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Veterans' Hospital

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Building a Business Case for Magnet Designation in VHA

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Executive Summary

Magnet designation is the gold standard for benchmarking excellence in nursing services. To achieve this distinction, healthcare organizations must meet rigorous standards established by the American Nurses Credentialing Center's (ANCC) Magnet Recognition Program. Recruitment and retention of high caliber nurses is the hallmark of Magnet organizations, where work environments are designed to enable nurses to provide excellent patient care. Other benefits of Magnet designation include improved patient outcomes, increased nurse satisfaction, and collegial nurse-physician relationships.

However, significant investments must be made to become a Magnet hospital. These costs have not been systematically analyzed in the literature. Increasingly, hospital administrators, policy makers, and consumers are demanding evidence of Magnet hospital outcomes to justify the resources consumed during the application and reapplication processes. To address this imperative, we initiated a case study to evaluate the economic impact of Magnet designation at James A. Haley Veterans' Hospital (JAHVH) in Tampa, Florida. The purpose of this project was to build a business case for Magnet recognition in the VHA that includes clinical, financial and operational outcomes. This retrospective study provides a snapshot of the James A. Haley Veterans' Hospital over the past seven years. During this timeframe, various forces exerted a powerful impact on the organization. These included a dramatic escalation in workload, budget constraints, and a national nursing shortage.

This groundbreaking project targeted the following questions:

- (1) How do structures, processes and outcomes vary over time relative to the Magnet experience at the Tampa VA Hospital?
- (2) What is the estimated net cost of being a Magnet facility over a four-year period?
- (3) What are the tangible and intangible benefits of Magnet status?
- (4) What were key milestones experienced at the Tampa VA Hospital in the Magnet journey?

To answer these questions, three concurrent methods were employed: (1) Key informant focus groups, (2) Registered Nurse (RN) surveys, and (3) an economic analysis.

The development of a Magnet organization evolves over many years and requires a purposeful cultural transformation. Key informant focus groups were used to delineate the historical context and evolution of a Magnet culture at the Tampa VA Hospital. A clear understanding of key milestones in the organization's journey to Magnet was essential for establishing a framework to capture the benefits of Magnet designation. Organizational leaders participated in focus groups to identify major milestones in the hospital's evolution. Six major eras of organizational development emerged in the creation of a "Journey to Magnet Timeline:" (1) Medical Center Development; (2) Nursing Development; (3) Readiness for Magnet Application; (4) Magnet Application; (5) Magnet Designation; and (6) Magnet Re-Designation. This detailed timeline depicts major organizational developments spanning three decades.

Current and former Registered Nurse (RN) employees were surveyed to explore their perceptions of the benefits of Magnet designation and assess factors that influenced their recruitment and retention at JAHVH. The net response rate was 28% for current RNs and 25% for former RNs. Overwhelmingly, current and former RN respondents identified salary, benefits, and schedules as important factors in their recruitment and retention. Professional development also emerged as an important recruitment and retention factor for current RNs. Both groups expressed agreement on the presence of most Forces of Magnetism at JAHVH.

This project was designed to retrospectively collect data to describe structures, processes, and outcomes before and after designation of the JAHVH as a Magnet hospital and micro-cost the expense of acquiring and sustaining Magnet designation. Three focal points were investigated in this economic analysis: (1) the expected and actual cost of *nurse turnover*, including costs related to hiring, training, and reduced productivity; (2) the expected *benefits of nurses' professional publications* and presentations; and (3) the estimated VHA healthcare cost-savings associated with *improved nursing care in four specific nurse-sensitive patient outcomes*: urinary tract infections, pressure ulcers, deep vein thrombosis, and pneumonia.

