leaders in hospitals designated as magnet hospitals have been

described as innovative risk-takers, supportive of staff at all levels of the organizational structure. The following study explored the differences in hospital and nursing leaders in magnet hospitals as compared to “matched” non-magnet hospitals.

The recent escalation in demand for nurses coupled with a 27% decline in nurses entering the profession further heightened the concern of hospital leaders (Janiszewski, 2003; Buerhaus, 1998). Worsening the situation were additional spikes in the demand for nurses brought about by laws effecting staffing ratios like those enacted in the state of California. The above conditions had healthcare managers “scrapping” for any available professionals. Many hospitals began offering sign-on bonuses, educational support dollars and other incentives but the issue was larger than recruitment (Peterson, 2001). Even when a position was filled, the work environment was such that it caused nurses to rethink their options. The Institute of Medicine report published in 2003 (Aspden, Corrigan, Wolcott, & Erikson, 2003) cited the hospital environment as the most likely cause of the mass exodus of nurses from the profession, threatening patient safety unless it was substantially changed. Coile (2001) pointed out that if the culture of a hospital was supportive of nursing practice, the culture became an attribute that attracted and retained nurses but if the culture was not supportive of nursing, it had the opposite effect. Nursing turnover was and continues to be expensive. Indeed each position that turned over was reported as costing the hospital one and a half times the salary of the resigning nurse (Health Care Advisory Board, 2002a). Additionally, nursing turnover was seen as compounding the impact of the nursing shortage thus increasing the risks to patients, and further escalating the cost of care. “The number of people you have to hire goes down dramatically when you’re not replacing 25% of the workforce every year,” stated

William Rupp, an IOM member and president and chief executive officer of Immanuel St. Joseph's Mayo Health System (Burda, 2003).

Background to the Study

Nursing shortages were reported as a recurrent phenomenon (Weisman, Alexander & Chase, 1981). A severe nursing shortage in the late 1970's prompted a study in 1983 by the American Academy of Nursing's Task Force on Nursing Practice. The charge of the task force was to identify variables in hospitals, which created an environment that attracted and retained professional nurses. One hundred fifty-one hospitals were studied and forty-one were ultimately described as "magnet" hospitals because of their low turnover and high nursing satisfaction rates. In addition, it was found that patient care provided in these same "magnet" hospitals surpassed other hospitals; the study used quality of patient care and patient satisfaction as measures of patient care (McClure, 1983).

In 1990, a formal process to recognize healthcare organizations that demonstrated the qualities of magnetism was proposed. The recognition program built on the findings of the 1983 study by McClure and recognized hospitals that were able to weather nursing shortages with minimal impact to recruitment and retention. Official "Magnet" designation was launched in 1994 when the American Nurses Credentialing Center conferred the first Magnet award on the University of Washington Medical Center in Seattle, Washington. Since that time, the number of magnet facilities has grown to 130. These facilities provide ongoing information that is analyzed to further define and improve the understanding of the qualities of magnetism, (American Nurses Credentialing Center, 2003a).

Fourteen characteristics or “forces” are credited distinguishing magnet organizations from other organizations (American Nurses Credentialing Center, 2003a). These characteristics included quality of nursing leadership, organizational structure, management style, personnel policies and programs, professional models of care, quality of care, quality improvement, consultation and resources, autonomy, community presence, nurses as teachers, image of nursing, interdisciplinary relationships, and professional development. See Appendix A for listing and a brief description of each of these characteristics.

The same year in which the formal magnet recognition program commenced, Aiken, Smith and Lake (1994) found that the original magnet hospitals had a lower mortality rate when compared to hospitals that were similar along other organizational dimensions. The study provided evidence that nurses with increased professional autonomy, control over the practice environment, and better relationships with physicians (all cornerstones of magnet organizations), provided care that improved mortality rates. The study concluded that original magnet hospitals had lower mortality rates than those among matched control hospitals by a factor of approximately five fewer deaths per 1,000 Medicare discharges.

Other indicators of quality were also reported in the literature. They included patient satisfaction, with magnet facilities consistently higher on this variable than control hospitals (Aiken, Sloane, Lake, Sochalski, & Weber, 1999). Nurse satisfaction was also found to be higher in magnet facilities and was considered a major factor in the lower turnover rate experienced in magnet hospitals. A study by McClure (1983) documented the positive influence that the presence of high quality nurses had in the recruitment of

high quality physicians to the healthcare setting. This was supported by anecdotal reports of physicians and a director of medical technology stating that they had come to a particular hospital because of its magnet status (Domrose, 2002).

The literature clearly delineated the positive impact of magnet characteristics. Still, only about two percent of hospitals have achieved magnet status. One possible explanation was that hospital leaders had not created a climate that would allow magnet strategies to succeed (Ramsey, 2003). Improvements in the work environment that support magnet strategies were believed to be predicated upon the capabilities and attitudes of the leaders of the hospital to make change and depended on a culture that encouraged creativity and risk-taking (Aiken and Patrician, 2000; Guo, 2003).

Change within organizations, including hospitals, were reported as the responsibility of its leaders (Douglas, 2002). The implication for leaders was three-fold: The leaders must want the change or the result the change brings; secondly, the leaders must have the power to bring about the change; and finally, the leaders must have the courage to change the organization (Shoham & Fiegenbaum, 2002).

It is safe to assume that most hospital leaders wanted change or more specifically, the result the change brought, which in a hospital equated to a satisfied staff with minimal turnover and resulting quality care (Sherman, 2002). Although many hospital CEOs may have had the positional power to attempt such change, most would have partnered with other leaders like the physician leader, usually entitled the Chief of Staff (COS) and the Chief Nursing Officer (CNO) to achieve a broad base of power and support in order to effect change in the hospital setting. Conversely, the CNO typically collaborates with the

COS and the CEO for the same reasons. Courage to make change was the final ingredient.

Courage in the business arena has been linked to risk taking (Quigley, 2002). Courage is not defined as the absence of fear, but, rather, having the power to let go of the familiar and push ahead into new territory despite fear. Dr. Merom Klein of the Courage Institute stated that given a choice, most reasonable people would choose comfort over risk (Klein, 2001). Dr. Klein described the steps to achieving change as: Candor, the speaking and hearing of truth; Purpose, the communication and understanding of goals; Desire, the ignition of positive energy and motivation; Rigor, the development of new objectives and a commitment to achieve them; and Risk, inspiring movement away from the comfort zone and into new territory (Klein, 2001). Karlene Kerfoot (1999), summarized courage and leadership for change well when she wrote, "The best organizations build a 'Shared Destiny' instead of a 'Shared Vision.'" In a shared destiny, she asserted, mutual growth fostered the on-going development and success of the organization. The challenge to healthcare leaders across America is to not settle for comfort but push ahead into the new territory of magnetism.

Another possibility is that hospital leaders believed that their hospitals function as efficient and effective organizations without adopting all of the criteria required for official magnet designation. In other words, hospital leadership did not embrace the concept that magnet hospitals were better than non-magnet hospitals and, hence, the financial cost of achieving magnet status was not seen as a good investment. Nonetheless, as noted in the introduction, nursing turnover has and continues to be expensive with each position turnover costing the hospital one and a half times the salary

of the resigning nurse (Health Care Advisory Board 2002a). Nationally, the nursing turnover rate is 14% (Janiszewski 2003). Clearly, something needs to be done to stem the loss of nurses from the profession.

Problem Statement

In this dissertation, the researcher specifically evaluated the innovativeness and decision-making preferences of CNO/CEO pairs in magnet hospitals as compared to non-magnet hospitals. Additionally, the researcher tested the underlying assumption that magnet hospitals are more effective organizations when compared to non-magnet hospitals.

The healthcare literature is quite clear that nurses are the center of the healthcare workforce and directly impact the quality and safety of patient care outcomes (Manley, 2000). Nurses remained the most trusted professionals as was reported in a survey of public perception of honesty and ethics conducted by Gallup (Nursing 2003, p. 33). However, the Institute of Medicine report (Aspden, et al, 2003) stated that nurses were overburdened with work and working long hours dulled their reaction times. Another problem identified was that nurses were not kept up to date on new techniques and technologies because of healthcare and hospital cost pressures. This lack of support and continuous overburdening was reported as driving nurses away from the profession. "The responsibility is just too great," stated one nurse (Morath & Manthey, 1993). However, the literature also chronicled many strategies and concepts to increase nursing satisfaction, which resulted in increased recruitment and retention of nurses (Morrison, Jones & Fuller, 1997). Many such strategies were employed by hospitals that have achieved or are undergoing magnet recognition. However, the fact remains that less than

two percent of hospitals have achieved or are attempting to achieve magnet status. As of August 2004, only 100 of 5,800 American hospitals were magnet hospitals.

In the hospital setting, the nurse executive has been viewed as the leader who facilitated change for the nursing staff (Morrison et al, 1997). In the past twenty years, the impact of the executive nurse and specific components of job satisfaction on nurses has been the focus of many studies (Laschinger & Havens, 1996; Caruso&Payne, 1990; Perkel, 2002). The literature underscores the importance of the influence of the Chief Nursing Officer (CNO) at the executive level of the organization (Scott, Sochalski & Aiken, 1999). However, the decision to incorporate magnet strategies in the hospital setting and/or to seek magnet recognition was not solely within the purview of the nurse executive. The CNO worked closely with the Chief Executive Officer to gain his/her support and the financial commitment required to seek magnet review.

Twelve of the fourteen forces of magnetism focus on the practices of the executive nurse. Literature regarding leadership qualities and the impact of the nurse executive in magnet and non-magnet hospitals existed, but the relationship between the CNO and the CEO had not been explored. Specific data regarding the innovativeness and leadership preferences of CNOs was lacking. Additionally, learning more about the impact of the CNO/CEO pair and comparing data between magnet hospital CNO/CEO pairs and non-magnet CNO/CEO pairs would add to the body of knowledge. So, in addition to knowing about CNOs, it would be useful to know more about the characteristics of innovativeness and leadership preferences of magnet and non-magnet hospital CNO/CEO pairs. The literature reported that magnet hospitals are better than non-magnet hospitals, but data comparing organizational effectiveness in magnet

hospitals and non-magnet hospitals had not been reported. There was some empirical evidence of a relationship between the nurse executive's values and the values of the hospital in which they work. (Gerowitz 1998, Guo 2003) Nonetheless, the nature of this relationship and its implications had received little attention in the literature.

Purpose of the Study

The purpose of this study was to begin to examine the differences in hospital leaders in magnet hospitals compared to "matched" non-magnet hospitals. The study compared specific leadership qualities in hospital and nursing leaders in magnet hospitals versus non-magnet hospitals. More specifically, this study compared nursing and hospital leaders' perceptions of their innovativeness and leadership preferences in magnet hospitals and matched non-magnet hospitals. Additionally, the perceived organizational effectiveness between magnet hospitals and non-magnet hospitals was compared.

The research questions were:

1. Are there differences between leaders in magnet hospitals as compared to non-magnet hospitals in
 - a. Innovativeness?
 - b. Leadership practices?
2. Are there differences in the perceived effectiveness of magnet hospitals as compared to non-magnet hospitals?

Chapter II Review of the Literature

This chapter is divided into subheadings depicting the three bodies of literature with particular relevance to the study. These areas of scholarship included research on magnet hospitals, organizational effectiveness, and leadership. In each section, relevant topics were identified from the body of literature and highlighted so as to inform the study. This chapter focused on pivotal works and strands of research that influenced the study.

Magnetism and the Health Care Setting

Organizational effectiveness is a primary concern of any institution and, of course, of particular concern for hospitals. Whatever else was involved in organizational effectiveness, it certainly rested on the performance and attributes of the primary classes of employees. Any organization must attract and retain high quality core employees to be effective. A major historical problem for hospitals has been attracting and retaining nurses. Such attraction and retention of nurses appears to be at least in part a function of organizational characteristics and leadership attributes.

The ancient Greeks first recognized the physical property of magnetism. The discovery occurred near the city of Magnesia when a Greek farmer described “an attraction” between a strange and rare stone known as a lodestone and a piece of iron. The early Chinese discovered the same phenomenon. The Chinese then learned to “magnetize” a steel needle, which led to their development of the magnetic compass. In 1821, magnetic attraction was associated with moving electricity characterized by fields of force (Stern and Peredo, 2001). Although technically two parallel currents running in the same direction attract while currents running in opposite directions repel, the term

“magnetism” within the context of healthcare was used to emphasize the need for hospitals “to attract” and retain high quality employees.

While business literature was replete with strategies to attract employees through improved organizations, it was healthcare literature that described the attraction as “magnetism.” The term “Magnet Hospital” was originally given to a group of hospitals in the early 1980s that were able to attract, recruit and retain professional nurses during a national nursing shortage. Forty-one hospitals were described as demonstrating magnet qualities (McClure, 1983). Examination of these hospitals led to the identification of some commonalities and themes. For example, magnet facilities had low turnover of staff and, therefore, lower vacancy rates even in the face of strong local competition. In addition, feedback from staff working at magnet facilities indicated that they felt the facility was a good place to work. Subsequent research further identified qualities that distinguished “magnet” organizations from others. The qualities became known as the “Forces of Magnetism.” The current description of the forces included 14 characteristics such as the quality of nursing leadership, management style, organizational structure, personnel policies and programs, autonomy, image of nursing, quality of care and professional development to name a few (American Nurses Credentialing Center, 2003a). See Appendix A for a complete listing of the 14 characteristics.

McClure’s 1983 foundational study determined that magnet hospitals were better at attracting and retaining nurses. Magnet hospitals also had higher quality nurses, higher quality physicians, greater job satisfaction for nurses, higher patient satisfaction, lower patient mortality rates, and greater public confidence in overall hospital quality.

McClure (1983) documented not only that magnet hospitals had higher quality

nurses in a healthcare setting, but also that their presence directly affected the recruitment of high quality physicians to that setting. Besides having higher quality nurses, magnet hospitals also appeared to generate higher nurse job satisfaction. Additionally, there was research that directly established a relationship between leadership style and empowerment on the job satisfaction of nurses (Morrison, et al, 1997).

As stated above patient satisfaction also varied between magnet and non-magnet hospitals. Aiken, Sloane, Lake, Sochalski, & Weber (1999) identified two variables that influenced patient satisfaction. One variable was magnet status and the other was the presence of a specialized unit. In this study, these two variables resulted in significantly higher patient satisfaction. Patient satisfaction was evaluated using the 21-item La Monica/Oberst satisfaction scale (La Monica et al 1986) and researcher-developed items pertinent to specialty care. Internal consistency was strong with an inter-item correlation of .62 on the LaMonica/Oberst patient satisfaction scale and a Cronbach alpha of .93 with an average inter-item correlation of $r = .38$ on the researcher-developed single-item scale. The author suggested that organizational differences (magnet vs. non-magnet) and differences in the practices of nursing between unit types might have been responsible for the results of this study.

Magnet hospitals have had the reputation of attracting and retaining higher quality nurses with better job satisfaction and higher quality physicians. Magnet hospitals have also demonstrated higher patient satisfaction and they also have had lower patient mortality rates. Aiken, Smith and Lake (1994) provided evidence that hospitals designated as magnet provided care that improved mortality rates compared to non-magnet designated hospitals.

Aiken, Smith and Lake's study used hospital listings from the American Hospital Association database to identify 39 magnet hospitals. These hospitals were then matched with 195 non-magnet hospitals for a total of 234 hospitals. For matching, the researchers controlled for 12 organizational characteristics so that differences between hospital types in mortality rates would not be attributable to such characteristics. [These 12 organizational characteristics have been listed below in Table 1 and included such attributes as average daily census, occupancy rate, number of hospital beds, the metropolitan statistical area size, and a high technology index score.] The procedure for such matching was to use these 12 characteristics in a logistic regression predicting the magnet versus non-magnet status among the 5,092 hospitals in the United States (39 magnet versus 5,053 non-magnet hospitals). A propensity score for each hospital was derived from this analysis that reflected the probability of a particular hospital being designated as a magnet hospital based on the 12 characteristics. The matching was then done using this propensity score. The study concluded that magnet hospitals have mortality rates that are lower than those among matched control hospitals by a factor of approximately five per 1,000 Medicare discharges ($p=0.026$, CI of 0.9 to 9.4 fewer deaths).

Finally, there was the question of public confidence in the care provided in hospitals. A study conducted in 1999 by Wirthlin Worldwide found that 93% of the public would have more confidence in the overall quality of a hospital if that hospital had passed standards required for magnet recognition (American Nurses Credentialing Center, 2003b).

Hence, among other attributes, such magnet hospitals had high quality nurse leadership, particular management style, and unit-based decision-making structures that provided nurses with increased professional autonomy, control over the practice environment, and better relationships with physicians. Such organizational and leadership characteristics attracted and retained high quality nurses and high quality physicians. These characteristics also produced greater job satisfaction for nurses, higher patient satisfaction, lower patient mortality rates, and a more positive public perception of the hospitals.

These initial descriptive studies provided the groundwork for further examination of magnet hospital nurses and magnet organizations on the attributes related to not only job satisfaction but the impact of leadership and its effect on patient outcomes. The next sections review work on organizations and their structures.

Organizational Effectiveness

The development of effectiveness within organizations was found to be dependent on the mission and vision of the organization as well as the culture that was supported within the organization. However, these attributes were usually not used to judge the effectiveness of the organization. In the business environment, how well an institution was doing (usually referred to as organizational effectiveness) was most often measured by financial metrics that generally equated to cost containment (Yu, W., Ravelo, A., Wagner, T.H., & Barnett, P.G., 2004). However, such narrow definitions of effectiveness failed to take into account other criteria, which generated poorer outcomes. As general organizational effectiveness became a more widespread expectation of business, hospitals came under greater scrutiny and time proved hospitals were not immune from the

expectations of improved efficiency. As a result, in the healthcare domain, the concept of managed care was developed.

Managed care came about primarily to decrease soaring healthcare costs (Smith, R.D., 2002; Tufts Managed Care Institute, 1998). The managed care framework spawned many changes in healthcare, which impacted not only practitioners but also the hospitals in which they worked. Under the mantle of efficiency, hospitals were forced to precipitously cut the lengths of stay for the majority of patients. For example, in the early 1990's a post-partum mother with a normal vaginal delivery was authorized to remain in the hospital 48-72 hours to recuperate, but after the advent of managed care in the middle 1990's, the same type of patient was authorized only 24 hours. Whereas total hip replacement patients were historically kept in the hospital to rehabilitate for 7 days post surgery, after the advent of managed care, the post-operative and rehabilitation period was cut to 4 days. These changes were difficult for patients and eroded their confidence and satisfaction.