A turnover cost sub-study used de-identified payroll records to access actual nurse salary levels by position and grade, including new hires and losses. Expected turnover costs were derived from a study by Waldman, Kelly, Arora, & Smith (2004). A publication valuation sub-study identified citations from publications by staff nurses, nurse researchers and nurse educators, and advertising rates for the journal of publications or a comparable medium. VHA Austin Automation Center administrative and research files were used to conduct the nurse-sensitive outcomes sub-study. A micro-costing sub-study used historical records, requisitions, minutes and other source documents to estimate the costs of Magnet-related activities at JAHVH.

For fiscal years (FY) 1998 through 2003, JAHVH's net-benefit from ANCC Magnet designation is estimated as an economic benefit of \$14,749,506, or \$2.46 million on average annually, unadjusted for inflation. During this period, approximately \$144,413 was actually spent on Magnet-related activities.

Estimated nurse turnover benefits, (expected values based on proportional Florida Hospital Association average RN turnover rates), amounted to \$18.5 million, or \$3.08 million annually, depending on assumptions regarding under-productivity during initial orientation and training periods. Benefits from nursing contributions to professional publications, valued at advertising rates in the same journals, totaled \$2.2 million.

Healthcare cost savings from improved nurse-sensitive outcomes in two of four nurse-sensitive patient outcomes (pressure ulcers, pneumonia) were estimated at \$7.7 million, with disbenefits of higher than VISN 8 iatrogenic urinary tract infection rates of -\$9.9 million. This resulted in an overall loss to cumulative net-benefit of \$2.2 million. These cost-savings were estimated only when rates of these nurse-sensitive outcomes were statistically different from the VISN 8 comparison groups, which consisted of two similar academic medical centers. Positive comparisons were also made against the performance of the entire 22-member Medical Center Group 7 (MCG7 – a VHA case mix and complexity grouping by Boston's Management Science Group) from FY 99 through FY 03. Overall, the sub-study investigating nurse-sensitive outcomes was considerably positive.

According to our short-term net-benefit analysis, ANCC Magnet designation is economically beneficial within four years. Nursing recruitment and turnover expenses exceeded expected values under one external comparator methodology and popular estimates circulating in the industry's literature. However, the benefits of Magnet designation were realized when an alternative approach was used to gauge JAHVH turnover costs against market-based comparable hospital retention rates.

This bold initiative provides a compelling analysis of the costs and benefits of Magnet designation at the Tampa VA Hospital. Findings will inform national VHA leaders of the resources that are required to pursue Magnet recognition. Further, a tangible product from this study is an innovative, multimedia Magnet Toolkit designed to assist nurse leaders in applying for Magnet designation.

This business case for Magnet designation in VHA champions a framework for achieving Goal 4 of VHA's National Nursing Strategic Plan: *To recruit and retain a qualified nursing workforce*. Further, it provides timely data for the healthcare industry and energizes our efforts to uphold work cultures that value nurses and excellence in patient care.

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Background

While there have been several investigations in the literature of the system-level and facility-level resource use among hospitals displaying Magnet characteristics (Aiken & Sochalski, 1999; Havens & Aiken, 1999; Aiken, Clarke, Sloane, Sochalski & Silber, 2002), there have been no published economic assessments of the impact of achieving Magnet status. Magnet designation is the highest level of recognition the American Nurses' Credentialing Center (ANCC) accords to nursing services. Thus, this case study is a unique initial attempt at evaluating the economic impact of Magnet designation. Further, this business case occurs in the context of the VHA national system of hospitals, making it characteristically unique.

Over a decade of research documents the important benefits associated with ANCC Magnet designation. These benefits accrue to patients, nurses, and healthcare organizations. However, only 119 of 5,764 hospitals in the U.S. have achieved this organizational distinction (Retrieved November 3, 2004, from <http://www.nursingworld.org> and www.aha.org). Perhaps this is because of the difficult task of intuitively estimating the associated economic benefits of Magnet designation. A business case for Magnet designation has not been attempted in a rigorous manner and credibly disseminated. This empirical case study is an attempt to close this gap.