Another negative impact of the changes driven by efficiency in the healthcare setting was a change in the focus of health care leaders (Jones, 2000). Jones asserted that hospital leaders had become so focused on financial considerations that they allowed changes, which negatively impacted the practice of medicine thereby denigrating patient care. Additionally, Jones believed healthcare leaders were so financially focused that they were missing the opportunity to plan for the future.

A survey of American Organization of Nurse Executive (AONE) members, in 2000 (Cooper, 2004) corroborated the issues raised by Jones (2000). This survey further suggested that there was widespread disappointment with the quality of services provided

by current healthcare organizations. This dissatisfaction was not only among members of the nursing profession and the patients for whom they cared, but also among other providers and purchasers of care. Moreover, the findings suggested that the current crisis in healthcare could be largely attributed to the failure of healthcare executives to effectively manage the significant conflict that existed between organizational missions and financial considerations in today's healthcare systems.

Jones (2000) concluded hospital management was responsible for these changes. Further Jones reported that although healthcare leaders described in great detail the changes that have come about in healthcare in the last twenty-five years, when the same group were asked where their organization would be in 25 years, most leaders responded, "We can't even plan for three years from now." Jones believed that planning exclusively in the short term supported the underlying assumption that only superficial changes will be needed from year to year and does not make room for the major changes that she believed society would face in the coming two to three decades. In general, changes in organizations are difficult to achieve. Frequently, there is failure of courage to take the necessary risks and implement the necessary innovations for constructive change. However, it was predicted that the necessity of change will assert itself and organizational leadership will be forced to respond. The hope would be that the response would be proactive rather than reactive and that the changes made will ultimately enhance the care of patients.

With the current focus on finances as the single criterion for hospital functioning, Jones pointed out that leaders were ignoring sources of challenge to the current organization. In her article, Jones (2000) listed six long-range trends and predictions with

the potential to impact healthcare, which included:

- The impact of weather: continuing global warming resulting large scale disasters;
- Major changes in populations: increased population growth as well as the aging of the population;
- The impact of increasing immigration and nomadic populations;
- Globalization including technology and the ability to reach anyone anywhere in the world;
- A four-decade cycle of prosperity called “the long boom” which may allow for the treatment of homeless, mentally ill, and addicted populations that have historically received minimal care;
- Internet-based health care, allowing for more knowledgeable consumers and health service screening and monitoring from home.

Paul Mott (1972) described a more balanced view of criteria for evaluating organizational effectiveness, beyond that of finances. He defined organizational effectiveness as “the ability of an organization to mobilize its centers of power for action-production and adaptation” (pg. 17). He further identified three ways organizations accomplished the mobilization of power: through enhanced productivity, adaptability and flexibility. He sub-divided productivity into quantity, quality and efficiency while he broke adaptability down into symbolic change or the plan to change and behavioral change or the actual change. Flexibility, although similar to adaptability, encompassed short-term responses to changes in the environment. Flexibility then was more of a temporary change as opposed to the lasting change of adaptation. These three general

criteria defined the ability of an organization to mobilize its centers of power for action to achieve goals and to adapt to change (Hoy & Miskel, 1996).

In an effort to actually use his framework for leading change, Mott developed the index of perceived organizational effectiveness (IPOE) and demonstrated that subjective measures of effectiveness reported by individuals were useful. Mott stated, "Our studies of the validity of these measures were reassuring" (p. 21) (Mott, 1972). Mott's IPOE initially evaluated the perceptions of physicians and nurses in order to assess effectiveness in hospitals. Since it was perceptions that were being evaluated, this eight-item tool measured subjective reports. This instrument allowed researchers to conduct investigations of an organization's capacity for change. Additional information on the instrument is presented below. Mott's and other's research reported by Mott (1972) generally demonstrated that an organization's division effectiveness was well predicted by the supervisory behavior of the division director. Also, Mott reported that, generally, leadership had strong relationships to organizational effectiveness.

In studying organizational effectiveness, Senge (1990) focused on the necessity of an organization to develop strategies to bring about planned change. Since change was described as inevitable, it was theorized that it was better for organizations to produce planned change than to have assumed a reactive stance. Generally, the objective of ongoing organizational development was described as achievement of a higher quality of work-life, increased productivity, adaptability and improved effectiveness. To meet this objective, change was necessary for an organization to adapt to competitive actions, technological advances and the fast pace of change in the environment. The organization's objective needed to be the changing of attitudes, behaviors, values,

strategies, procedures and structures. Such change was described as difficult and containing significant barriers. One question that arose was, what leadership characteristics would foster such change? Senge stated that the changes required for improving organizational effectiveness required dedicated, risk-taking leaders willing to embrace change, model change for the employees and monitor change until desired results were achieved. Senge went on to list seven hallmarks of effectiveness in organizations, which included:

- Humanistic values of leadership: positive beliefs about the potential of employees (McGregor's Theory Y)
- Systems orientation: all parts of the organization including structure, technology, and people, must work together
- Experiential learning: the training environment should mirror the kind of problems encountered at work
- Problem solving: problems are identified, data gathered, corrective action taken, progress assessed and adjustments in the problem solving process are made as needed
- Contingency orientation: actions are selected and adapted to fit the need
- Change agents: employees throughout the organization that simulate, facilitate and coordinate change
- Levels of interventions: problems can occur at one or more levels of the organization, so the strategy required personalization and situational application of the intervention.

If the organization embraced these concepts there was a greater likelihood the organization would be able to manage change by executing changes in a planned and systematic fashion. However, coping with and managing change was described as difficult at best and only the most courageous leaders were seen as embracing such responsibility.

There were some empirical demonstrations of organizational effectiveness as an important characteristic in the functioning of an organization. For example, Olivier and Ellett (2001) found that, among 1437 teachers of 95 elementary schools, organizational effectiveness as measured by the Index of Perceived Organizational Effectiveness (IPOE; Mott, 1972) was related to collective efficacy beliefs (the strength of a faculty's collective belief in their capabilities) as measured by the Teacher-Efficacy Beliefs Scale, Collective Form (TEBS-C; Olliver & Ellet, 2001). The IPOE was also related to an overall assessment of school effectiveness, the School Performance Score.

Also, conducting research within school systems, Brown, Claudet, and Olivarez (2002) found support for organizational effectiveness as measured by the IPOE being related to organizational characteristics that one would expect. For example, organizational effectiveness was related to principal leadership/support. Such leadership/support was defined as the perception of the level of autonomy, trust, and respect given to teachers by the principal. Organizational effectiveness was also related to organizational citizenship (valuing and encouraging sharing diverse ideas and perspectives on curricular and instructional issues) and collaboration (teachers and administrators engaging in collegial dialogue and review of effective school practices). Finally, organizational effectiveness was also related to curricular organizational

structure (extent to which teachers are involved in development of the curriculum and in decision making).

An important theoretical point supported by empirical data was made by Mott (1972). He reported data that supported the hypothesis about a relationship between organizational structure and productivity. Mott found that when task structure was low, that is, when the individual engaging in the task was required to make decisions, there were high correlations between organizational effectiveness measures and productivity. When the task structure was high, these correlations were relatively low. The applicability of these results to hospitals was that nurses were in a setting that was quickly changing and generated unexpected situations. Hence, nurses were forced to make quick decisions within such non-routine environments. Here, then, it would be expected that the characteristics of the organization would indeed predict whether outcomes would be positive ones.

Georgopoulous and Mann (1962) studied ten hospitals. Among their findings was that regarding the level of structure involved, the care of patients was in the lower middle of the task-structuring continuum. As Mott (1972) found here too, correlations between the nature of organizational relationships and outcomes varied as a function of the level of task structure, with higher correlations for lower task structure. The more the amount of formal coordination, the less interdepartmental tension and conflict, the more expectations were shared by physicians and nurses, the better the quality of patient care.

Organizational Change

Change is inherent in life and nature. Yet the study of change including the impact of change on the organization as reported in the literature has been a more recent

phenomenon. Still, the primary goal of such research has been preventing or mitigating change.

Within the last 150 years, society has witnessed great change. Business has gone from the Pony Express to the telegraph, to the telephone, to the cell phone, to the Internet, to the Wireless Web. Sweeping changes have taken business from small mom and pop businesses to large, complex systems employing, in some cases, hundreds or even thousands of workers. Organizations in the modern era have grown to such enormous proportions that they engulf the human beings of society.

The public has come to believe that it cannot exist without the organized efforts of hospitals, police, electric, oil, and even grocery companies. Although the population depends on the services that both large and small organizations provide, they are also quick to find fault when a mistake is made at a hospital, or the power goes out, or their children struggle in school. High performance within an organization is expected or the customer finds another organization that more closely meets their expectations. In many instances, change is required in order for organizations to perform optimally and adapt to the increasing expectations of society. A closer look at the underpinnings of organizations may shed light on the challenges organizations face in a constantly changing world of business and the ever-moving target of success. This closer look included the area of leadership practices.

The structural component of an organization has been described as the blueprint of the formal expectations and exchanges among managers and employees and their external constituents (Bolmon & Deal, 2003). The structure of an organization was described as both enhancing and constraining what an organization could accomplish.

Organizational development, the discipline of focusing on organizational change, remained an emerging science despite the number of decades the term has been around. At this stage, fads and trial-and-error dominated efforts to deal with the important and pervasive phenomenon of change (McLagan, 2002).

In his 1990 book, *The Fifth Discipline*, Peter Senge stated in order for organizations to survive, they must change. He took his point further by describing the surviving organization as a “learning organization.” In other words, an organization that continued to change through learning. He ascribed the majority of responsibility for learning and change to leaders of the organization. Senge believed that the leaders’ actions create the “reality” of the organization. Indeed, as described below, Sandbakken (2004) demonstrated an empirical relationship between leadership practices and organizational excellence. If the organization was to endure, certain schools of thought needed to be embraced and practiced because as the saying goes, “employees reflect management.” The leadership practices that Senge (1990) mentioned included systems thinking, personal mastery, mental models, building a shared vision and team learning. These are leadership practices that are necessary for change. A brief explanation of each follows:

- Systems thinking required the organization to be viewed as a system. This larger view was usually difficult since organizations were rarely looked upon as a whole but rather as parts or perhaps a sum of their parts. The larger view including the interworking of all of the parts facilitated the view of how the parts interrelated and influenced the function of the part or potentially the whole.
- Personal mastery referred to continuously striving to reach a higher level

of proficiency. It required continual self-evaluation and the development of personal vision, a commitment to focus efforts to continue to develop and enjoy the challenge of life-long learning. Maintaining an objective view of reality is also required. The embracing and encouragement of personal mastery in the organizational setting encourages employees to be all they could be and benefit the organization at the same time.

- Mental Models were the learned assumptions that influenced a person's understanding of the world. Mental models were important to organizations because they effected how the leaders and staff view the world and make decisions. A greater awareness of mental models explains much of the genesis of opinions and actions within the organization.
- Building Shared Vision was paramount to success within the organization. Greengard (2004) described the role of leaders in today's organizations was to build a shared vision. Without a shared vision between leadership and the grass roots employees, the organization would run the 100% risk of a gap between goals and performance that he likened to a "tectonic rift." Greengard also stressed the importance of "middle managers. He stated workers would disengage from the executive philosophy if middle managers didn't practice in congruence with the executive philosophy. Leebov and Scott (1990) also described the importance of the front-line manager as the "glue" that cemented the organization together. Greengard (2004) stressed the middle manager must have a relentless focus on communicating the mission to employees as well as develop monetary and non-monetary rewards to reinforce the executive philosophy. He stressed the goal of

managers should be to build a pipeline of talent that matched the behaviors and expectations of the organization and that was congruent with the leadership philosophy. In short, the middle manager was seen as the most important link between the organization and building a culture of shared vision. The development of a shared vision required that managers and leaders build “pictures of the future” that fostered understanding and engagement rather than compliance with rules. A shared vision is a set of guiding principles and practices that bind all levels of the organization together in a desire to excel and learn not because they are told to but because they want to.

- Team Learning was seen as vital in the organization of today because teams, not individuals were seen as the learning unit. Team learning required the suspension of old assumptions, and learning patterns and the embracing of a state of “thinking together.”

One attempt to operationalize leadership practices is that of Kouzes and Posner (2003). Their Leadership Practices Inventory (LPI) assessed five leadership practices that also reflected parts of Senge’s leadership practices. The five leadership practices and an example statement for each were:

<u>Leadership Practice</u>	<u>Example Statement</u>
“Modeling the Way”	Set example of what is expected.
“Inspiring a Shared Vision,”	Described a compelling image of future.
“Challenging the Process”	Experimented and took risks.
“Enabling Others to Act”	Supported other people’s decisions.
“Encouraging the Heart”	Rewarded people for their contributions.

As noted, Kouzes and Posner's LPI leadership practices were related to those of Senge's. Modeling the Way reflected Personal Mastery; Inspiring a Shared Vision reflected Building Shared Vision; Challenging the Process reflected Mental Model; Enabling Others to Act and Encouraging the Heart reflected Team Learning.

Kouzes and Posner's LPI was used in the current project for measuring leadership practices. As reported above, Sandbakken (2004) used the LPI as the operational definition of transformational leadership in a study of 348 Norwegian leaders and their organizations. Additionally, Sandbakken operationalized Peters and Waterman's (1982) organizational excellence construct by using Sharma, Netemeyer, and Mahajan's (1990) EXCEL questionnaire. In Sandbakken's study the hypothesized relationship between transformational leadership and organizational performance was supported by a strong positive correlation ($r = .71$). Hence, leadership as measured by the LPI was related to good organizational performance.

In the business and healthcare arenas, organizational change has become synonymous with survival. In the following section, change within hospitals was explored.

Change Within Hospitals

Hospitals were originally humble houses of mercy. In America, the first hospital to depart from the charitable and religious spirit of the Old World hospitals was the Pennsylvania Hospital, founded in 1751. The hospital was designed by Benjamin Franklin as a place for Philadelphia physicians to care for their private patients. According to an inscription on its wall, the institution intended to foster patients' self-respect and remove any stigma from a hospital visit by charging fees. From these humble

beginnings, hospitals have evolved into extremely complex organizations producing nearly miraculous technical feats and making enormous profits (Risse, 1999).

Given this grand evolution as a backdrop, one would expect hospitals to be well adapted to change, but no amount of history could have prepared hospitals for the massive changes of the 1990s. Primarily driven by soaring costs, society demanded changes that nearly dismantled hospitals. The result of societal demand was the advent of managed health care corporations enacting a carefully cloaked rationing of healthcare through the implementation of practice standards for the healthcare industry. The outcome was documented by the Health Care Advisory Board (2002a, 2002b), which stated that 41% of nonfederal hospitals in the United States changed ownership between 1994-1996. In the states of California, Florida, Illinois, Massachusetts, and Texas, there was a 5% reduction in the number of hospitals between 1995 and 1999 (Spang, Bazzoli, & Arnould, 2001).

Even though healthcare organizations were known for traditions resulting in stability, the massive changes of the 1980s and 1990s caused a general destabilization of healthcare organizational structures. This was caused in part by the changes in hospitals being more reactive than proactive. Shifts to product line management, mergers, changes of mission, and corporate restructuring flourished while the confidence of the workforce and loyalty, disappeared (Leebov and Scott, 1990). The impact of rapid-fire improvements in technology further stressed hospital infrastructures. Nevertheless, hospitals in the 21st century remained places where ailing people seek and receive care and where clinical education was provided to medical students, nurses and virtually the whole spectrum of health professionals. Hospitals also provided continuing education for

physicians and nurses. Hospitals also educated the community. Many hospitals conducted medical research as well as basic scientific, physics, chemistry and pharmacokinetic research.

The complexity required by all of these functions and the complexity that surrounded hospitals appeared to have required a structure that was typically hierarchical in nature. It was reported that vertical coordination occurred between executive leaders and departmental leaders and generally took the form of policies, rules and bylaws. Still, although the departments worked within the vertical structure, they generally functioned in a more lateral fashion through both formal and informal meetings and working agreements (Rathert & Taylor, 2001). Hence, although a generally hierarchical structure may have been necessary for overall hospital administrative function, it was important to evaluate how different areas of decision-making can be de-centralized. For example, in the organizational structure of magnet hospitals, the nursing department was less hierarchical and allowed for unit-based decision making. Related to this, the leadership practice of listening and responding to front line personnel was important.

When considering the differences between magnet and non-magnet hospitals, other structural frameworks also needed to be considered because of the negative affect some of these frameworks had on the magnetism of the organization. These included the following two attributes:

The size of the organization: Complexity and formalization of the structure of an organization increased with the size of the organization. Therefore, the more complex and established the health care organization, the more difficult it was to maintain the flexibility needed to employ magnet strategies. An important strategy in developing

qualities of magnetism in well-established, complex hospitals was to incorporate nursing input into every level of decision-making.

The age of the organization: The more mature an organization, the more the traditions were ingrained and the less flexible the organization.

These two characteristics were viewed as stumbling blocks for many hospital management teams. However, the University of Washington Medical Center in Seattle, Washington proved that a large, time-honored organization could embrace change and acquire the qualities of magnetism. The University of Washington Medical Center was founded May 4, 1959 and was the first hospital to receive official designation as a “Magnet Hospital.” This large tertiary care facility had 450 beds and was one of two major teaching hospitals for the University of Washington School of Medicine. “This wonderful achievement (Magnet re-certification in 2002) represents the ‘gold standard’ for nursing and patient care and Nursing’s involvement at all levels of our organization,” stated Executive Director, Kathleen Sellick.

The leadership responsibility and challenge was to once again support and advocate change within hospitals. The hope being to better the organization and decrease the cost of turnover of nursing and physician staff, increased employee satisfaction, increased patient satisfaction, improved patient outcomes, and increased public confidence in hospitals (Leebov and Scott, 1990).

Leadership

The ultimate outcome in any organization is performance: individual performance, team performance, and organizational performance. All of these elements should be combined to build the model or framework of the organization and, as

empirically demonstrated by Sandbakken (2004), leadership practices were related to organizational excellence.

Management's philosophy, values, vision and goals were described as the organizations foundation. This foundation then, fashioned the organizational culture including the formal organization, informal organization, and the social environment. The culture determined the type of leadership, communication, and group dynamics within the organization. This culture impacted the grassroots staff because it influenced their perceptions of the quality of their work and work life, which impacted their degree of motivation.

Within the organization and within the culture, leadership was described as an organized set of behaviors or set of expectations for a particular position in an organization (Guo, 2003). The leadership roles in the healthcare arena were complex because healthcare leaders affected the quality and quantity of patient care and in many ways the outcomes, life and death of their constituents. Beyond a descriptive statement, it was necessary to identify components of such a set of behaviors or expectations.

One attempt at such identification that used hospitals or healthcare as the focus was that of Robbins (2001). He developed a tool that reflected his framework for evaluating competencies (leadership attributes) in order to facilitate career planning and leadership training programs. Robbins delineated four general domains of leadership with 52 specific competencies. These four domains were:

- technical skills; operations, finance, information resources, human resources and strategic planning/external affairs
- industry knowledge; clinical processes and general healthcare institution

knowledge

- analytic and conceptual reasoning
- interpersonal and emotional intelligence

Robbins' qualitative pilot study utilized eleven administrative fellowship program students from Massachusetts General Hospital and Yale University Health Management Program. The competency assessment tool developed in this study was considered an initial attempt in forging an integrated approach to educating and training the next generation of senior leaders of complex healthcare organizations. The explicit linking of academic course work with specific practical experiences worked toward a central common goal: the development of managerial competency.

As was seen from these four general domains, Robbins' framework was broad and focused on competency domains that, while important for good management, did not necessarily bring about the attributes characteristic of magnet leadership. Nor did they assure innovativeness and risk-taking, qualities necessary for guided change.

Guo's (2003) was another effort to provide a general framework for conceptualizing health care leader practices. Guo studied the skills and roles of senior-level health care managers necessary in the rapidly changing health care environment of today. She determined that senior-level managers in health care organizations required technical, conceptual, and human relation skills in order to perform six essential roles as managers:

- leader: providing the organization with purpose and direction;
- liaison: building networks to enhance organizational goals;
- monitor: gathering information to identify problem areas;

- disturbance handler: recognizing and addressing all major problems;
- resource distributor: allocating appropriate resources to various projects;
- strategist: embracing creativity and innovation, and taking risks, which enhanced opportunities within and on behalf of the organization (Guo, 2003).

Particularly germane to the current study, was Guo's inclusion of creativity, innovation, and risk-taking as necessary characteristics of leadership. Senge (1990) described the requirement of healthcare organizations today to become a "learning organization" where everyone continued to develop their skills to meet the challenges of the rapidly changing environment. Guo's study found senior managers and others in leadership positions must constantly advance their levels of knowledge in order to stay ahead of the waves of change facing healthcare today. She believed this requires both graduate level education and years of experience.

Relevant to the role of leadership in organizational change, Clayton Christensen, author the 1997 book, *Innovator's Dilemma*, cited several studies validating that when major changes occur in institutions, mavericks that bucked the system and put their careers at risk frequently led them. Executives in these institutions admitted their cultures did not reward "change leadership." A study by Foster and Kaplan (2001) surveyed 1,000 US and European companies in 15 industries. They found that most managers were satisfied with their leadership abilities, but dissatisfied with their ability to implement change (McLagan, 2002). As stated earlier, change within organizations, including hospitals, has been the responsibility of its leaders (Douglas, 2002). Since facilitating change has been viewed as central to operating as a magnet hospital, this ability to implement change is key. The qualities necessary for creating change included

courage, creativity, innovativeness, and risk-taking. As Shoham and Fiegenbaum (2002) stated, the implication for leaders is three-fold: The leaders must want either the change or the result the change brings; secondly the leaders must have the power to bring about the change; and finally, the leaders must have the courage to change the organization.

Leadership Styles, Preferences, and Practices

Leadership style has long been studied and reported in management literature. For example, Selznik (1957) argued that the real task of leadership was to create a social structure of shared values. Three decades later, Schein (1985) noted that leaders communicated organizational values as a method of leading the organization. Heifetz and Linsky (2002) described several requirements for leaders including, having reverence for the pains of change, recognition of the types and manifestations of danger, and the skill to respond without being marginalized, diverted, attacked, seduced, or otherwise “assassinated” (pg. 42).

There have been a number of general approaches, which described leadership styles. For example, Burns (1978) proposed leadership processes are either transactional or transformational in nature. Transactional leadership based on bureaucratic authority and stressing task accomplishment and employee compliance, and transformational leadership, based on personal value systems and stressing the leader’s influence over employees by considering the needs of the employees.

Leebov and Scott (1990), in their book, *Healthcare Managers in Transition*, used the more modern terminology of “directing” versus “empowering” staff. The basic concepts were similar to Burns with “directing” equating to transactional and “empowering” equating to transformational. Manfred Davidmann (1998) discussed a

continuum of management style from authoritarian to participative that was also similar to both Burns (1978) and Leebov and Scott (1990). On Davidmann's continuum, managers at the authoritarian end of the continuum believed employees should do as they were told and believed that their manager role was to transmit orders. Decisions in the authoritarian setting were made at the top using a military "line and staff" or "chain of command" approach.

Most attempts to formulate frameworks regarding leadership styles were themselves based on McGregor's (1960) seminal approach. In his book, *The Human Side of Enterprise*, McGregor examined assumptions about the behavior of individuals at work and how these assumptions were related to leadership style. He formulated two models that he labeled Theory X and Theory Y. Theory X postulated that the average human being inherently dislikes work and will avoid it at all costs. Theory Y assumed that the job itself was satisfying to the employee and that the employee liked the work. The behavior and leadership style of managers flowed from which of these assumptions they held.

Managers who held Theory X did not believe staff were motivated by rewards beyond the financial, such as some deeper motivation or opportunity to fulfill oneself as was described by Maslow in his book entitled *Motivation and Personality* (1987). Hence, that manager would act in an authoritarian manner with a basic penalty approach to management. Managers who held Theory Y assumed that the average person worked to increase self-directedness and obtain further responsibilities. Additionally, those managers assumed that employees could use imagination and creativity to solve work

problems. Managers that embrace Theory Y concepts empower the staff and support opportunities for growth and development within the organization.

There have been some studies that bear on how levels of centralization affected organizational outcomes. For example, Mott reported research that demonstrated lower job satisfaction, lower morale, and little inducement to produce in the more centralized divisions within organizations (Mott, 1972). Also, in their operationalization of some leadership attributes, Kouzes and Posner (2003) specifically included three qualities relevant here: Challenging the process (experimented and took risks), Enabling Others to Act (supported other people's decisions), and Encouraging the Heart (rewarded people for their contributions). These were demonstrated to be related to empowering staff and increasing staff satisfaction.

When studying healthcare organizational leadership, one particular group of leaders emerged because of the size of the workforce that they represented. The group, of course, is nursing leaders. Not only were nursing personnel the largest single body of employees in a hospital, but also nurses were present on a 24-hour a day, 7 day a week basis. Although nursing leadership has and continues to be primarily present during regular business hours, representative leaders were present on the same basis as the staff. The scope of responsibility of nursing leaders, the number of staff they represent, and the impact they have on the work of the institution all added to the influence Nursing has on the culture of the entire organization. Nursing leadership was faced with the same issues regarding change and the necessary qualities that allowed the fostering of change as any leadership group within an organization.

Nursing Leadership

The concept of leadership in nursing goes back to Florence Nightingale. In the mid 1800's she led autocratically and served as the "matron" of nurses and nursing practice. She promoted her care model and leadership style through managers that were similar to military sergeants. This autocratic style permeated nursing practice until the early 1960's when a somewhat kinder but still hierarchical style was adopted. It was understood that a nurse leader would use a hierarchical approach, one in which managers managed from the top down with minimal staff input into processes and daily operations. Nursing leaders in the 1970's were characterized as less hierarchical in approach, but lacking in confidence and ill prepared to lead (Kalisch, P.A. & Kalisch, B.J., 2003).

Nursing's leaders have progressed well in the subsequent decades to positions of leadership not only of nursing services but also as members of the leadership team of hospitals. Also, nursing has moved from the Theory X, more militaristic model of leadership to transformational leadership, now considered the most popular leadership theory in nursing literature (Burns, 1978). Porter-O'Grady (1992) espoused transformational leadership as better suited for times of rapid change, which had been the environment of hospitals for the past two decades. Importantly, Morrison et al (1997) reported transformational leadership as having a powerful influence on job satisfaction both directly and indirectly through its influence on the staff's intrinsic task motivation. In her study, Morrison found transformational leadership was positively related to nursing job satisfaction with a correlation of 0.64. Her descriptive study used a Likert-based questionnaire to ascertain satisfaction and the Multifactor Leadership Questionnaire (MLQ-5X) to determine leadership style. The MLQ-5X was reported by

Jones (1995) to have high reliability, with Cronbach Alpha scores ranging from 0.67 to 0.93 on the subscales of the instrument.

The traits of transformational leadership as reported by Bashor (2000) were congruent with several of the qualities of magnetism. For example, Bashor (2000) cited transformational leaders as visionaries who articulated their vision of the future with the staff. She further attributed consideration by the leader of the humanistic needs of the staff, respect and consideration of the staff and the ability to recognize and clarify ambiguity as positive qualities of a transformational leader.

These traits were similar to the characteristics of leaders in magnet hospitals as reported by Upenieks (2003a, 2003b, 2003c). Upenieks further reported that leadership attributes were equally as important as monetary incentives because although monetary marketing strategies had been successful in alleviating nursing shortages to some extent by improving recruitment, they did not address retention issues. She reported the attributes of the leader as being the single most important factor in retention of staff. Upenieks (2003a, 2003b, 2003c) concluded with the concept that nurses wanted to be valued, which was viewed as more important than salary; it was recognition of expertise, responsibility for professional practice, participation in decision-making, autonomy, and a manageable workload. Additionally, Upenieks pointed out the coupling of nurse satisfaction to patient satisfaction. Indeed, Otani and Kurz (2004) found that among six hospital attributes nursing care had the greatest impact on both patient satisfaction and patient behavioral intention (to return to and recommend the hospital to others). Hence, they stated that the most effective way to achieve enhanced patient satisfaction would be improved nursing care. And as the literature suggested, the level of positive nursing care

was related to hospital leadership.

An empirical study demonstrated that nursing leadership attributes were related to level of staff nurse autonomy (Mrayyan, 2004). Using a researcher developed assessment of nursing leadership entitled, "Nurse Manager Actions" and an existing Autonomy Scale (Blegen, Goode, Johnson, Maas, Chen, & Moorhead, 1993), Mrayyan completed quantitative assessments for nurses, both leadership and staff. She reported that leadership and autonomy were significantly related. This supported the literature that stated organizational and executive nurse leadership attributes were important in fostering nurse autonomy. It also supported the concept that autonomy and nurse job satisfaction were related. Further, Upenieks (2002) found that the nurses in magnet hospitals compared to non-magnet hospitals had better job satisfaction and that this job satisfaction was, in part, a function of the leadership provided by the nurse executive.

Some research then demonstrated a relationship among leadership qualities, nurse empowerment or autonomy, and nurse job satisfaction. Leadership appeared to be a fundamentally important variable. This was noticeable in the Morrison et al (1997) research when, in predicting nurse job satisfaction, they found that, in a series of hierarchical regressions, leadership significantly incremented over nurse empowerment. Kramer (1990), in her three-year follow-up re-evaluation of magnet hospitals, stated, "When all is said and done, the one essential sine qua non of a culture of excellence is the quality of the leadership (p 43)". She noted that in spite of the high turnover of CNOs in the 1980s, 6 of the 16 magnet hospitals in the 1982 and 1986 studies had the same CNO and in five other hospitals the change in CNO had been expected and planned for.

Today, nursing leaders must continue to encourage their staff to move toward a

shared vision that has tangible and positive outcomes for all stakeholders. This shared vision is directly linked to excellence in healthcare, satisfaction of patients, staff and management. The challenge faced by nursing leaders was and continues to be to meet the expectations of the patients and staff while maintaining the lowest cost possible. The challenges are monumental, but nurse leaders must transform the challenges into opportunities, transform chaos into order, turn staff, patient and external demands into solutions and be flexible as they cope with change, change and more change. The leadership skills needed today are more complex than those required in previous eras. Being educated, experienced and creative merely provided the foundation on which nursing leaders build their successes. High levels of nurse autonomy as reflected by the Theory Y approach, where it was assumed that individuals were motivated by interests in increased self-directedness and responsibilities and empowered employees led to the solving of work problems (Welford 2002) is described as the key to success.

Leadership Qualities Related to Change

What are the leadership qualities that promote change in an organization? As discussed above, it appeared that the primary attributes were courage, risk taking, and innovativeness. These leadership Qualities were also reflected among the five leadership practices measured by the Kouzes and Posner (2003) Leadership Practices Inventory (LPI), particularly the dimension of experimenting and taking risks.

Courage. Stevens (2001) quoted Sir Walter Scott as saying “Courage is the will to do and the soul to dare.” Stevens further explained Scott’s quote as the “will to do” being something which required action on the part of the courageous person and the “soul to dare” explained as having the passion to discover, create and experience the unknown.

Stevens stated it takes courage to travel to new frontiers because the nature of frontiers was that they are unfamiliar, unsettled, unchartered and unpredictable. Debra Bournes (2000) suggested several definitions of the term courage. Some included:

courage is associated with taking risks;

long-term determination or persistence;

the capacity to move ahead despite fear;

to meet dangers and difficulties while striving for what is noble.

In all, the definitions related to remaining faithful to personal values, ideals, goals and purposes. One unnamed woman was quoted by Bournes as saying, "It is being true to yourself and acting on your own individuality so that you have no regrets. Courage is hard and needs practice since sometimes it is easier to go with the flow than stand by your convictions but having courage is a choice..." (pg 144).

Courage in the business arena has often been linked to risk taking (Useem, 1998). Courage was not described as the absence of fear but having the power to let go of the familiar and push ahead into new territory, despite fear. Dr. Merom Klein of the Courage Institute stated that given a choice, most reasonable people would choose comfort over risk (Klein, 2001). He believed the steps to achieving change were:

- candor, the speaking and hearing of truth
 - purpose, the communication and understanding of goals
 - desire, the ignition of positive energy and motivation
 - rigor, the development of new objectives and a commitment to achieve them
 - risk, inspiring movement away from the comfort zone and into new territory
- (Klein, 2001).

The process of change therefore required a certain amount of courage on the part of the leader.

Jennifer Ebert, in her article “Executive Excellence” (Ebert, 2003), described many companies and the leaders of those companies that clung to tradition and attempted to stay under the radar screen in times of adversity. She stated leaders in this situation lacked the courage to help their company stay the course and even excel during tough times. A partial explanation was that change challenged the leader’s sense of competence. Like other members of the organization, leaders experienced the loss of the sense of comfort previous practices and philosophies had provided. Leaders then experienced discomfort and sustained uncertainty about future successes if they adopted new, unfamiliar practices. Heifetz and Linsky (2002) pointed out that habits, values and attitudes were part of the identity of all staff, including leaders and therefore change was difficult. The leader must exercise courage when giving up the stability that past practices had provided and that adopting new practices would lead to improvement.

Companies like Disney, HP, GE and Eli Lilly have proven not only that changing but also that excelling during adversity have been possible. Unfortunately they represent a small segment of the business population. The primary reason some companies failed and others excelled was based on the mindset of leadership and their willingness to take risks. Ebert (2003) maintained that leadership must build and reinforce a culture that interpreted adversity as an opportunity for growth. It was leadership that could mobilize the resources to align the support structure, develop new initiatives and reinforce the philosophy of the company. It was the responsibility of leaders to care for, nurture and ultimately sustain the culture of the organization through the rediscovery of their passion

for their investment, their companies and their people. Bennis and Townsend (1995) in their book, *Reinventing Leadership*, described the courage to be open to change, creativity, innovation, long-term view, risk taking, and a primary focus on effectiveness as some of the hallmarks of organizations that thrive during adversity.

Risk Taking. The book, *Leadership on the Line* by Ron Heifetz and Marty Linsky (2002), described leadership as “risky.” They went on to explain that no matter how gently and carefully a leader led, danger and risk came from the change process, primarily because of the reaction of the followers to their perceived loss. The more complex the change and the more fast-paced the change, the more resistance emerged.

Robert Thomas and Warren Bennis described speed as a fact of life (2002). “Speed Leadership,” as they referred to it, required risk-taking in that it went against basic leadership training. Basic leadership training espoused a certain order of decision-making specifically, observe, orient, decide, and act. Speed leaders used a significantly different approach to leadership. They acted first, then learned and adapted. Speed leaders took risks and experimented in order to advance knowledge. Speed leaders adjusted in real time, while moving from one problem to another and demonstrated delight in the unexpected. They consistently pushed the organization toward the “boundary of chaos”(Dolan, Garcia and Auerbach, 2003) where the greatest creativity occurred. Speed leaders imbued the organization with shared values, which bridged the gap between their vision of the future and the current reality.

Ron Long (2001) echoes the thoughts of Thomas and Bennis. He stated that because time and technology were moving forward at “the speed of light,” healthcare managers must decide to either embrace change or sit on the sidelines and watch as

others take the lead. He also believed that leaders must develop new skills to maintain the leadership edge in propelling their organizations to higher levels of excellence. Key skills to be considered included:

- development of creativity
- heightened ability to think outside the box
- ability to accept and manage the risks that accompany change
- acceptance of mistakes as an opportunity to learn

Karlene Kerfoot (1999), summarized courage and leadership for change best when she said, “The best organizations build a ‘Shared Destiny’ instead of a ‘Shared Vision.’ In a shared destiny, mutual growth fostered the development of trust and success in the organization. The challenge to healthcare leaders across America was and continues to be not to settle for comfort but to push ahead into the new territory of magnetism.

Gilley, Walters, and Olson (2002) developed a tool, which assessed risk taking using a 7-point Likert scale for rating the items from 1 (strongly disagree) to 7 (strongly agree). The tool consisted of four items that loaded on two factors of two items each. The total scale had an internal reliability of .63. The two sub-scales were general risk taking with an internal reliability of .76 and product/process risk taking with an internal reliability of .78. The two general risk taking items were adopted from Miller and Friesen (1982) and ascertained whether the organization’s “top executives had a strong preference for high-risk projects,” and the degree to which “bold acts were viewed as useful and common practice” by the organization’s top executives. The two product/process risk taking items were taken from Miller (1988) and asked subjects

whether their organization's top executives had a "tendency to follow competitors instead of introducing new products themselves first," and "preferred to let other firms in our industry assume the risk of product or process innovations before adopting them in our firm."

Using this tool, Gilley et al (2002) demonstrated that risk taking had a strong positive impact on an organization's performance. General risk taking was significantly related to innovative performance. Product/process risk significantly predicted innovation, stakeholder, and financial performance. It was noted that the impact of risk taking on organizational performance was moderated by the level of environmental dynamism defined as the rate of change and the unpredictability of change in an organization's competitive environment. Risk taking was more related to performance in highly dynamic environments.