Tampa's JAHVH received Magnet recognition in 2001 to become the 29th Magnet hospital since 1994 and the first in VHA to achieve this distinction. The incorporation of Magnet characteristics into VHA organizations is congruent with VHA's National Nursing Strategic Plan. Ensuring the recruitment and retention of a qualified nursing workforce requires the creation of work environments that support professional practice. The number of organizations that are pursuing Magnet recognition is increasing worldwide.

Increasingly, hospital administrators, policy makers and consumers are asking for evidence of Magnet recognition program outcomes to justify the resources consumed during the application. However, there is a dearth of research that clearly demonstrates the relationship between Magnet status and nurse-sensitive patient and cost outcomes. A business case analysis is needed to provide VHA Nurse Executives with evidence-based support for pursuing Magnet designation. As the first VA hospital to attain Magnet recognition, the Tampa VA Hospital was an ideal site for examining patient and cost outcomes.

Providing quantitative and qualitative data that support the value of Magnet recognition will strengthen the case for VHA Nurse Executives aspiring to achieve this distinction. Further, a business case for Magnet designation will communicate the value of Magnet recognition to veterans' groups, hospital administrators, and legislators.

We anticipate this business case will assist VHA healthcare organizations aspiring to achieve Magnet status by providing resources and practical tools for decision making and completion of the application process. A thorough analysis of the Magnet experience at the James A. Haley Veterans' Hospital will quantify the benefits of a Magnet organizational culture. The benefits described in the literature are expected to compensate for initial costs incurred with Magnet designation. The VHA provides a unique environment in which this evidence can be empirically documented by longitudinal study, using the extensive administrative and research databases that are readily available.



Specific Aims

VHA Headquarters commissioned this administrative project to enhance planning and participation in the American Nurses Credentialing Center's (ANCC) Magnet Recognition Program. Magnet recognition is the highest level of acknowledgment that ANCC accords to organized nursing services. At the time of this study, the Tampa VA Hospital was the only medical center in VHA that had achieved Magnet status. However, the VA Medical Center in Houston, Texas, recently achieved this designation in 2004. The purpose of this project was to build a business case for Magnet designation in the VHA that includes clinical, financial and operational outcomes. Ultimately, results from this project will inform national VHA leaders of the resources that are required to pursue Magnet recognition and the benefits achieved with designation.

Objectives

Specific objectives of this project were to:

- Identify and operationalize the critical benefits and costs associated with Magnet designation;
- Identify key variables for inclusion in the business case analysis;
- Describe nursing structures, processes, and nurse-sensitive patient outcomes after Magnet designation at the Tampa VA Hospital;
- Compare nursing structures, processes, and nurse-sensitive patient outcomes before and after Magnet designation at the Tampa VA Hospital;
- Create a Magnet toolkit for export to VHA Nurse Executives to be used to build Magnet characteristics into their organization or prepare for application for Magnet designation; and
- Develop a data base template for cost analyses for use by other VHA organizations.

Questions

This project was designed to answer the following questions:

- 1) How do structures, processes and outcomes vary over time relative to the Magnet experience at the Tampa VA Hospital?
- 2) What is the estimated net cost of being a Magnet facility over a four-year period?
- 3) What are the tangible and intangible benefits of Magnet status?

- 4) What were key milestones experienced at the Tampa VA Hospital in the Magnet journey?