Innovativeness. Simon Knox (2002) pointed out that leaders created the climate where innovation could thrive. If innovations were to thrive, leaders must have assumed a high profile and unrelenting search for insights on which to build innovations. Differentiating between invention and innovation, Drucker (1998) defined innovation as "exploiting change as an opportunity." He also made the distinction between efficiency, "doing things right," and effectiveness, "doing the right things." This distinction was crucial since efficiency is essentially about reduced costs, while effectiveness was essentially about innovation. Simply cutting cost would not assure long-term solvency; it was the embracing of innovation or effectiveness that assured customer satisfaction and thereby supported long term solvency.

Both Richard Cree (2003) and Jean Dickson (2003) assert that organizations need

creativity and innovation to remain competitive and challenged leaders not to be afraid of “crazy ideas” but to encourage them. Tim Dehne (2003) stated that corporate innovation has been fueled by the incentive of making a significant, lasting impact on the world. He stated that innovation will be found when, companies seek out the pioneers and visionaries or so called “go-to” people and then empower and support them as they explore new frontiers.

Recognition of the importance of innovation by leadership and a love of learning were seen as necessary if innovation was to survive and thrive in an organization. A culture of trust must be established where failure was an accepted part of the process of learning. Leaders must demonstrate a willingness to learn as well as the ability to recover from mistakes and change direction quickly as the environment changes.

Richard Farson and Ralph Keyes (2002) stated that even though many companies were accepting failure as an integral part of innovation, individually people hated to fail. People and employees looked at failure as an embarrassment. Farson and Keyes maintained that leaders who promoted a failure tolerant organization, by encouraging innovation and accepting failure as a compliment to rather than the opposite of innovation, were the best innovative leaders. They strongly point out management’s responsibility to maintain quality control, supervision, and respect for sound practices and stress the requirement for leadership to be more engaged than less.

Another important step in creating a culture where failure and innovation flourishes required the downplaying of competition. Competition was seen as derailing innovations because employees do not share with one another for fear that a co-worker will “win.” It was through collaboration, communication and the sharing of innovations

and failures that organizations support the most innovative climate. Hurt, Joseph and Cook (1977) developed an innovativeness tool, the Innovativeness Scale, as a potential predictor of risk-taking. They theorized that innovativeness was a personality characteristic that they described as a “willingness to change.” Their tool demonstrated an internal split-half reliability of .94 for the 20-item scale. Witteman (1976) tested the validity of the tool in a study that supported the validity by producing a significant linear correlation of .50 with opinion leadership and -.45 with communication apprehension. Additional information on the psychometric properties of this instrument will be presented in the methods section below.

Supporting the idea that innovativeness, as measured by the Innovativeness Scale, was actually related to change within an organization, Okolica and Stewart (1996) evaluated the process of adoption of new technology by 161 personnel (a 59% response from 271) in a Fortune 500 company. The new technology was a computer-based communication voice mail system. Innovativeness was positively correlated with both extent of use of voice messaging ($r = .25, p < .01$) and seeking training ($r = .28, p < .01$). Finally, in a multiple regression analysis predicting extent of use of voice messaging innovativeness had a significant beta (.17, $p < .05$) even when entered with two other independent variables, perceived usefulness and amount of training. Hence, the construct of innovativeness as measured by the Innovativeness Scale was indeed related to change within an organization. This result was consistent with the research of Zmud (1984). Zmud found that innovativeness or receptivity to change was significantly related to use of modern software practices.

Summary

The preceding overview did not include the entire collectivity of research in the areas of magnet hospitals, organizational effectiveness, and leadership. The studies included in the discussion provided a focused review of the literature that informed my study. Included in this review were presentations regarding organizational effectiveness, change within organizations and hospitals, and leadership characteristics and practices that promoted change. This review demonstrated that while the literature was rich with information regarding leadership, Magnet hospital literature was less plentiful. Also the relationship of leadership characteristics and practices of the Chief Nursing Officer and the Chief Executive Officer and magnet status had not been reported in the literature. Therefore, an overview of the literature appeared to support the rationale for this study to examine the differences in hospital leaders in magnet hospitals as compared to matched non-magnet hospitals specifically in the areas of innovativeness, leadership preferences, and perceptions of organizational effectiveness.

Chapter III Methods

This research examined leadership practices and the innovativeness of CNO/CEO pairs in magnet hospitals as compared to non-magnet hospitals and tested the underlying assumption that organizational effectiveness was better in magnet hospitals than non-magnet hospitals. Hence, the three primary conceptual dependent variables were assessments of the nature of leadership practices, level of innovativeness, and level of perceived organizational effectiveness. The two primary independent variables were the hospitals' chief office type (CNO, CEO) and hospital type (Magnet, non-Magnet hospitals). There were three general types of questions asked in this research. First, the basic research question was whether the differences between CNOs and CEOs on the dependent variables would be greater for non-magnet hospitals than for magnet hospitals. Second, an additional question asked whether the CNOs and CEOs within magnet hospitals were more similar on the dependent variables than the CNOs and CEOs within non-magnet hospitals. Third, the final formal question asked whether the results for leadership practices and innovativeness would remain when perceived organizational effectiveness was controlled.

The first type of research question regarding differences between CNOs and CEOs on the dependent variables varying as a function of hospital type (magnet vs. non-magnet) was best addressed using mixed design analysis of variance (ANOVA) with the chief officer type as the repeated measure. ANOVA designs have the economic and efficiency advantages of testing a number of hypotheses in any single analysis.

For example, the 2 Chief Officer type (CNO vs. CEO) by 2 Hospital type (magnet vs. non-magnet) mixed design ANOVA with chief officer type as the repeated measure

allowed for simultaneously testing the main effect for chief officer type, the main effect for hospital type, and the interaction of chief officer type by hospital type. This type of design also allowed for the evaluation of simple effects to determine the source of any significant interaction effects.

Finally, this type of design could also be expanded to an analysis of covariance (ANCOVA), thus enabling the researcher to do two things. First, the researcher could determine whether any significant effects were spurious or artifacts and actually the result of the presence and effect of an additional confounding variable not initially identified in the design. Potentially confounding variables must be related to both an independent variable and a dependent variable to function as an actual confounding variable accounting for the relationship between the independent variable and dependent variable. Second, if an analysis does not produce the expected effects, the researcher could attempt to reduce the error terms by removing effects of other variables that were not intrinsically related to the research question. For example, if age was not related to an independent variable, it could not function as a confound, but if it was nonetheless related to a dependent variable, its effect on the dependent variable would not be accounted for in a basic ANOVA design thus creating a source of noise and increasing the size of the error term. Using an ANCOVA with age as the covariate, allowed the researcher to remove the effect of age on the dependent variable from the error term, reducing the size of the error term and increasing the size of the statistic.

The second question about the similarities of CNOs and CEOs within each hospital was addressed using Pearson product moment correlations. Correlation allowed for the testing of how CNOs and CEOs varied together. The use of correlation also

allowed for the testing of whether two correlations were different, for example, how CNOs and CEOs correlated within magnet hospitals versus those within non-magnet hospitals.

The third question about whether the results for leadership practices and innovativeness would remain if perceived organizational effectiveness were controlled was directly addressed through the use of ANCOVA. See the discussion above on the use of ANCOVA.

Hospital Sample Selection

As of April 5, 2004, approximately 100 hospitals were designated as magnet hospitals. The entire population of available magnet hospitals found on in the AHA hospital database was included in the study. There were 97 magnet hospitals in the AHA database. In order to compare magnet and non-magnet hospitals and control for organizational differences, the matching strategy used by Aiken, Smith and Lake (1994) was replicated as closely as possible. In her study, Aiken et al (1994), from a possible list of 5,053 hospitals “matched” five non-magnet hospitals to each of the 39 available magnet hospitals using specific organizational characteristics like average daily census, number of beds and financial status. The entire list of organizational characteristics used by Aiken, Smith and Lake are delineated below. For this study, the sample consisted of the 97 available magnet hospitals, which represented the entire population of magnet hospitals in April, 2004 and three matched non-magnet hospitals from the 4,702 hospitals available from the AHA database for each magnet hospital. This resulted in an “n” of 388 hospitals. The reason there were three matches in this study versus five matches for

Aiken et al (1994), is discussed below. The target sample of 388 hospitals represented approximately 6.5% of hospitals in America.

Construction of the matched control sample using multivariate matching was achieved by utilizing data, available through the American Hospital Directory. The American Hospital Directory was an online data source for American hospitals. The database of information was built from Medicare claims data, cost reports, and other public use files obtained from the federal Centers for Medicare and Medicaid Services. The data also included the American Hospital Association (AHA) Annual Survey Data. To replicate Aiken, Smith and Lake's study (1994), the AHA Annual Survey Data was used. The AHA Annual Survey Data contained hospital characteristics derived from hospital surveys and other proprietary sources. The survey has been collected annually since 1946 and is widely regarded as the most authoritative and comprehensive source of individual hospital data available.

Data regarding the 97 magnet hospitals were entered into the Statistical Package for the Social Sciences (SPSS version 10) database. Next, data specific to all non-magnet hospitals were loaded into SPSS. As noted above, there were 4,702 non-magnet hospitals available. All but one of the 12 specific hospital characteristics used in the Aiken, Lake and Smith study (1994) were used to sort and cluster hospitals. These characteristics ultimately allowed for non-magnet and magnet hospitals with other like characteristics to be "matched." The one Aiken et al (1994) hospital characteristic not used was item number 8 on the Aiken et al list, proportion of physicians that were board certified. This characteristic was not included because it was no longer available in the AHA database.

The specific characteristics that were used in order to match non-magnet to magnet facilities can be found in Table 1.

Table 2 then, showed that magnet hospitals were not significantly different from the non-magnet hospitals on all 11 characteristics. Matching was necessary to ensure that the two types of hospitals in this study were not different on these characteristics in order to be able to evaluate the relationships specified in the hypotheses. Matching eliminated the concern that relationships were not caused by potentially confounding characteristics.

Table 1. Characteristics for Matching Magnet and Non-Magnet Hospitals

Criterion	Criterion Content
1. Ownership	Percent Public, private for profit, private not-for-profit
2. Membership	Member of Council of Teaching Hospitals (ordinal: yes/no)
3. Size	Average Daily Census (ADC)
4. Beds	Number of Hospital beds
5. Discharges	Number of Medicare discharges
6. Financial Status	Payroll (millions of dollars)
7. Occupancy Rate	Percent of beds used
8. Physician Certification	Board Certified physicians/ all physicians (%)
9. Payroll expense	Expense per hospital bed (1,000 dollars)
10. High Technology	High technology index score (scored 0-5 based on the presence or absence of: cardiac-cath lab, extracorporeal lithotripter, MRI, open heart surgery capability and organ transplant capability)
11. Emergency Visits	Number of emergency visits/ADC (ratio)
12. Catchments	Metropolitan statistical area size

Determining the Matched Hospitals

A propensity score, which represented the probability of a particular hospital being designated a magnet hospital, was obtained by assigning “magnet designation” and “non-magnet designation” as the dependent, dichotomous variable for all 4,799 hospitals.

The scoring was zero (0) if the hospital was a magnet hospital and one (1), if the hospital was not a magnet hospital. After magnet designation or non-magnet designation was determined for each hospital, a logistic regression was run for the eleven organizational characteristics as described above. The resultant discriminant function was used to determine a predicted logit, which was the propensity score.

After a propensity score was calculated for all hospitals, each magnet hospital was sequentially matched with the non-magnet hospitals that had the most similar propensity scores. To ensure that no non-magnet hospital served as a match for more than one magnet hospital, after a hospital was selected as a match, it was removed from the database. This process was repeated until statistically significant differences emerged for the eleven characteristics between the set of magnet hospitals and the set of the “matched” non-magnet hospitals. Such differences emerged on the fourth set of random matches (see Table 2).

In their matching using five non-magnet hospitals for each magnet hospital, Aiken et al (1994) had only one significant ‘magnet versus non-magnet hospital’ difference during the 5-randomization runs. This difference was for the “payroll expense per hospital bed” characteristic and the difference occurred during randomizing matching procedure [magnet mean = 109 versus non-magnet mean = 95, $p < .05$]. The second through fifth randomizing procedures demonstrated no further matching differences. Thus, the process yielded 5 non-magnet hospitals that were matched to each magnet hospital.

Table 2. Testing of Magnet versus Non-Magnet Hospital Matching

Characteristic	magnet n = 97	Potential controls n = 4702	Matched Control Hospitals			
			1 n = 97	2 n = 97	3 n = 97	4 n = 97
Ownership %						
Public	14.4	27.2*	12.4	17.5	13.4	14.4
Private for-profit	1.0	16.0**	0.0	0.0	0.0	0.0
Private not-for-profit	84.5	56.8**	87.6	82.5	86.6	85.6
Member – Council of Teaching Hospitals %	47.4	5.7**	46.4	44.3	45.4	42.3
Hospital size	335.6	107.4	322.4	288.1	330.7	270.73
Average daily Census (ADC)	(195.11)	(134.05)**	(237.80)	(188.88)	(240.87)	(151.32)*
Hospital beds	443.7	160.0	435.7	388.1	440.6	360.9
	(236.74)	(171.41)**	(319.38)	(261.36)	(305.77)	(187.04)*
Medicare discharges	8367.7	2501.0	8246.6	7177.6	8308.5	7018.0
	(5581.46)	(3138.33)**	(6466.72)	(4596.86)	(5031.27)	(4343.57)
Financial Status Payroll (million dollars)	155.1	32.6	137.4	121.3	138.4	104.6
	(129.65)	(49.41)**	(112.09)	(87.82)	(117.31)	(69.53)**
Occupancy rate	0.75 (0.13)	0.59	0.74			
		(0.22)**	(0.17)	0.75 (0.27)	0.74 (0.11)	0.74 (0.13)
Payroll expense/hospital bed (1,000 dollars)	346.8	179.5	334.9	323.7	307.4	291.78
	(179.67)	(121.81)**	(237.34)	(156.97)	(110.52)	(104.75)*
High-technology index score ^a	3.5 (1.34)	1.3 (1.45)**	3.5 (1.31)	3.6 (1.35)	3.5 (1.28)	3.5 (1.1)
# emergency visits/ADC	185.8	322.5	196.2	181.2	198.1	188.6
	(123.90)	(460.40)*	(126.47)	(103.92)	(110.56)	(92.35)
Metropolitan statistical area size ^b	4.3 (1.61)	2.4 (2.38)**	4.4 (1.62)	4.4 (1.66)	4.3 (1.70)	4.4 (1.57)
Propensity score (Logit)	2.4 (1.39)	5.4 (1.69)**	2.4 (1.37)	2.5 (1.23)	2.5 (1.15)	2.7 (1.00)

* p < .01 ** p < .001

^ascore ranges 0-5 presence of five items: cardiac-catheterization lab, extracorporeal lithotripter, magnetic resonance imaging facility, open-heart surgery facility, organ transplantation capability

^bordinal variable range 0-6 using Census Bureau MSA population categories of 0 (non-metro, no city 50,000+ nor more than 100,000+), 1 (< 100,000), 2 (100,000 - 250,000), 3 (250,000-500,000), 4 (500,000-1,000,000), 5 (1,000,000-2,500,000), 6 (2,500,000+).

In the randomization matching process for this study, no significant differences emerged until the fourth randomization. In the fourth randomization, four such differences were present. These were: average daily census, number of hospital beds, financial status payroll, and payroll expense per hospital bed. See Table 2. The ability of the data to support as many randomizations as Aiken et al used was limited by the differences the AHA database number of magnet hospitals, the number of non-magnet hospitals, and the ratio of number of magnet to non-magnet hospitals. Aiken et al (1994) had only 39 available magnet hospitals, but 5,053 available non-magnet hospitals. This was a ratio of magnet to non-magnet hospitals of .008 (0.8%). In the current study, there were 97 available magnet hospitals, but only 4,702 available non-magnet hospitals. This was a ratio of magnet to non-magnet hospitals of .02 (2.0%). The difficulty in producing more than three sets of randomized matches for the magnet hospitals was the result of the large increase in the proportion of available magnet to non-magnet hospitals. Hence, only the first three sets of randomized matches were used. As can be seen in Table 2, there were no differences between the magnet hospitals and non-magnet hospitals on any of the 11 characteristics from the first to the third matching cycles.

As an additional check on the matching cycles, the average propensity scores were also presented in Table 2. First, overall the 97 magnet and the 4,702 non-magnet hospitals were clearly different on propensity scores. Second, and importantly, when the 97 magnet hospitals were compared to each of the three sets of 97 matched non-magnet hospitals, there were no significant differences on the propensity scores. Indeed, these propensity scores (linear combinations of the 11 control variables in the discriminate

function) were the same for magnet hospitals and each of the three 3 sets of matched non-magnet hospitals.

Sampling CEOs and CNOs

The population consists of CEOs and CNOs in identified magnet and the matched non-magnet hospitals. A major advantage of using all available AHA database hospitals in the selecting of magnet hospitals and the matched non-magnet hospitals was that different geographic areas and different types of hospitals were represented. This increased the generalizability of the results. Indeed, hospitals in this entire data set represented 49 states.

An existing web survey company (www.surveymonkey.com) was used as the platform for the study's Internet site. The web site, which held the consent and survey forms was developed via pilot testing. The site included an entry process for using a provided ID number, a consent response option, and the questionnaire sets. Research participants were contacted via email that contained an introductory statement and request to participate letter, with the subject's ID number to be used to enter the web site, and the web site location. Per the IRB approved procedure and the consent form in the email, participants gave electronic consent by entering the web site and exercising the consent option. They then filled out the forms.

Initial attempts to contact CEOs and CNOs were conducted through email addresses obtained from a marketing service (www.Salesuniverse.com). This strategy for recruiting the study sample produced a limited response. This was due primarily to the vast majority of the marketing service provided email addresses being invalid. An adapted strategy with two elements was developed. The first element was to begin with

those individuals with a valid email address. In this subset, for those who responded where there was not a response from their paired individual (CEO to CNO and visa versa), an attempt to contact the paired individual directly by either research identifying the correct email and/or by phone and request participation was used. The second element consisted of noting the hospitals that were represented among the respondents, checking for either the magnet hospital or the non-magnet hospitals that were originally matched with those responding, and conducting research to identify the CEO and CNO of each of these matched hospitals and their email or phone numbers. The identified individuals were then contacted and requested to participate.

Data from the web site were downloaded directly into a data analysis program (SPSS). This procedure allowed the evaluation of subjects who were spread out over a large geographic area. The instruments that were included accessed each of the constructs needed to test the hypotheses in this study.

In the useable data set, a total of 79 individuals responded representing 16 states. Of these responses, 26 consisted of CEO-CNO pairs and these constituted the basic sample for this study. These 26 CEO-CNO pairs were grouped with 21 from non-magnet hospitals and 5 from magnet hospitals. These 26 CEO-CNO pairs came from 16 states. Because these hospitals constituted a relatively small subset of the originally targeted hospitals, this set of 5 magnet hospitals and 21 non-magnet hospitals were re-evaluated on the 11 matching criteria and the computed propensity score. Table 3 presented the results of these analyses. As can be seen, there were no differences on any of the 11 matching criteria or on the overall propensity score. Hence, these 5 magnet and 21 non-magnet hospitals were said to be fairly similar on these variables.

Table 3. Hospital Subset Compared for Magnet and Non-Magnet Matching

Characteristic	magnet n = 5	Non-magnet controls n = 21
Ownership %		
Public	20.0	14.3
Private for-profit	0.0	0.0
Private not-for-profit	80.0	85.7
Member – Council of Teaching Hospitals %	61.9	60.0
Hospital size	342.2	318.6
Average daily Census (ADC)	(184.09)	(251.14)
Hospital beds	469.0 (255.01)	428.0 (331.86)
Medicare discharges	7290.8 (5120.41)	7795.9 (6459.46)
Financial Status Payroll (million dollars)	152.6 (58.34)	119.6 (76.35)
Occupancy rate	0.75 (0.11)	0.74 (0.12)
Payroll expense/hospital bed (1,000 dollars)	379.2 (145.80)	336.3 (198.80)
High-technology index score ^a	4.2 (0.84)	3.3 (1.06)
# emergency visits/ADC	279.7 (218.42)	178.7 (123.5)
Metropolitan statistical area size ^b	3.4 (1.82)	4.0 (1.82)
Propensity score (Logit)	2.4 (0.74)	2.6 (1.01)

^ascore ranges 0-5 presence of five items: cardiac-catheterization lab, extracorporeal lithotripter, magnetic resonance imaging facility, open-heart surgery facility, organ transplantation capability

^bordinal variable range 0-6 using Census Bureau MSA population categories of 0 (non-metro, no city 50,000+ nor more than 100,000+), 1 (< 100,000), 2 (100,000 - 250,000), 3 (250,000-500,000), 4 (500,000-1,000,000), 5 (1,000,000-2,500,000), 6 (2,500,000+).

Instrumentation

The survey was a compilation using the Leadership Practices Inventory (LPI) by Kouzes and Posner, 3rd edition (2003), the Scale for Innovativeness by Hurt, Joseph and Cook (1977), the Index of Perceived Organizational Effectiveness (IPOE) by Mott (1972) and a demographic section. The packet was pre-tested to determine the clarity and time required to complete the surveys. To pre-test the packet it was given to six CNOs and three CEOs. The demographic section was the last section in each packet. This demographic portion of the survey packet elicited general demographic information including age, gender, experience, educational preparation, and time in present position (see Appendix H). This information generally added richness to the data and allowed for correlations to determine whether the demographic data affected the results.

Leadership Practices Inventory

Kouzes and Posner developed the Leadership Practices Inventory (LPI). The third edition was released in 2003 and was used for this study (see Appendix E). Developing a set of statements describing various leadership actions and behaviors resulted in the creation of the LPI. The LPI has been used in business, education and healthcare as a leadership analysis and development tool. The LPI was developed through a triangulation of qualitative and quantitative research methods and studies. The conceptual framework delineated five leadership practices, which were generated from written case studies, interviews and descriptions of personal-best experiences (a 12-page questionnaire). The five leadership practices and an example statement for each were:

<u>Leadership Practice</u>	<u>Example Statement</u>
Modeling the Way	Sets example of what is expected.

Inspiring a Shared Vision	Describes a compelling image of future.
Challenging the Process	Experiments and takes risks.
Enabling Others to Act	Supports other people's decisions.
Encouraging the Heart	Creatively rewards people for their contributions.

The LPI was a 30-item instrument using a 10-point Likert scale with 1 being “almost never” and 10 being “almost always” (see Appendix E) for rating leadership behaviors. The LPI generated 5 leadership practices scores, one for each leadership practice scale listed above, although a total score could also be generated. Kouzes and Posner (2003) reported a body of research that demonstrated that the five practices accounted for over 70% of the behaviors reported consistently by leaders and they reported a growing research literature regarding the reliability and validity of the LPI. The scales used as self-report have good internal reliability as measured by Cronbach's alpha with a sample of more than 17,000 subjects (Model = .77, Inspire = .87, Challenge = .80, Enable = .75, Encourage = .87) (Kouzes, J. & Posner, B., 2000). Factor analysis using principle components with varimax rotation and Kaiser normalization yielded a 5-factor solution that matched the theoretical structure of the instrument. This provided evidence for the various leadership behaviors being conceptualized as 5 practices and support for construct validity (Kouzes, J. & Posner, B., 2000). Also, in general, there were few statistical differences between the self-reports of leaders and the reports of others about their leaders. The differences consisted of others reporting that their leaders as engaging more than the leaders themselves reported (Kouzes, J. & Posner, B., 2000).

As reported earlier, not all research supported the five-factor solution of the LPI. In a Norwegian study, Sandbakken (2004) reported that using 348 Norwegian leaders, an exploratory factor analysis with varimax rotation on the 30-item scale yielded a three-factor solution for 24 of the items with six items not loading on a factor. An analysis with an oblique rotation yielded a very similar three-factor solution, but this time for 18 items, explaining 67.8% of the variance of the LPI. The three-factors were labeled “Supportive Actions” (a combination of Kouzes & Posner’s Enable and Encourage factors), “Modeling the Way” (similar to the original modeling factor), and “Transforming the Organization” (a combination of Kouzes & Posner’s Challenge and Inspire factors).

Other research demonstrated relationships between scores on the LPI and a number of variables expected to be related to the LPI. These variables included job satisfaction (Patterson, 1997; Foong, 1999), employee commitment levels (Gunter, 1997; Foong, 1999), perceptions of workplace environment (Sproule, 1997), and mental health professional burnout (Webster & Hackett, 1999). Knab (1998) also reported that principals from “Blue Ribbon” schools were higher on LPI scales than counterparts from other schools. Finally, Brungardt (1997) reported that LPI scores increased from pre and post-test assessments for those taking a collegiate leadership development program. These results all supported the validity of the LPI.

Most studies examining gender differences on the LPI found no significant effects (Sproule, 1997; Singh, 1998; Kahl, 1999). However, one study by Randall (1998) reported females as having higher LPI scores than males.

Innovativeness Scale

The Innovativeness Scale by Hurt et al (1977) was a 20-item survey that measured the self-reported innovativeness level of the respondent (see Appendix F). The initial pool of 53 items was generated using the five innovativeness categories discussed by Rogers and Shoemaker (1971). The scale used a 5-point Likert scale ranging from 1 “strongly disagree” to 5 “strongly agree” to determine innovativeness in terms of “willingness to change” as well as “time to adopt change” with eight items reversed scored. The scale categorized respondents into five groups. The five groups and a sample statement for each were:

Innovators:	“I consider myself adventuresome in relation to people like me.”
Early Adopters:	“I have a position of responsibility in at least one of the groups I belong to.”
Early Majority:	“I make decisions deliberately and methodically.”
Late Majority:	“I like stability and consistency.”
Laggards:	“I am suspicious of new inventions and new ways of thinking.”

Although Hurt et al (1977) provided cut-offs for labeling five groups of innovators, the total score could also be used as a simple continuous variable.

Using combined samples of college students and public school teachers. Hurt et al (1977) reduced the original 53 items to 20 based on principle components analysis using varimax rotation with criteria for factors being given values of 1 and the scree procedure. This analysis produced a single factor for 20 items with statement loadings ranging from

.54 to .72. Similar factor analytic results were reported by Cook (1976) and Witteman (1976). Hence, the construct validity of this scale has some support.

Hurt et al (1977) also reported a reliability of .94 using the Nunnally (1967) approach of making all possible split-half comparisons and stated that all items discriminated significantly between the upper and lower 27% of the distribution. Livingstone (1997) reported two studies that contained Cronbach alpha reliabilities for the Innovativeness scale. One had an alpha of .74 and the other an alpha of .79. Hence, the scale appeared to demonstrate reasonable reliability.

Regarding predictive validity, Witteman (1976) found significant relationships between innovativeness and both opinion leadership ($r = .50$) and communication apprehension ($r = -.45$). Trocki and Hurt (1976) found that scores on this innovativeness instrument significantly predicted whether students would voluntarily enroll in an educational innovation, which was operationalized as change in an industrial arts curricula. Livingstone (1997) reported that the Innovativeness Scale was used as an operationalization of "Abilities for Creativity" and was negatively related to strain as measured by House and Rizzo's (1972) Anxiety-Stress Questionnaire ($r = -.20, p < .05$). Such research supported the predictive validity of this instrument. However, Livingstone (1997) did not find a relationship between the Innovativeness Scale and job satisfaction while she did find a negative relationship between the Innovativeness and commitment to the organization ($r = -.17, p < .05$). Hence, the literature was not entirely consistent.

Convergent validity for the Innovativeness Scale was demonstrated by relationships to three other innovativeness scales. The Innovativeness Scale was related

to the Open Processing Scale, the Innovation subscale of the Jackson Personality Inventory, and the Kirton Adaptation-Innovation Inventory (Goldsmith, 1986).

Importantly, the Scale for Innovativeness was evaluated for its relationship to social desirability. Social desirability as measured by the Social Desirability Scale (Crown & Marlowe, 1964) was significantly related to innovativeness ($r = .115$, $p < .05$) in a sample of 498 randomly selected college students (Cook, 1976). However, this correlation of .115 yielded a coefficient of determination (r^2) of .13. This means that social desirability accounted for only 1.3% of the variance of the Scale of Innovativeness.

Index of Perceived Organizational Effectiveness

The Index of Perceived Organizational Effectiveness (IPOE), developed by Paul Mott (1972), was a tool that included eight questions to determine productivity, adaptability and overall effectiveness of organizations (see Appendix G). Mott reported data that demonstrated that general subjective assessments of organizational effectiveness rendered by individuals within an organization were useful and valid. The index was first applied to hospitals and was subsequently adapted for use in other organizations. Productivity was broken down into quality, quantity, and efficiency. Adaptation was broken into anticipating problems and solving them satisfactorily, awareness of potential solutions, promptness to adjustment and prevalence of adjustment. The above criteria defined the ability of an organization to mobilize its centers of power for action to achieve goals and to adapt to change (Hoy & Miskel, 1996).

The perceived organizational effectiveness was constructed as an index using a five-point Likert response scale. There were two categories of questions (productivity and adaptability) and a total score for overall effectiveness (Mott, 1972). Each answer

was scored one to five and divided by the number of questions in that category. For example, in the productivity category of the index, there were three questions. If a respondent answered 5 to the first productivity question, 4 to the second question and 4 to the third question, the three responses were added together and then divided by the number of questions in the productivity category. In this example, the productivity score would be 13 divided by 3 or 4.3. The same methodology was applied to the adaptability questions. Totaling the scores of all eight questions and then dividing the sum by eight generated a mean score depicting the perceived overall effectiveness of the organization.

The Index of Perceived Organizational Effectiveness has demonstrated good reliability and validity (Mott, 1972; Brown, Claudet, & Olivarez, 2002). Additionally, an adaptation of the tool was found to be reliable and valid as a measure of school effectiveness (Miskel, Fevurly & Steward, 1979; Hoy & Miskel, 1996). Occupational category responses were compared and the differences in responses were not significant even at the alpha .10 level. The factor analysis was consistent across different organizations. The conclusion was that the IPOE was a valid measure (Mott, 1972). Construct validity of the IPOE was also supported by a factor analysis reported by Olivier and Ellet (2001). Using principal component analysis with varimax rotation, the result was a one-factor solution, supporting the unidimensional structure of the construct.

Olivier and Ellet (2001) also reported support for the predictive validity of this instrument. In a study of organizational effectiveness of elementary schools with 1437 research participants, the IPOE had the strongest relationship with the School Performance Score. Brown, Claudet, and Olivarez (2002) also found such predictive validity where, for 484 middle school professional staff and administrators, the IPOE was

related to components of the Organizational Curricular Leadership Inventory (OCLI). These components included organizational citizenship, principal leadership/support, collaboration, and curricular organizational structure (correlations ranged from .40 to .65). These relationships remained even when social economic status was covaried.

Sample Size and Power Analysis

Statistical power is described as the likelihood of detecting an effect when, in fact, such an effect was present. In other words, the probability that a statistical test yield statistically significant results because they were present (Cohen, 1988). Power is a function of the alpha level, the sample size, and the effect size (magnitude of the effect). Generally, one seeks to have statistical power of at least .80. Effect sizes were conventionally defined as small, medium and large with such magnitude of effects being computed with different measures for different statistical tests. For ANOVA effect sizes, Cohen's (1992) f (the standard deviation of the group means divided by the common within-group standard deviation), was used to define an effect size of small as $f = .10$, medium as $f = .25$, and large as $f = .40$. Note that Cohen's f values for small, medium, and large correspond to the η_p^2 (partial eta squares) values of small as $\sim .01$, medium as $\sim .06$, and large as $\sim .15$ presented in the ANOVA results, Table 8.

The initial power analyses for this research used procedures and tables from Cohen (1988; 1992) and the SOLO Power Analysis computer program (Hintze, 1992) to evaluate power for the main effects and interaction effect for the 2 (Chief Officer type) x 2 (hospital type) mixed design ANOVA with Chief Officer type as the repeated measure. Assuming alpha set at .05 and an 80% return rate for a sample size of 128, there was

sufficient power ($>.80$) for both main effects and the interaction to detect down to medium effect sizes ($f = .25$).

However, the resulting total sample size for this study was 26 hospitals (CEO-CNO pairs). With this sample size, power analyses showed that there was sufficient power (.80) to detect effect sizes of $f = .16$, a large effect. Indeed, as can be seen in the results below, such effects were detected.

Although for the tests of the differences between magnet and non-magnet hospitals for the assessed variables' correlations of CNO and CEO measurements were planned, these were not performed. As can be seen in Table 10 of the results below, no such correlations were significant in the first place. If these predicted differences had needed to be evaluated, the difference between the Fisher Z transformations of the two correlations would have been tested.

Hypotheses

The 2 (Chief Office type) x 2 (hospital type) mixed design ANOVA used in this study allowed for addressing questions reflected in main effects, interaction effects, and simple effects. Table 4 presents this basic design and uses letters for identifying effects of interest. The simple effects follow Table 4 below and constitute the specific inquiries evaluated for testing the nature of the interactions.

Table 4. Basic Design of the Study*

	Magnet Hospitals	Non Magnet Hospitals	
CNO	A	B	E
CEO	C	D	F
	G	H	

* [Hypothesized effects are noted in each of the questions listed below]

This design allowed testing the main effects of hospital type [G vs. H], the main effects for CNO/CEO status [E vs. F], and the interactions of hospital type and CNO/CEO status [differences between A & C vs. differences between B & D or A – C vs. B – D].

Additional analyses within this design allowed the testing of simple effects to determine what pattern of differences among the four cells in the design generated the interaction effects. Simple effects are those differences between the levels of an independent variable at only one level of another independent variable. For example, the simple effect of CO status at magnet hospitals tests whether CNOs vs. CEOs were different on a dependent variable within magnet hospitals only (see #1 in list below).

Questions below were the four simple effects and have cell letters within brackets referring to Table 4 above for greater clarity:

1. Was there a difference between the CNO and CEO within magnet hospitals [A vs. C, the example given above] in the level of leadership practices, innovativeness, and perceived organizational effectiveness?

2. Was there a difference between the CNO and CEO within non-magnet hospitals [B vs. D] in the level of leadership practices, innovativeness, and perceived organizational effectiveness?
3. Was there a difference between magnet hospital CNOs and non-magnet hospital CNOs [A vs. B] in the level of leadership practices, innovativeness, and perceived organizational effectiveness?
4. Was there a difference between magnet hospital CEOs and non-magnet hospital CEOs [C vs. D] in the level of leadership practices, innovativeness, and perceived organizational effectiveness?

The primary hypothesis for this study was that the difference between CNOs and CEOs on assessed dependent variables would be greater for non-magnet hospitals than for magnet hospitals. For each assessed variable, this hypothesis was tested via an evaluation of the Chief Officer (CO) type by hospital type interactions with the expectation that there would be significant over all interactions and that the CO type simple effects for non-magnet hospitals would be larger than the CO type simple effects for magnet hospitals. Hypotheses for main effects were as follows: On each assessed variable, CNOs will be higher than CEOs. This hypothesis was tested via an evaluation of the main effects of CO type for each assessed variable. In addition, on each assessed variable, magnet hospital leaders would be higher than non-magnet leaders. This hypothesis was tested via an evaluation of the main effects of hospital type for each assessed variable.

The basic hypothesis of this study also predicted that the correlation between magnet hospital CNOs and CEOs assessments would be of greater magnitude than the correlation between non-magnet hospital CNOs and CEOs assessments.

Finally, given that some non-magnet hospitals may have many of the characteristics of magnet hospitals, the scores on the IPOE were used to first determine whether the non-magnet and magnet hospitals in this study were different regarding perceived organizational effectiveness and whether IPOE scores were related to the primary variables in this study: leadership practices and innovativeness. Second, the analyses run to test the hypotheses in this study were rerun with IPOE scores as covariates.

Data Analysis

The initial data analyses consisted of descriptive evaluations of the 11 hospital characteristics as described above and in the Aiken, Smith, and Lake study (1994) and testing for any differences between magnet hospital sample of 97 and the matched sample of 388 non-magnet hospitals. See description of results in the methods section.

The basic statistical design for testing the hypotheses was a 2 (Chief Officer type: CNO vs. CEO) x 2 (hospital type: magnet vs. non-magnet) mixed design ANOVA with Chief Officer (CO) type as the repeated measure. CO type was treated as a repeated measure because each CNO and CEO pair was in the same hospital and the focus of the study was on the differences between CNO and CEO. This design yielded three general effects of interest here: [1] main effect for CO type, [2] main effect for hospital type, and [3] a CO by hospital type interaction. Additionally simple effects were evaluated as the tests for whether the interaction was the result of hypothesized differences.

Using simple correlations would have provided an alternative design used to test the hypothesis that CNOs and CEOs were more similar within magnet hospitals than within non-magnet hospitals by testing for differences in correlations from independent groups. However, as noted above, given the lack of significant correlations in Table 10 there was no need to run these evaluations.