Project Description

A case study design was used to describe the Magnet experience, costs, and benefits at one Veterans' Administration Hospital in Tampa, Florida. The project included three approaches:

- 1) Focus Groups with Key Informants
- 2) Surveys of Nurses
- 3) Economic Analysis

Assumptions

The following assumptions formed a foundation for this study:

- 1) The benefits of Magnet status are tangible and intangible and are likely to emerge over time. It is difficult to assign monetary values to intangible benefits.
- 2) The costs of Magnet status are most apparent from 1 year pre-designation to 5 years post-designation. Many benefits are likely to emerge over time [five years post-designation] (Kramer, 1990a; McClure & Hinshaw, 2002), beyond the scope of this report. It is difficult to compartmentalize the costs associated with the Magnet journey, since many organizational improvements were in existence to comply with regulatory and accreditation requirements and accomplish the mission of the VHA.
- 3) The Magnet journey is a long, ongoing process, preceding Magnet designation by 10 or more years (Kramer, 1990a; McClure & Hinshaw, 2002).
- 4) A unique organizational structure, culture, and leadership characterize Magnet organizations; this context must be considered (Kramer and Schmalenberg, 2004a,b; Laschinger, Almost & Tuer-Hodes, 2003). Dramatic changes in healthcare across the country make it difficult to make comparisons over time. All healthcare facilities face shorter lengths of stay, higher patient acuity, a shift from inpatient to outpatient care, and sweeping changes to ensure patient safety and quality care (Institute of Medicine [IOM] Reports 2001, 2004). Fluctuations in the nursing workforce over time significantly affect nursing recruitment and retention.
- 5) Multiple, complex factors influence turnover in healthcare organizations. Nurse turnover rates are influenced by local competitive markets, robustness of local economy, and job satisfaction (Waldman et al., 2004; Berger, Murray, Xu & Pauly, 2001; Florida Hospital Association, 2003). To this end, it was imperative to compare nursing turnover rates at JAHVH with turnover data available within the state of Florida.
- 6) Magnet status impacts primarily on RN satisfaction (Kramer & Hafner, 1989; Laschinger, Shamian & Thomson, 2001); therefore, our focus is on RN turnover.

- 7) There is no consensus regarding the measurement or definition of nurse turnover, or its various influences. Waldman et al.'s model (2004) for estimating turnover costs was one approach we used to estimate turnover costs. However, we recognize that this method may result in inflated costs, based on our experience in the Florida healthcare market. In this model, turnover costs are driven by hiring costs, training costs, and reduced productivity.
- 8) It is difficult to tease out the unique contributions of RNs when evaluating patient outcomes, discounting the impact that LPNs, NAs, and interdisciplinary team members have on outcomes. To address this issue, we selected patient outcomes most likely to be sensitive to nursing interventions, based on Needleman's study (Needleman, Buerhaus, Mattke, Stewart, & Zelevinsky, 2001) and evidence from the 2004 IOM Report.



Conceptual Framework

The conceptual framework for this project is based on the fourteen “Forces of Magnetism” derived from the original Magnet study by McClure, Poulin, Sovie, and Wandelt (1983). The results of this original study revealed fourteen distinguishing features of hospitals that were successful in recruiting and retaining nurses, based on data collected from staff nurses and Nurse Executives in these organizations. The characteristics became known as the “Forces of Magnetism” (Urden & Monarch, 2002) and are a foundation for the Magnet Recognition Program.

The following “Forces of Magnetism” permeate Magnet organizations and formed the conceptual framework for this project:

- 1) **Quality Nursing Leadership** evidenced by a knowledge of daily operations, risk taking, and staff advocacy
- 2) **Organizational Structure** that facilitates unit-based decision making
- 3) **Management Style** that is participative with highly accessible nursing leaders committed to staff involvement at all levels of the organization
- 4) **Personnel Policies and Programs** which promote competitive salaries, creative and flexible staffing, and staff participation in development of human resource policies
- 5) **Professional Models of Care** in which nurses have accountability and authority for patient care
- 6) **Quality of Care** is an organizational priority
- 7) **Quality Improvement** is viewed as an educational process for improving the quality of care
- 8) **Consultation and Resources** are provided by experts that include advanced practice nurses and peer support
- 9) **Autonomy** is expected, consistent with professional standards
- 10) **Community and Hospital** are interwoven and the hospital is perceived positively within the community
- 11) **Nurses as Teachers** incorporating education into all aspects of practice

- 12) **Image of Nursing** in which nurses are viewed as essential to the hospital's ability to provide patient care services
- 13) **Interdisciplinary Relationships** built on mutual respect
- 14) **Professional Development** opportunities are emphasized

IV

Supporting Literature

The following section is organized to provide an overview of relevant concepts and published studies that support this project. These include: (1) The National Nursing Shortage; (2) Original Magnet Hospitals; (2) Essentials of Magnetism; (3) Magnet Hospital Outcomes; (4) Nurse-sensitive Outcomes; and (5) Economic Factors.