Finally, although IPOE was also treated as another dependent variable in the primary analyses, the final set of analyses of the study was the same as those ANOVA's above, except with the IPOE for the appropriate CNO and/or CEO used as covariate(s).

Regarding missing data, only one CEO research participant produced any missing data. In this case, the missing data point was time in current position. A mean substitution procedure was used to replace this missing value.

Chapter IV Results

The data analyzed came from both CEOs and CNOs from 5 magnet and 21 non-magnet hospitals. The primary question in this study was whether CEOs and CNOs were different on their level of innovativeness and on leadership practices and whether these findings varied as a function of hospital type (magnet versus non-magnet).

Table 5 presents the basic demographic characteristics of the four cells in the study as reflected in the basic research design described in Table 4. As can be seen in Table 5, the modal age range for all four cells was 46-55 years. Percent female between CEO and CNO was similar within non-magnet (28.8 to 100.0) and magnet (40.0 to 80.0) hospitals. Regarding years of administrative experience, magnet hospital administrators generally had more years of experience. For years in present position, most research participants had 0 to 10 years across all four cells. Finally, the pattern of reported highest degree was the same across the four cells with most administrators having a master's degree (range was 76.2 to 100.0%) and a smaller percentage having doctoral degrees (range was 0.0 to 23.8%).

Table 5 Demographics

Variables (%)	<i>n</i>	Non-Magnet		Magnet	
		CEO	CNO	CEO	CNO
Age					
25-35		1 (4.8)	0 (0.0)	0 (0.0)	0 (0.0)
36-45		2 (9.5)	2 (9.5)	0 (0.0)	0 (0.0)
46-55		10 (47.6)	11 (52.4)	4 (80.0)	4 (80.0)
56-65		8 (38.1)	8 (38.1)	1 (20.0)	1 (20.0)
Gender (female)		6 (28.8)	21 (100.0)	2 (40.0)	4 (80.0)
Administrative Experience Yrs					
6-10		2 (9.5)	0 (0.0)	0 (0.0)	0 (0.0)
11-15		2 (9.5)	2 (9.5)	0 (0.0)	2 (40.0)
16-20		4 (19.0)	8 (38.1)	0 (0.0)	0 (0.0)
21-25		7 (33.3)	8 (38.1)	2 (40.0)	2 (40.0)
26-30		4 (19.0)	3 (14.3)	1 (20.0)	1 (20.0)
31-35		2 (9.5)	0 (0.0)	2 (40.0)	0 (0.0)
Present Position Yrs					
0-5		12 (57.1)	12 (57.1)	2 (40.0)	1 (20.0)
6-10		4 (19.0)	6 (28.6)	2 (40.0)	3 (60.0)
11-15		4 (19.0)	2 (9.5)	1 (20.0)	1 (20.0)
16-20		1 (4.8)	1 (4.8)	0 (0.0)	0 (0.0)
Highest Degree					
Masters degree		16 (76.2)	19 (90.5)	5 (100.0)	4 (80.0)
Doctorate degree		5 (23.8)	2 (9.5)	0 (0.0)	1 (20.0)

Table 6 presents the correlations between demographic variables and the dependent variables in the study. These correlations were presented separately for CEOs and CNOs. The only significant relationships found were for CEO years in present position and CNO highest degree. CEO years in present position was related to LPI Encourage, IPOE Productivity, IPOE Adaptability, and IPOE average. CNO highest degree was related to LPI Model, LPI Challenge, LPI Enable, IPOE Productivity, and IPOE average. These patterns suggested that in interpreting any results related to the study's hypotheses such relationships need to be taken in account.

Table 6 Demographic Correlations with Dependent Variables within CEOs and CNOs

Variables	CEO age	CEO gender	CEO Years admin	CEO Years position	CEO degree	CNO age	CNO gender	CNO Years admin	CNO Years position	CNO degree
CEO LPI: model	-.22	.07	.09	-.22	.00					
CEO LPI: inspire	.01	.07	.14	.06	.03					
CEO LPI: challenge	-.07	.10	.20	.07	-.08					
CEO LPI: enable	-.11	-.14	-.04	.13	-.14					
CEO LPI: encourage	.36	-.12	.22	.41*	.03					
CEO Innovativeness	-.21	.22	-.15	-.30	.16					
CEO IPOE Productivity	.24	-.18	.33	.45*	-.22					
CEO IPOE Adaptability	.36	-.18	.34	.58**	-.29					
CEO IPOE average	.37	-.20	.38	.61***	-.31					
CNO LPI: model						.14	.01	.10	.34	.53**
CNO LPI: inspire						-.11	-.03	.07	.11	.27
CNO LPI: challenge						-.10	.14	-.21	.18	.42*
CNO LPI: enable						.07	.08	-.02	.17	.42*
CNO LPI: encourage						.01	.01	-.08	.23	.26
CNO Innovativeness						.06	-.22	.25	-.13	.11
CNO IPOE Productivity						-.13	-.24	-.04	.33	.53**
CNO IPOE Adaptability						-.28	-.28	-.26	.33	.30
CNO IPOE average						-.26	-.30	-.20	.37	.43*

*** p < .0001 ** p < .01, * p < .0001

However, the running of ANCOVAs using either CEO years in present position or using CNO highest degree as a covariate did not change any results.

Also in preparation for statistical analyses, the dependent variables' characteristics were evaluated for meeting the assumptions of parametric procedures. It should be noted that the statistics used in this study, primarily Pearson product moment correlation and ANOVA are robust ones. This means that even in the presence of assumption violation, the statistics would return relatively unbiased estimates of statistical values. Any violation must be considered egregious before there would be any level of concern. Additionally, the violation of these assumptions increases the likelihood of Type I errors, stating that there is an effect when, in fact, there is not. Hence, the major concern regarding such violations arises only in the case where a statistically significant result is found. In this study, there were no significant findings for the variables that violated a parametric assumption.

Table 7 presents the results of the ANOVA assumption evaluations. As can be seen from the table, of the 18 tests of the assumption of normality, there were only three variables that technically violated this assumption (CNO LPI Inspire, CNO LPI Challenge, and CEO IPOE Productivity). For the 18 tests of the assumption of homogeneity of variance (equal variance across cells), only one variable technically violated this assumption (CNO LPI Model).

Table 7 Evaluating Normality ($df = 26$) & Homogeneity of Variance ($df = 1,24$) of the Dependent Variables*

Variables	Staff Status	Normality: Kolmogorov-Smirnov statistic	<i>p</i> -value	Homogeneity: Levene Test <i>F</i> -value	<i>p</i> -value
LPI: model	CEO	.11	.20	1.18	.29
	CNO	.09	.20	4.40	.05
LPI: inspire	CEO	.13	.20	1.76	.20
	CNO	.18	.04	2.30	.15
LPI: challenge	CEO	.17	.07	0.17	.69
	CNO	.18	.03	1.25	.28
LPI: enable	CEO	.11	.20	0.17	.69
	CNO	.16	.09	0.56	.47
LPI: encourage	CEO	.14	.20	3.00	.10
	CNO	.14	.17	1.20	.30
Innovativeness	CEO	.14	.20	0.03	.90
	CNO	.10	.20	0.07	.80
IPOE Productivity	CEO	.29	.001	1.00	.33
	CNO	.16	.10	0.80	.40
IPOE Adaptability	CEO	.13	.20	0.11	.75
	CNO	.13	.20	1.83	.19
IPOE average	CEO	.14	.17	0.52	.48
	CNO	.11	.20	1.22	.30

*Note: Violation of ANOVA assumptions increase the likelihood of committing a Type I error, stating that there is an effect when there is not. Also, ANOVA is a robust procedure, where it returns a relatively unbiased statistics even in the presence of violation of assumptions.

Table 8 ANOVA Test of Hypotheses

Variables	Staff Status	Magnet Status		F-values: Staff Status Magnet Status Interaction (df = 1,24)	p-value	η_p^2 (partial eta square)^ [^]
		Non- Magnet Mean (sd)	Magnet Mean(sd)			
LPI: model	CEO	50.5 (5.38)	50.8 (3.49)	1.27	.28	.05
	CNO	50.8 (4.43)	53.6 (1.52)	0.53	.48	.02
				0.17	.68	.01
LPI: inspire	CEO	48.7 (6.50)	49.6 (3.36)	1.40	.25	.06
	CNO	51.0 (6.23)	52.4 (2.30)	0.32	.58	.01
				0.02	.90	.00
LPI: challenge	CEO	49.2 (5.42)	47.4 (4.28)	2.71	.12	.10
	CNO	50.5 (4.32)	51.6 (2.51)	0.05	.83	.00
				0.73	.41	.03
LPI: enable	CEO	54.0 (3.20)	49.8 (3.49)	2.01	.17	.08
	CNO	53.3 (3.82)	53.6 (2.30)	2.17	.16	.08
				4.54	.05	.16
LPI: encourage	CEO	49.4 (5.03)	50.0 (1.87)	0.20	.66	.01
	CNO	48.7 (6.97)	52.6 (3.21)	1.36	.26	.05
				0.68	.41	.03
Innovativeness	CEO	75.6 (6.54)	70.8 (6.91)	12.58	.002*	.34
	CNO	79.0 (6.76)	82.2 (7.82)	0.09	.77	.00
				3.57	.08*	.13
IPOE Productivity	CEO	4.1 (0.32)	4.1 (0.49)	0.79	.39	.03
	CNO	4.1 (0.47)	4.3 (0.33)	0.62	.45	.02
				1.00	.33	.04
IPOE Adaptability	CEO	3.7 (0.63)	3.7 (0.77)	0.82	.38	.03
	CNO	3.6 (0.51)	4.1 (0.23)	1.02	.33	.04
				1.33	.27	.05
IPOE average	CEO	3.8 (0.46)	3.8 (0.60)	1.05	.32	.04
	CNO	3.8 (0.44)	4.2 (0.24)	1.13	.30	.04
				1.58	.22	.06

[^] η_p^2 effect sizes: small ~ .01, medium ~ .06, large ~ .15

*With CEO age as covariate,

Staff status effect $F(1,23) = 4.54$, $p < .05$, $\eta_p^2 = .17$ and
Interaction $F(1,23) = 5.13$, $p = .04$, $\eta_p^2 = .18$

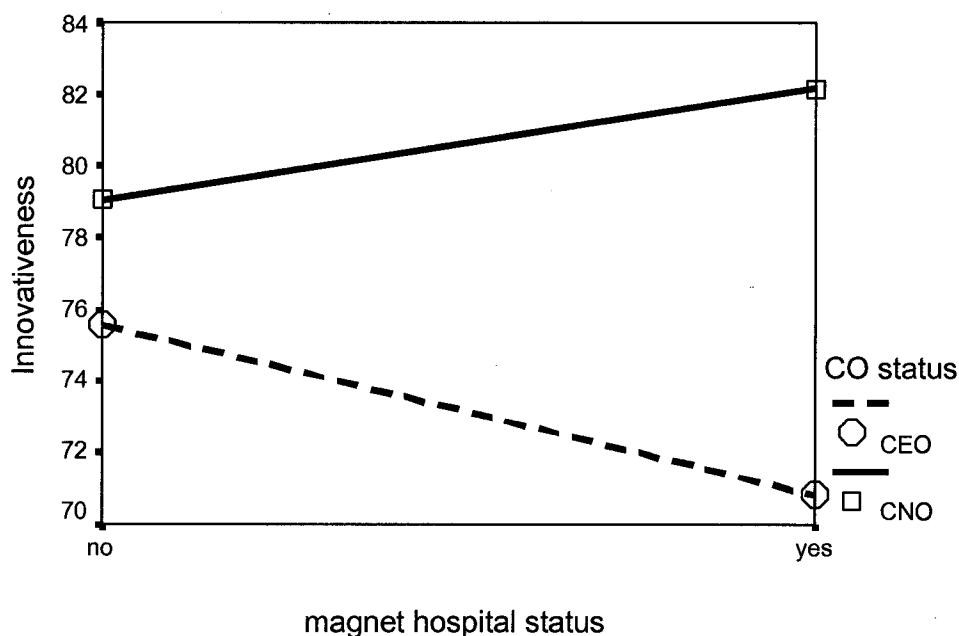
Table 8 presents the results of ANOVAs run for each of the nine dependent variables in this study. Three significant effects were found, one main effect and two interactions. The main effect of staff status was for the most important dependent variable in the study, innovativeness. Here, the CNOs were higher on innovativeness than the CEOs. This was the only confirmation of the staff status main effect hypotheses that CNOs would score higher than CEOs on dependent variables. However, it was also reasonable to examine the effect sizes of the staff status main effects. For the significant effect for innovativeness, the effect size was very large ($\eta_p^2 = .34$), which was why it can be significant with a relatively small sample. Additionally, there were four other staff status effects that were at least of medium effect size. These were LPI Model, LPI Inspire, LPI Challenge, and LPI Enable. Table 8 shows that in each case, collapsing across hospital status the CNOs were higher than the CEOs. In fact, visual examination of Table 8 also shows that even within non-magnet and magnet hospitals for every case but one, the CNOs were higher than the CEOs. The single exception was for LPI Enable within non-magnet hospitals.

For the important hypotheses about staff status interaction by hospital type, there were two significant findings, although under different conditions. The most important dependent variable in the study was innovativeness and for this variable the staff status interaction by hospital type had a medium to large effect size ($\eta_p^2 = .13$). Although this effect was not significant ($p = .08$) within the basic ANOVA, it was significant ($p = .04$) within an ANCOVA using CEO age as the covariate. ANCOVA results are reported in the footnote to Table 8. See Figure 1 for a graphic representation of this interaction.

Figure 1.

2 (staff status) by 2 (hospital status) ANCOVA

DV = Innovativeness, Covariate = CEO age



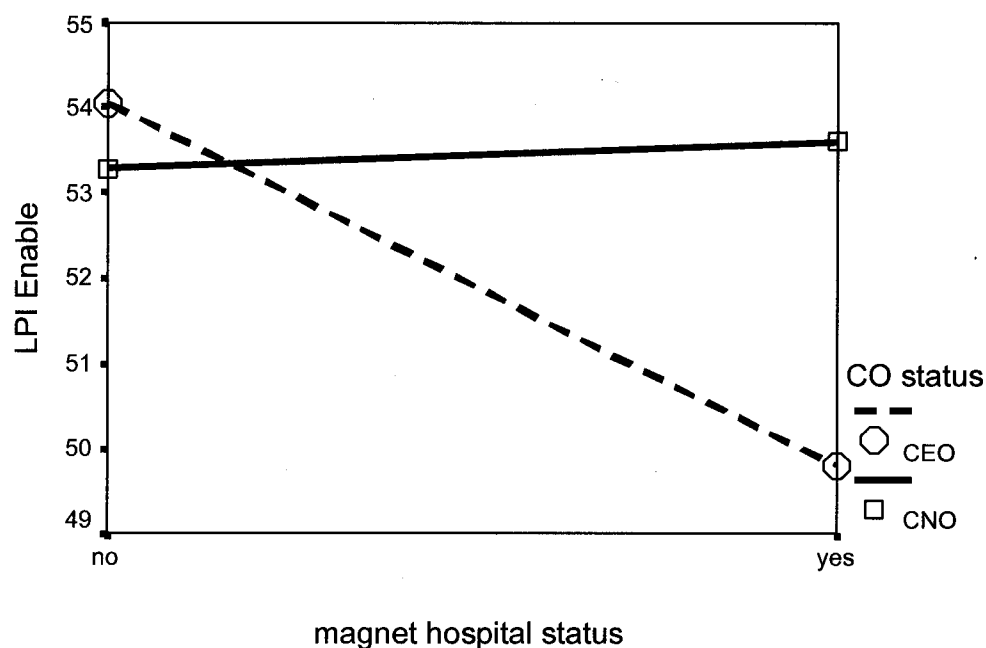
One of the simple effect hypotheses for the important dependent variable innovativeness was supported. For simple effects, the F -test involves generating an F -ratio by calculating the mean square for the effect in question and dividing by the over-all effort term from the initial general ANOVA. Finally, the F -value is evaluated using the over-all error term degrees of freedom. The one simple effect that was significant was that for staff status at the non-magnet hospital level, i.e., CNOs versus CEOs within non-magnet hospitals ($F[1,23] = 6.90$ $p < .02$) and the results were in the predicted direction of CNOs being higher on innovativeness than the CEOs. This was consistent with the main effect for staff status reported above and was the same direction of differences found within magnet hospitals. The difference between CNOs and CEOs within magnet hospital simple effect were not significant probably due to the relatively small sample.

For the dependent variable LPI Enable, there was also a significant effect for this staff status by hospital type interaction (see Figure 2). The effect size was large ($\eta_p^2 = .16$). The pattern of this interaction was that CNOs appeared to have the same general LPI Enable score whether they were from magnet or non-magnet hospitals. However, the CEOs were different as a function of hospital type with CEOs from non-magnet hospitals being higher on LPI Enable than CEOs from magnet hospitals. Although the interaction here supported the hypotheses, the pattern of means among the four cells did not.

Figure 2.

2 (staff status) by 2 (hospital status) ANOVA

DV = LPI Enable



None of the simple effect hypotheses for the dependent variable LPI Enable were supported. The only simple effect that was significant was that for hospital status at the CEO level, i.e., magnet versus non-magnet CEOs ($F[1,24] = 7.87, p < .01$), and the

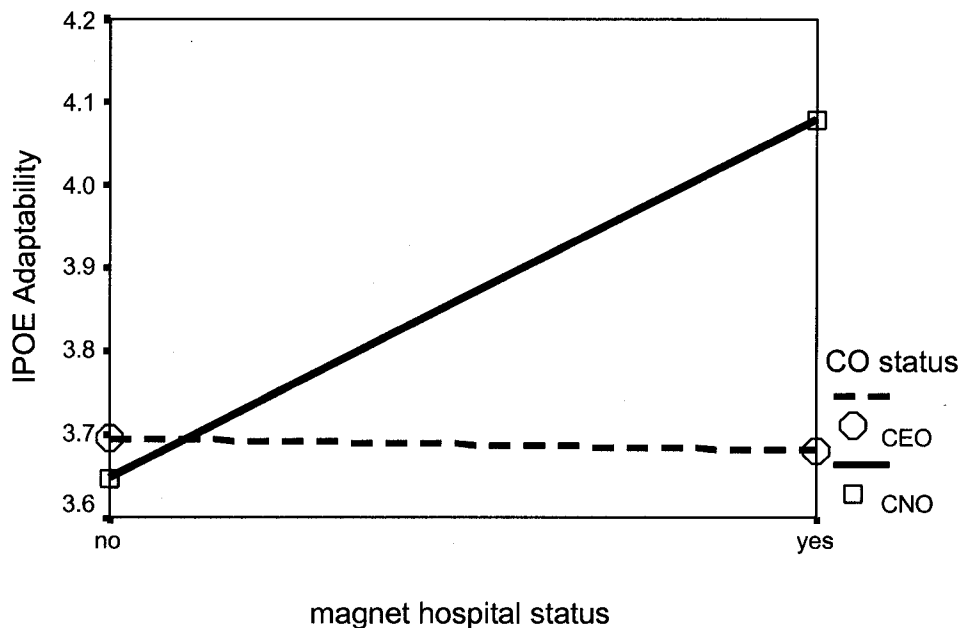
direction was not that predicted. This means that the magnet hospital CEOs were significantly lower than the non-magnet hospital CEOs on LPI Enable.