National Nursing Shortage

The U.S. Department of Health and Human Services estimates a 7% shortage of RNs for vacant nursing positions. By 2020, this figure is projected to rise to 29 %, representing a shortage of over 400,000 RNs. The current nursing shortage is one of many over the past decades. However, this one is different. For the first time in the history of nursing, aging nurses are retiring faster than new nurses are entering the profession. RNs are the single largest group of health care professionals in the United States. According to the National Sample Survey of RNs, the estimated population of licensed RNs in March 2000 was over 2.5 million. Of these, 58% were employed full time, 23% were employed part time, and 18.3% were not currently employed in nursing. The average age of nurses was 45.2 years, with only 31% of the workforce under the age of 40.

As career choices expand, fewer females are selecting nursing as a career. In a recent study, only 5% of female college freshmen and 0.5% of males identified nursing as one of their top career choices (O'Leary, 2002). The media is a significant deterrent to nursing recruitment. Nurses are often portrayed as handmaidens responsible for giving medications and taking orders, rather than as intelligent professionals who make life saving contributions to patient care and advancements in the healthcare system. In 2001, nursing schools turned away approximately 5,000 qualified applicants due to faculty shortages (O'Leary, 2002). As a result of these combined dynamics, fewer nurses are licensed each year. From 1996 to 2000, there was a 23% decline in passing rates on nursing board licensure exams.

Today's nursing shortage is also rooted in conditions within the hospital work environment. Demanding work schedules, a higher acuity of patients, and insufficient staffing are critical factors that tarnish the appeal of nursing as career. In 2000, nearly 500,000 RNs in the U.S. elected not to work in the profession for which they trained. This indicates that there are approximately a half million nurses who choose not to work in the current hospital environment.

In 2000, the American Organization of Nurse Executives (AONE) reported the national average turnover rate of Registered Nurses (RNs) was 21.3%. Based on data reported by the Nursing Executive Center, a hospital with 400 nurses would incur costs of turnover of \$42,000 per medical/surgical nurse and \$64,000 per specialty nurse. A hospital can anticipate replacing 80 nurses per year at a minimal cost of \$3.36 million. If hospitals are to survive, aggressive strategies are needed to contain this cost and retain nurses.

Original Magnet Hospitals

In 1983, a landmark study by McClure and colleagues focused on hospitals in the U.S. that had a reputation for exceptional recruitment and retention of nurses during a massive nursing shortage. A total of 41 hospitals were deemed “Magnet” hospitals in the study. Comparable organizational traits were identified as contributing factors in the recruitment and retention of nurses. McClure et al. viewed these characteristics as ingredients of “Magnetism” and summarized them in three categories: 1) Administration, 2) Professional Practice, and 3) Professional Development.

Administration

First, Magnet hospitals were recognized for their participative style of administration and governance. There was a visible respect between management and staff nurses. Nurses’ involvement in hospital committees and decision-making was encouraged. Communication was open and staff nurses felt a part of the larger hospital community. Directors of nursing were accessible and visible and hospital leaders were perceived as able and concerned. Nurses felt supported in their practice, and were provided with flexible schedules. Nurse administrators were positioned at the executive level of the organization, with input into all facets of organizational issues. All levels of employees viewed staffing as adequate.

Professional Practice

Models of care delivery varied at Magnet hospitals, but the nurse was consistently identified as the primary professional responsible for the care provided to patients and families. Nursing autonomy was a natural consequence of this level of responsibility. Many of the hospitals utilized nurse-led clinics and programs. Advanced practice nurses were available as resources for staff. Administration endorsed education and training to enhance the career development of nurses.

Professional Development

Original Magnet hospitals emphasized professional development opportunities for nurses. Comprehensive orientation programs and mentors and preceptors provided support for new graduates and new employees. Clinical ladders and compensation for excellence in nursing were prevalent in these organizations. McClure (1983) identified autonomy, respect, and control as positive factors that influenced recruitment and retention of nurses in Magnet hospitals, even during a national nursing shortage.

Essentials of Magnetism

Since the original Magnet study by McClure and colleagues (1983), multiple researchers have attempted to define and measure the essential qualities that distinguish Magnet facilities from other hospitals. Specific organizational attributes contribute to increased nurse satisfaction, thereby reducing turnover and vacancy rates.

In 1984, Kramer and Schmalenberg initiated a research program that evolved into six studies to further describe attributes of Magnet hospitals and their nursing employees. Their 1986 follow-up study of 16 Magnet hospitals and 8 comparison hospitals measured nursing work satisfaction and perceived productivity using the Nurses Work Index (NWI). Kramer and Hafner (1989) acknowledged that autonomy is one of the most important variables associated with job satisfaction and productivity.

In 2001, Kramer and Schmalenberg interviewed 279 staff nurses in 14 Magnet hospitals to identify key elements that contribute to nursing recruitment, job satisfaction, quality care, and retention. They ascertained that eight environmental factors were requisites for quality nursing care and labeled them “Essentials of Magnetism:”

- Working with other nurses who are clinically competent
- Good nurse-physician relationships and communication
- Nurse autonomy and accountability
- Supportive nurse manager-supervisor
- Control over nursing practice and practice environment
- Support for education (in-service, continuing education, etc.)
- Adequate nurse staffing
- Concern for the patient is paramount

Until the early 1990's, most of nursing research conducted in reference to Magnet designation was qualitative in nature. As measurement tools were developed to quantify distinct variables, a stable and consistent trend evolved. Magnet organizations consistently demonstrate positive outcomes relative to “Essentials of Magnetism.”

Competent Nurse Colleagues

In Kramer's 1986 and 2001 studies, “competent co-workers” ranked as the factor that most influenced job satisfaction among nurses. Competent nursing colleagues contribute to a work environment that is built on trust. In their study of causal factors, competency in co-workers was the factor most strongly correlated with the view that the unit is adequately staffed, and the perception of increased job satisfaction and quality care.

Collegial Nurse-Physician Relationships

Collegial relationships between nurses and physicians are typical in Magnet organizations (Scott, Sochalski & Aiken, 1999; Lashinger, Shamian & Thomson, 2001). Factors that promote nurse-physician collaboration include mutual respect for one another's competence and mutual concern for patient care. Lashinger and colleagues (2001) concluded that autonomy, control, and relationships with physicians influenced the nurse's trust, job satisfaction and perceived quality of patient care.

Nurse Autonomy

Nurse autonomy and accountability are other hallmarks of Magnet hospitals. In one study, nurses defined professional autonomy as control over practice or the opportunity to work in an environment that is free from rules and regulations that have little to do with patient care (Clifford, 1990). Clinical autonomy was viewed as the scope of practice for which the nurse is accountable. Kramer and Schmalenberg developed a Clinical Autonomy Scale based on "frequency, scope and sanction" (2002b).

Supportive Managers

Management support of staff is pervasive throughout Magnet hospitals. Visibility and openness to communication are two major qualities used to define supportive managers (McClure et al., 1983). This openness leads to increased trust within the workforce. A reduction of managerial layers in the organizational structure helps to improve the flexibility of the nursing department and allows for decentralization of decision-making. With supervisors spending more time making organizational decisions, staff nurses look to themselves for clinical advice. This shift in focus promotes self-confidence in staff nurses as knowledgeable, independent practitioners.