Of the interaction effect for the other seven variables, none were significant. However, two of these did have medium effect sizes. IPOE Adaptability had a η_p^2 of .05 and IPOE average had a η_p^2 of .06. A cautionary note here is that these should not be seen as two different variable effects since IPOE Adaptability was a sub-section of the IPOE average.

Figure 3

2 (staff status) by 2 (hospital type) ANOVA

DV = IPOE Adaptability



Although not significant, the interaction results for IPOE Adaptability are presented in Figure 3, because the effect was a medium sized effect and because of the pattern of the results. Consistent with the results for innovativeness, IPOE Adaptability results again showed the magnet CNO being the standout among the four cells.

Regarding hospital type main effects, there were none that were statistically significant. However, as can be seen in Table 8, two were still of medium effect size, LPI Enable and LPI Encourage.

Table 9 presents three sets of correlations among the dependent variables. One set was for the relationships between CEO and CNO administrators similar to those found in Table 10, except that here the correlations were for all CEO-CNO pairs across both hospital types. These correlations can be found on the diagonal of the table and are bolded. The relationships among the dependent variables for all CEOs were listed above the diagonal while the relationships among the dependent variables for all CNOs were listed below the diagonal.

As can be seen in Table 9, no CEO-CNO correlation was significant. Also, only three of these correlations along the diagonal of the table were between small and medium effect sizes and one of these was negative ($r = -.24$ for LPI Model). Interestingly, the other two were positive and were for LPI Enable and innovativeness, the two dependent variables that yielded significant results above.

Other general patterns in Table 9 included that within CEOs and within CNOs the LPI subscales were related to each other. Also, the two IPOE subscales were related to each other within both CEOs and CNOs.

Table 9. Correlations within CEO Above the Diagonal, within CNO Below the Diagonal, CEO-CNO Bold on the Diagonal

	LPI: model	LPI: inspire	LPI: challenge	LPI: enable	LPI: encourage	Innovat	IPOE prod	IPOE adapt	IPOE total
LPI: model	-.24	.53**	.65***	.40*	.29	.10	.49*	-.22	-.05
LPI: inspire	.46*	-.03	.79***	.24	.32	.20	.29	-.02	.06
LPI: challenge	.61***	.62***	-.05	.60***	.38	.30	.39*	-.11	.01
LPI: enable	.60***	.28	.73***	.18	.42*	.24	.26	.00	.07
LPI: encourage	.58**	.30	.68***	.79***	-.04	-.20	.33	.14	.21
Innovativeness	-.19	.06	.04	-.09	-.28	.16	-.23	-.03	-.08
IPOE Productivity	.47*	-.06	.08	.13	.03	-.04	.01	.45*	.66***
IPOE Adaptability	.26	.12	.08	-.07	.14	.01	.57**	.06	.97***
IPOE Total	.37	.06	.09	-.00	.11	-.01	.80***	.95***	.05

*** $p < .001$, ** $p < .01$, * $p < .05$

Across instruments, IPOE Productivity was related to LPI Model for both CEOs and CNOs. For CEOs only, IPOE Productivity was related to LPI Challenge. It should be noted that the relationships among the two IPOE subscales and the IPOE Total for both CEOs and CNOs suggested that this scale may best be conceptualized as a total score only. For the LPI, although most of the subscales were related to each other within both CEOs and CNOs, there were a few that were non-significantly correlated and the effect sizes were medium or less.

For the important dependent variable innovativeness, there were no significant correlations with the other dependent variables. Although not significant, for the CEOs innovativeness did have a medium effect size correlation with LPI Challenge and small to medium effects for LPI Inspire and LPI Enable. CEOs also had two negative small to medium non-significant effects for the relationship between innovativeness and LPI Encourage and IPOE Productivity. CNOs also reflected this near medium effect relationship between innovativeness and LPI Encourage although there was only a small effect for innovativeness and IPOE Productivity. Lastly, for CNOs the non-significant small to medium effect relationship between innovativeness and LPI Model was negative.

Table 10 presents correlations between CEO and CNO variables within non-magnet and within magnet hospitals. It was hypothesized that these relationships would be of greater magnitude within magnet than within non-magnet hospitals. First, however, there were no correlations between CEO and CNO variables that were statistically significant. Also, some of the correlations were negative suggesting that the higher one administrator was on a dependent variable, the lower the other administrator was.

Table 10 Correlations of CEO with CNO by Hospital Type

Variables	Non-magnet	Magnet
LPI: model	-.24	-.49
LPI: inspire	-.02	-.46
LPI: challenge	.05	.09
LPI: enable	.29	-.32
LPI: encourage	-.08	.46
Innovativeness	.08	.81
IPOE Productivity	.21	-.84
IPOE Adaptability	.10	-.27
IPOE Total	.12	-.41

Of course, such outcomes could have been the result of the relatively small sample sizes. It was also interesting to note that the correlations are generally of a greater magnitude within magnet than within non-magnet hospitals. Given the sample sizes involved and the usual low power of the differences between correlations tests, such tests were not formally carried out.

The Table 9 results were also used to evaluate the IPOE scales as potential covariates for the effects of the other dependent variables in this study. As noted above, the significant relationships with IPOE scales emerged for CEOs with LPI Model and LPI Challenge and for CNOs with LPI Model. Since these significant relationships did not include the two variables for which significant results were obtained regarding the hypotheses, it was not necessary to run ANCOVA analyses with IPOE scales as covariates.

Chapter V Discussion

Change is usually difficult for most people, even leaders. However, given the necessity and importance of change within systems such as hospitals, it is imperative that hospital leaders understand what variables might be related to the capacity to foster change. The commitment necessary to achieve magnet hospital designation includes the willingness to change at all levels of the organization. This study focused on the level of innovativeness and on leadership practices of CEOs and CNOs and how these varied as a function of hospital status, magnet versus non-magnet. The expectation was that leadership status (CEO versus CNO) and hospital status (magnet versus non-magnet) would interact in their effects on the major dependent variables. The most important variable of interest here was innovativeness, the heart of the capacity for change. The other variables included leadership characteristics thought to be related to the encouragement of change.

Finally, organizational effectiveness was also assessed and evaluated both as a variable of interest in its own right as well as a potential covariate. There was a concern that some administrators may have perceived that the achievement of magnet status was unnecessary since their hospitals were already quite effective. This coupled with the concern that some non-magnet hospitals may have been in transition to magnet status as the study was conducted suggested the potential importance of controlling for these possible sources of variance among the dependent variables. The results of the study found that IPOE was significantly related to some characteristics of leadership for both CEOs and CNOs. This was particularly true for the LPI sub-scale modeling. However, IPOE was not related to the two dependent variables that provided support for major

hypotheses in the study, innovativeness and LPI Enable. Hence, there was no need to use IPOE as a covariate in these analyses.

The two major findings in this study were the predicted presence of staff status (CEO versus CNO) by hospital type (magnet versus non-magnet) interactions for innovativeness and LPI Enable. The interaction for innovativeness was significant when CEO age was controlled. Although statistically significant, these interactions did not have the exact pattern predicted by the hypotheses. It was expected that generally the CNOs would register higher on the dependent variables than the CEOs, but that the differences between CEOs and CNOs would be less within magnet hospitals than within non-magnet hospitals.

Generally the CNOs had higher scores on the variables than did the CEOs. This included a significant main effect for staff status with CNOs higher on innovativeness than CEOs. Also, although not always significant, the CNOs were higher than the CEOs on all dependent variables with medium size effects for LPI Model, LPI Inspire, LPI Challenge, and LPI Enable, while the significant staff status main effect for innovativeness was very large. Because of the relatively small sample size in this study, effect sizes were also reported because they can be used to look for general patterns to serve in directing future research.

Regarding the staff status by hospital type interaction, however, the greater differences between CEOs and CNOs appeared to be within magnet hospitals, not within non-magnet hospitals as predicted. This pattern emerged for both innovativeness and LPI Enable. Evaluation of the simple effects for these two variables found that the statistically significant patterns were a difference between CEOs and CNOs within non-

magnet hospitals for innovativeness and between non-magnet CEOs and magnet CEOs for LPI Enable. With the relatively small sample size, care should be taken when interpreting statistically significant versus non-significant results here. That is why some emphasis was placed on effect sizes and patterns of results.

Besides the two significant interactions for innovativeness and LPI Enable, only two other interactions had even medium sized effects. These were for IPOE Adaptability and IPOE average. Given that IPOE Adaptability is part of IPOE average, only the IPOE Adaptability result was interpreted here. From an examination of the means in Table 8, it appeared that this medium effect size for the interaction was the result of magnet and non-magnet CEOs having similar scores on IPOE Adaptability while magnet CNOs appeared to be higher on this variable than non-magnet CNOs. The means suggest that magnet CNOs may be higher on IPOE Adaptability than either non-magnet CNOs or CEOs from either type of hospital.

The IPOE Adaptability medium effect for this interaction and the magnet CNOs having the highest score on this variable was consistent with two things. First, it was consistent with the role of the CNO to mobilize the organization's centers of power for action and to adapt to change. Second, it was consistent with the achievement of magnet status requiring such mobilization and adaptability. This, what might be called the magnet CNO effect, was also reflected in the interaction result that was significant for innovativeness. Even though IPOE Adaptability was not correlated with innovativeness, it should be noted that IPOE Adaptability was a reported perception of the organization while innovativeness was an assessed attribute of the individual.

The other effect evaluated within the ANOVA analyses was the main effect for hospital type. None of these were significant, although two were of at least medium effect size. These were for the variables LPI Encourage and LPI Enable. For encourage, the direction was as predicted with magnet hospital administrators being higher than non-magnet administrators. However, for LPI Enable, the direction was opposite. This was essentially a reflection of the interaction effect for LPI Enable already discussed above, with the magnet CEOs being the lowest scoring group.

In general there appeared to be a consistent pattern of CNOs being higher on assessments of individual characteristics of leadership and innovativeness as well as a pattern of results across CEOs and CNOs and across magnet and non-magnet hospitals that suggested the presence of interaction effects. This was also the case for the IPOE assessments of CEOs and CNOs reported perception of their organizations.

As expected, the relationships among the dependent variables were frequently positive. Within the LPI assessments, there were generally strong positive relationships among the sub-scales for both CEOs and CNOs. This was also true of the two sub-scales of the IPOE. Across instruments the only significant relationships found were for IPOE Productivity and both LPI Model and LPI Challenge for CEOs as well as IPOE Productivity and LPI Model for CNOs. This suggested that higher levels of LPI Modeling might foster higher organizational productivity. Although the IPOE was an instrument that measured reported perception of organizations, Mott (1972) also reported research that supported the relationship between perceived productivity and actual organizational productivity.

Regarding correlations that had been predicted, few were found. Still, for the two variables, innovativeness and LPI Enable, which demonstrated predicted interactions as well as either significant or at least medium sized effects for staff status main effects, there were small to medium positive correlations between the CEOs and CNOs (CEO-CNO innovativeness $r = .16$ and LPI Enable $r = .18$). These were the only two such sized positive effects.

The correlations reported above were for all subjects regardless of hospital type. For the hypotheses regarding differences in CEO-CNO correlations for magnet versus non-magnet hospitals, within either of the two hospital types, there were no significant relationships. Yet, even here, there was an expected pattern of results for innovativeness. The correlation within non-magnet hospitals was .08 while the correlation within magnet hospitals was .81. However, the reader should not place much faith in such a result until this study is replicated with a larger sample size.

There appeared to be a type of magnet CNO effect. First, placing this in a broader context, the ANCC emphasized the role of the CNO in achieving magnet status. Indeed, 12 of the 14 ANCC “forces of magnetism” (see Appendix A) address the importance of the CNO role. As mentioned in the introduction section, existing literature highlighted the importance of the CNO at the organization’s executive level (Scott, Sochalski & Aiken, 1999). The CNO was described as the administrative leader who facilitated change for the nursing staff (Morrison, et al, 1997) and was responsible for addressing the needs of nurses. Additionally, the nursing staff that the CNO administers was described as the single largest work force within the hospital (a team that could be mobilized for action). Still, the CNO was seen as part of a team. The CNO must

maintain a good working relationship with the CEO and must sell the concept that the changes that are good for nurses are also good for the hospital. Indeed the research demonstrated that magnet hospitals not only attract and retain higher quality nurses with better job satisfaction, but that they generate both better patient satisfaction and lower patient mortality (Aiken, Smith & Lake, 1994).

Regarding magnet status specifically, the CNO must work closely with the CEO to gain his/her support as well as the financial commitment required to even seek magnet review. Again this involved selling the value of change while managing to maintain the working relationship with the CEO. The results of this study supported the existence of a magnet CNO or magnet-seeking CNO effect. CNOs were generally found to be significantly higher on innovativeness and there was a medium effect for CNOs being higher on LPI Enable. But it was the interaction effects that identified the magnet CNO effect. The magnet CNOs were the standout group for both innovativeness and IPOE Adaptability while also being high on LPI Enable. This pattern of results suggested that CNOs generally use innovative approaches and, as assessed by LPI Enable, have the skills to develop co-operative relationships and teams. The CNO then must be able to mobilize the team and help them adapt to change, which was reflected in the IPOE Adaptability of the organization. These abilities and traits of the CNO were particularly manifest in the magnet hospital CNOs.

Implications for Hospital Leaders and Healthcare Practice

This research suggests that it may be that because of the ability of the CNO to facilitate change at the nursing service level, the CNO has the necessary skills to facilitate change at facility level as well. CNOs at magnet hospitals have acted on these skills to

achieve magnet status. The CEO role is that of supporting the innovativeness that obtaining magnet status requires.

The CEOs in this research do not generally appear to be as high on innovativeness as the CNOs. Still, it is clearly necessary for CEOs to tolerate and support the change involved. Indeed, it may be that CEOs would like what change brings, but may not be interested in the change process itself. As Sherman (2002) noted, most hospital leaders would appear to want change or, at least, the result the change brings, which in a hospital equates to a satisfied staff with minimal turnover and resulting quality care. Although many hospital CEOs may have the positional power to attempt such change, most would partner with other leaders like the physician leader, usually entitled the Chief of Staff (COS) and the Chief Nursing Officer (CNO) to achieve a broad base of power and support in order to effect change in the hospital setting. Conversely, the CNO typically collaborates with the COS and the CEO for the same reasons. Courage to make change is the final ingredient. Hence, it may be that the CNO is source of innovativeness that drives the movement towards change, but it is the CEO who has the positional power to prioritize competing demands and ultimately decides which innovation to pursue. Indeed, the decision to incorporate magnet strategies in the hospital setting or seek magnet recognition is not solely that of the CNO. The ability of the CNO to work closely with the CEO to gain his or her support and the financial commitment required to seek magnet status and the building of a team that works toward magnet application may be reflected in the study results where the magnet CNO registers high on LPI Enable.

One of the outcomes of change that achieving magnet status generates is decreased nursing turnover. Nursing turnover multiplies the impact of nursing shortages,

increasing the risk to patients, and escalates the cost of care. A decrease in nursing turnover rates is one of the results of change that the CEO desires because it decreases cost. The magnet CNO through her building of the relationship with the CEO provides a larger context for evaluating the cost/benefits of change. This broadening of the context is a major contribution of the CNO who is more focused on quality of patient care.

Although it is not what was hypothesized, it may be that the differences between the CNO and CEO were what supported the achievement of magnet status. For example, it may be that if both CNO and CEO were highly innovative, this would not necessarily lend itself to the decision to pursue magnet status. Two highly innovative officers may head in different competing directions. The findings of the study suggest that one highly innovative officer (CNO) who elicits the support of another officer (CEO) may be more characteristic of those hospitals that achieve magnet status. It may be this that produced the magnet CNO effect.

Limitations of the Study

The primary limitation of this study was the sample size. Such relatively small samples limit the statistical power that is available to detect smaller than large effects. They also raise the question of generalizability of the results since the samples may not be representative of the larger populations. The sample for this study was small mostly because of the difficulties in obtaining valid email addresses. Additionally, although more administrators responded than were analyzed in this study, not all could be used because of the study design requirement that each CEO and CNO be paired from the same hospital. Finally, magnet hospitals had to be well matched with non-magnet hospitals to control for any differences in general hospital characteristics.

Another limitation was that the sample was determined by who actually responded by filling out the questionnaires once they had been contacted. This produces a self-selection bias.

A limitation that is shared by all research is that specific assessment instruments assessed the constructs in the study. It might be that other operationalizations of the constructs would have performed better.

Implications for Future Research

More efficient methods for identifying valid email addresses and contacting potential research participants need to be developed for any future research in this area. Larger and more representative samples need to be acquired. To be able to more widely generalize any results, it would be valuable to use additional measures of each of the constructs. The downside of multiple measures is that they will require more subject participation time.

One interesting phenomenon that emerged during the course of the study was the frequency with which potential subjects appeared to overlook their research identification code in the communications sent to them. It is unclear just how one would make this any clearer, but it is clear that some modification is necessary.

Besides replication of this study, larger samples, and additional assessments, the magnet CNO effect that appeared to be present in this research signals one recommendation for a specific study. It would be valuable to survey magnet CNOs to determine the role of the CNO in the path to magnet status. Would the general conclusions of this study be supported? The CNO is high on innovativeness, forges working relationships with the CEO, sells the CEO and others on the value of change,

builds teams, and mobilizes the organization's centers of power for action, producing high levels of organizational adaptability. This along with the interpretation offered above that CNO-CEO differences may actually enhance the process of seeking and achieving magnet status may be testable, at least indirectly. For example, if this is the case, then CNO-CEO pairs in hospitals that have more recently obtained magnet status would be more disparate on innovativeness than CNO-CEO pairs of hospitals that have had magnet status for some time.

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APPENDIX A

Forces of Magnetism

FORCES OF MAGNETISM

1. Quality of Nursing Leadership	In magnet organizations, Nursing is lead by knowledgeable, strong, risk-taking leaders. These leaders advocate for the practice of nursing as well as the staff that perform nursing duties. Nursing leadership is well educated and embraces cutting-edge technology and practices both clinically and administratively.
2. Organizational Structure	The structure of the nursing department is generally flat and allows for unit-based decision-making. The organization values the input of nursing as demonstrated by the inclusion of the nurse executive at the executive level of the organization. In addition, other key nursing leaders serve on organizational committees. Nursing is viewed as an integral member at all levels of the organization.
3. Management Style	Hospital and nursing executives embrace participative styles of management. Feedback from staff at all levels of the organization are sought and incorporated as appropriate. Nursing leaders are visible, accessible and committed to facilitating communication with the staff.
4. Personnel Policies and Programs	Salaries and benefits are competitive. Creativity is used in developing staffing models incorporating input from staff whenever possible. Personnel policies are developed with staff involvement. Opportunities for growth and development exist both in the administrative and clinical areas.
5. Professional Models of Care	Clinical practice models that give nurses responsibility and authority for the provision of direct patient care are utilized. Nurses are accountable for their practice as well as the coordination of care for patients. Physicians as well as other disciplines view nurses as care-leaders.
6. Quality of Care	The provision of quality care is an organizational priority. Nurses serving in leadership positions are seen as responsible for developing the environment in which high-quality care can be provided. The nurses believe they provide high quality care to the patients they serve.
7. Quality Improvement	Quality Improvement processes are evident within the organization. Quality improvement is viewed as educational. Nursing leads many quality improvement efforts. Nursing feels responsible for the quality of care delivered to patients and plays a

	leadership role in the continuous improvement of care received by patients.
8. Consultation and Resources	Knowledgeable experts in the form of advanced practice nurses support the provision of patient care by assisting nurses and consulting both within and outside the nursing department. Nurses are recognized for their education and expertise.
9. Autonomy	Nurses practice with autonomy, consistent with professional standards and their independent judgment. Nursing participates and often leads the multidisciplinary approach to patient care.
10. Community Presence	Nursing staff and nursing leaders positively impact the community and are viewed as strong, positive and productive corporate citizens. Nursing staff participates in community events including support to schools, volunteer organizations as well other community entities. Nurses encourage students to consider nursing as a career. Nursing leadership is perceived as having a strong community presence. Nurses embrace volunteerism and the organization supports volunteerism by allowing time off for such activities.
11. Nurses as Teachers	Nurses are expected to incorporate teaching into all aspects of their practice. Appropriate tools such as, computers, books, journals, and brochures are selected by nurses and provided by the institution to support nurse teaching. Nurses believe teaching is a part of their role and report that it gives them professional satisfaction.
12. Image of Nursing	Members of the health care team characterize the services provided by nurses as essential. Nurses are viewed as an integral part of the hospital's ability to provide patient care. Nurses are respected for their knowledge and professionalism.
13. Interdisciplinary Relationships	Mutual respect among all disciplines guides interactions between nurses and other members of the health care team. Physicians appreciate the contributions of nurses and defer to their expertise in caring for the patient. Nurses work collaboratively with all disciplines to assure quality care.
14. Professional Development	Value is placed on personal and professional growth and development. Emphasis is placed on inservice education, continuing education, formal education, and career development. Orientation is required and supported by the organization. Nurses are not allowed to care for patients prior to the completion of an

	orientation period that includes input from the nurse regarding their competence in performing the duties of the job. Support in the form of money and time off are provided by the organization in support of professional development of the nurse, (ANCC Manual, 2003).
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APPENDIX B

Invitation to Participate CEO

INVITATION TO PARTICIPATE CEO

Dear Chief Executive Officer,

In the ever-changing environment of health care, good leaders are of utmost importance to the effective and efficient functioning of the organization. Your success as a leader in the health care arena is the main reason I am asking for your assistance.

I am a graduate student pursuing a doctoral degree in Educational Leadership at the University of San Diego, San Diego, California. My dissertation research focuses on the leadership of Chief Executive Officers and Chief Nursing Officers in a variety of American hospitals. The purpose of this research study is to provide data from Chief Nursing Officers and Chief Executive Officers from approximately 600 hospitals within the United States on their leadership preferences, level of innovativeness, risk-taking and perceptions of efficiency.

I am requesting that you take the next 20 minutes of your time to complete a short web-based survey. The same survey has been sent to your Chief Nursing Officer because the study design requires input from both of you. Since I am a nurse executive, I realize that you have many demands on your time and I really appreciate your consideration in completing this important survey.

Below is a link to a secure web site that contains a consent form and a short 63-item survey. If you decide to participate, you may click on the link and it will take you to the consent form. The Informed Consent document states, your participation is voluntary and you may elect not to answer any question(s) that make you feel uncomfortable. Please be assured that I am committed to confidentiality. No names will be attached to survey forms or data. You will need the following identification code in order to complete the consent and survey. _____

Summary results will be presented in dissertation format and may be published in the future. No participant or facility names will be disclosed. Summary results of the study are available upon request.

Your participation is vital to the completion of this important study. Thank you in advance for your time and valuable input. If you have any questions, please do not hesitate to contact me at (858) 552-7562 or e-mail me at janet.jones@med.va.gov. If you have a question about your rights as a research subject or to report research related problems you may contact the University of San Diego Institutional Review Board at (619) 260-4600 or the University of California San Diego Human Research Protections Program at (858) 455-5050.

Sincerely,

Janet M. Jones

Doctoral Student, University of San Diego

LINK: <http://www.hospitalleadershipsurvey.edu> (fictitious website)

APPENDIX C

Invitation to Participate CNO

INVITATION TO PARTICIPATE CNO

Dear Nurse Executive,

In the ever-changing environment of health care, good leaders are of utmost importance to the effective and efficient functioning of the organization. Your success as a leader in the health care arena is the main reason I am asking for your help.

I am a graduate student pursuing a doctoral degree in Educational Leadership at the University of San Diego, San Diego, California. My dissertation research focuses on the leadership of Chief Nursing Officers and Chief Executive Officers in a variety of American hospitals. The purpose of this research study is to provide data from Chief Nursing Officers and Chief Executive Officers from approximately 600 hospitals within the United States on their leadership preferences, level of innovativeness, risk-taking and perceptions of efficiency.

I am requesting that you take the next 20 minutes of your time to complete a short survey. The same survey has been sent to your Chief Executive Officer because the study design requires input from both of you. Since I, too, am a nurse executive, I realize that you have many demands on your time and I really appreciate your consideration in completing this important survey.

Below is a link to a secure web site that contains a consent form and a short 63-item survey. If you decide to participate, you may click on the link and it will take you to the consent form. The informed consent document states, your participation is voluntary and you may elect not to answer any question(s) that make you feel uncomfortable.

Please be assured that I am committed to confidentiality. No names will be attached to survey forms or data. You will need the following identification code in order to complete the consent and survey. _____

Summary results will be presented in dissertation format and may be published in the future. No participant or facility names will be disclosed. Summary results of the study are available upon request.

Your participation is vital to the completion of this important study. Thank you in advance for your time and valuable input. If you have any questions, please do not hesitate to contact me at (858) 552-7562 or e-mail me at janet.jones@med.va.gov. If you have a question about your rights as a research subject or to report research related problems you may contact the University of San Diego Institutional Review Board at (619) 260-4600 or the University of California San Diego Human Research Protections Program at (858) 455-5050. Sincerely,

Janet M. Jones
Doctoral Student, University of San Diego
LINK: <http://www.hospitalleadershipsurvey.edu> (fictitious website)

APPENDIX D

Informed Consent

INFORMED CONSENT

Informed Consent

The following informed consent applies to the survey document contained on this website. The purpose of this research study is to provide data from Chief Nursing Officers and Chief Executive Officers from approximately 600 hospitals within the United States on their leadership preferences, level of innovativeness, risk-taking and perceptions of efficiency.

1. If you complete the survey, you are participating in a study of leadership in the healthcare setting.
2. The only task is to consent to participate and the completion and return of the survey.
3. There is a potential minimal risk of loss of confidentiality associated with participation in this survey.
4. Using an identification code, to allow access to the survey and for follow-up and analysis, will minimize the risk of loss of confidentiality. The identification code will be known only to the Primary Investigator and shredded at the conclusion of the study. The raw data will be secured for five years and then shredded.
5. The benefit of the study is to add to the body of knowledge regarding hospital leadership.
6. Although results may be made public, a summary format will be used. No individual or facility specific data will be disclosed.
7. Participation is voluntary. Refusal to participate will not negatively affect the potential participant. The participant may withdraw from the research at any time.
8. Further questions may be directed to Janet M. Jones at (858) 552-7562 or janet.jones@med.va.gov or Dr. Dan Miller at (619) 260-7444. If you have a question about your rights as a research subject or to report research related problems you may contact the University of San Diego Institutional Review Board at (619) 260-4600 or the University of California San Diego Human Research Protections Program at (858) 455-5050.
9. A copy of the consent form may be printed for your records by selecting print on your toolbar.

I have read and understood this form and consent to participate in this research by completing the attached survey.

I consent

Thank you for your participation!
Janet M. Jones, Principal Investigator

APPENDIX E

Leadership Practices Inventory (LPI)

LEADERSHIP PRACTICES INVENTORY (LPI)

LPI SELF Leadership Practices Inventory by JAMES M. KOUZES & BARRY Z. POSNER

INSTRUCTIONS

On the next page you will find thirty statements describing various leadership behaviors. Please read each statement carefully, and using the RATING SCALE below, ask yourself:

“How frequently do I engage in the behavior described?”

- Be realistic about the extent to which you actually engage in the behavior.
- Be as honest and accurate as you can be.
- DO NOT answer in terms of how you would like to behave or in terms of how you think you should behave
- DO answer in terms of how you typically behave on most days, on most projects, and with most people.
- Be thoughtful about your responses. For example, giving yourself 10s on all items is most likely not an accurate description of your behavior. Similarly, giving yourself all 1s or all 5s is most likely not an accurate description either. Most people will do some things more or less often than they do other things.
- If you feel that a statement does not apply to you, it's probably because you don't frequently engage in the behavior. In that case, assign a rating of 3 or lower.

For each statement, decide on a response and then record the corresponding number in the box to the right of the statement. After you have responded to all thirty statements, go back through the LPI one more time to make sure you have responded to each statement. *Every statement must have a rating.*

The RATTNG SCALE runs from 1 to 10. Choose the number that best applies to each statement.

- 1 = Almost Never
- 2 = Rarely
- 3 = Seldom
- 4 = Once in a While
- 5 = Occasionally
- 6 = Sometimes
- 7 = Fairly Often
- 8 = Usually
- 9 = Very Frequently
- 10 = Almost Always

Thank you.

To what extent do you typically engage in the following behaviors? Choose the response number that best applies to each statement and record it in the box to the right of that statement.

1. I set a personal example of what I expect of others.
2. I talk about future trends that will influence how our work gets done.
3. I seek out challenging opportunities that test my own skills and abilities.
4. I develop cooperative relationships among the people I work with.
5. I praise people for a job well done.
6. I spend time and energy making certain that the people I work with adhere to the principles and standards we have agreed on.
7. I describe a compelling image of what our future could be like.
8. I challenge people to try out new and innovative ways to do their work.
9. I actively listen to diverse points of view.
10. I make it a point to let people know about my confidence in their abilities.
11. I follow through on the promises and commitments that I make.
12. I appeal to others to share an exciting dream of the future.
13. I search outside the formal boundaries of my organization for innovative ways to improve what we do.
14. I treat others with dignity and respect.
15. I make sure that people are creatively rewarded for their contributions to the success of our projects
16. I ask for feedback on how my actions affect other people's performance.
17. I show others how their long-term interests can be realized by enlisting in a common vision.
18. I ask "What can we learn?" when things don't go as expected.
19. I support the decisions that people make on their own.

20. I publicly recognize people who exemplify commitment to shared values.
21. I build consensus around a common set of values for running our organization.
22. I paint the “big picture” of what we aspire to accomplish.
23. I make certain that we set achievable goals, make concrete plans, and establish measurable milestones for the projects and programs that we work on.
24. I give people a great deal of freedom and choice in deciding how to do their work.
25. I find ways to celebrate accomplishments.
26. I am clear about my philosophy of leadership.
27. I speak with genuine conviction about the higher meaning and purpose of our work.
28. I experiment and take risks, even when there is a chance of failure.
29. I ensure that people grow in their job, by learning new skills and developing themselves.
30. I give the members of the team lots of appreciation and support for their contributions.

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APPENDIX F

Scale for the Measurement of Innovativeness

SCALE FOR THE MEASUREMENT OF INNOVATIVENESS

by H. Thomas Hurt, Katherine Joseph & Chester D. Cook

INSTRUCTIONS Please read each statement carefully, and using the RATING SCALE below, circle the number that most accurately demonstrates your practice. Please be aware that there are no right or wrong answers.

Please choose the number that best describes your agreement/disagreement.

1= Strongly Disagree 2= Disagree 3= Uncertain 4=Agree 5=Strongly Agree

1. My peers often ask me for advice or information 1 2 3 4 5
2. I enjoy trying new ideas. 1 2 3 4 5
3. I seek out new ways to do things. 1 2 3 4 5
4. I am generally cautious about accepting new ideas. 1 2 3 4 5
5. I frequently improvise methods for solving a problem when an answer is not apparent. 1 2 3 4 5
6. I am suspicious of new inventions and new ways of thinking. 1 2 3 4 5
7. I rarely trust new ideas until I can see whether or not the vast majority of people around me accept them. 1 2 3 4 5
8. I feel that I am an influential member of my peer group. 1 2 3 4 5
9. I consider myself to be a creative and original in my thinking and behavior. 1 2 3 4 5
10. I am aware that I am usually one of the last people in my group to accept something new. 1 2 3 4 5
11. I am an inventive kind of person. 1 2 3 4 5
12. I enjoy taking part in leadership responsibilities of the groups I belong to. 1 2 3 4 5
13. I am reluctant about adopting new ways of doing things until I see them working for people around me. 1 2 3 4 5
14. I find it stimulating to be original in my thinking and behavior. 1 2 3 4 5
15. I tend to feel that the old way of doing things is the best way. 1 2 3 4 5
16. I am challenged by ambiguities and unsolved problems. 1 2 3 4 5
17. I must see other people using new innovations before I will consider them. 1 2 3 4 5
18. I am receptive to new ideas. 1 2 3 4 5
19. I am challenged by unanswered questions. 1 2 3 4 5
20. I often find myself skeptical of new ideas. 1 2 3 4 5

APPENDIX G

Index of Perceived Organizational Effectiveness

INDEX OF PERCEIVED ORGANIZATIONAL EFFECTIVENESS
by Paul E. Mott

Instructions: Place a check mark beside the response that best describes your hospital and hospital staff

1. Thinking of the various things produced by the people in your hospital, how much are they producing?

- Their production is very low
- It is fairly low
- It is neither high nor low
- It is fairly high
- It is very high

2. How good would you say is the *quality* of the products or services produced by the people you know in your hospital?

- Their products or services are of poor quality
- Their quality is not too good
- Fair quality
- Good quality
- Excellent quality

3. Do the people in your division seem to get maximum output from the resources (money, people, equipment, etc) they have available? That is, how *efficiently* do they do their work?

- They do not work efficiently at all
- Not too efficient
- Fairly efficient
- They are very efficient
- They are extremely efficient

4. How good a job is done by the people in your hospital in *anticipating* problems that may come up in the future and preventing them from occurring or minimizing their effects?

- They do a poor job in anticipating problems
- Not too good a job
- A fair job
- They do a very good job
- They do an excellent job in anticipating problems

5. From time to time, newer ways are discovered to organize work, and newer equipment and techniques are found with which to do the work. How good a job do the people in your hospital do at keeping up with those changes that could affect the way they do their work?

- They do a poor job of keeping up to date
- Not too good a job
- A fair job
- They do a good job
- They do an excellent job of keeping up to date

6. When changes are made in the routines or equipment, how *quickly* do the people in your hospital accept and adjust to these changes?

- Most people accept and adjust to them very slowly
- Rather slowly
- Fairly rapidly
- They adjust very rapidly, but not immediately
- Most people accept and adjust to them immediately

7. What *proportion* of the people in your hospital readily accept and adjust these changes?

- Considerably less than half of the people accept and adjust to these changes readily
- Slightly less than half do
- The majority do
- Considerably more than half do
- Practically everyone accepts and adjusts to these changes readily

8. From time to time, emergencies arise, such as crash programs, schedules moved ahead, or a breakdown in the flow of work occurs. When these emergencies occur, they cause work overloads for many people. Some work groups cope with these emergencies more readily and successfully than others. How good a job do the people in your hospital do at coping with these situations?

- They do a poor job of handling emergency situations
- They do not do very well
- They do a fair job
- They do a good job
- They do an excellent job of handling these situations

APPENDIX H
Demographic Questionnaire

DEMOGRAPHIC QUESTIONNAIRE

Please check the appropriate box.

Age: 25-35 years
 36-45 years
 46-55 years
 56-65 years

Gender: male
 female

Administrative Experience: 0-5 years
 6-10 years
 11-15 years
 16-20 years
 21-25 years
 26-30 years
 31-35 years

Time in Present Position: 0-5 years
 6-10 years
 11-15 years
 16-20 years
 21-25 years
 26-30 years
 31-35 years

Educational Preparation: Associate Degree
(Check highest degree) Baccalaureate
 Masters Degree
 Doctorate



UNIVERSITY OF CALIFORNIA, SAN DIEGO
HUMAN RESEARCH PROTECTIONS PROGRAM

TO: Janet Jones Mailcode: 9118
RE: Project #040970X
The Courage to Change: Striving for Magnet Hospital Recognition

Dear Dr. Jones:

The above-referenced project was reviewed and approved by one of this institution's Institutional Review Boards in accordance with the requirements of the Code of Federal Regulations on the Protection of Human Subjects (45 CFR 46 and 21 CFR 50 and 56), including its relevant Subparts.

This study was reviewed by the IRB through the expedited review procedure as authorized by 45 CFR 46.110 and 21 CFR 56.110 and falls under research category (7): Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Date of IRB review and approval: 7/1/2004

/cc

Daniel Masys, M.D., Director
Human Research Protections Program
Mailcode 0052 Phone: 858-455-5050
E-mail: hrpp@ucsd.edu

Note: All Human Subject research conducted at the VA facility and/or utilizing VA/VMRF funds MUST BE APPROVED by the VA Research and Development Committee prior to commencing any research. Note that only USD IRB-approved consents and letters to participants will be used on this study.

Approval release date: 7/27/2004

cc: VA