Control Over Practice

Control over practice and the practice environment are other attributes of Magnetism (Kramer, 1991). With shared governance and decision-making, staff nurses have a stronger voice in resolving issues that impact their work. Control over the practice environment is more clearly defined as activities that specifically impact nursing practice. Decisions regarding selection and acquisition of appropriate wound care products and patient education materials are examples. Kramer and others developed a scale measuring control over nursing practice based on the effectiveness of outcomes (Kramer, 2002a,b,c), signaling the importance of this Magnet essential to nursing administrators.

Educational Opportunities

Magnet organizations place a strong emphasis on staff education and development (Kramer, 1990a,b). Over the years, this support has increased to include student loan repayment and other tuition assistance that convey the organization's commitment to staff education. In many organizations, educational funding has extended beyond nurses to include other healthcare providers (Kramer, 2002a,b,c).

Adequate Staffing

Scheduling and staffing are key factors that contribute to nurse satisfaction in Magnet hospitals (Kramer, 1990a,b). Staffing is not only defined as the nurse-to-patient ratio, but also the skill mix, or proportion of RNs to licensed practical nurses and unlicensed personnel. The higher the skill mix, the greater the RN satisfaction. With inadequate staffing, turnover and vacancy rates increase and use of traveling or temporary employees increase, resulting in a perceived decline in quality of care (Kramer & Schmalenberg, 2002a,b,c). Magnet hospitals tend to have higher nurse-to-patient ratios than non-Magnet hospitals (Kramer, 1990a,b; Aiken, Havens, & Sloane, 2000).

Concern for the Patient

A core value in Magnet organizations is the dominant concern for the patient. This foundational value is shared among all levels of employees and contributes to a culture of excellence. Staff nurses believe they provide high-quality care to patients. Managers create an environment where all aspects of work are designed around patients and the nurses that provide care for them.

Magnet Hospital Outcomes

Aiken and colleagues (1994, 1997, 1999, 2002) studied Magnet hospitals and found that the benefits of Magnet status run far deeper than recruitment and retention of nurses. These benefits can be classified as nursing outcomes and patient outcomes. Nursing outcomes include qualitative data relying on interviews and anecdotal responses, in addition to quantitative processes and organizational outcomes. In Aiken et al.'s first study (1997) comparing nurse and patient outcomes in Magnet and non-Magnet hospitals, both outcomes were more favorable in Magnet hospitals.

Nurse Outcomes

Nursing outcomes in Magnet hospitals include reports of lower nurse burnout (Aiken & Sloane, 1997), reduced needle stick injury rates (Aiken, Sloane, & Klocinski, 1997), perceptions of adequate support services, and sufficient RN staffing for quality patient care (Kramer & Schmalenberg, 1987; Kramer, 1990a,b). Emotional exhaustion and nurse burnout were reported significantly less in Magnet hospitals. Aiken's study empirically demonstrated that organizational support is the major explanation for lower rates of exhaustion and burnout.

Magnet hospitals have a higher ratio of RNs to patients than non-Magnet facilities. Needleman et al. (2001) identified an association between total hours of nursing care provided by RNs and lower rates of several adverse outcomes in medical and surgical patients. These outcomes included length of stay, urinary tract infections, upper gastrointestinal bleeding, hospital-acquired pneumonia, shock or cardiac arrest, and "failure to rescue," defined as the death of a patient with one of five life-threatening complications. Kramer compared Magnet hospitals from 1998 to 2001 and determined the ratio of RNs to patients increased significantly over that timeframe.

Nurse staffing comprises one of the largest portions of a hospital's operating budget. Given the current evidence base, it is apparent that incorporating Magnet qualities into an

organization is essential to decreasing costs. First glance may lead one to expect higher costs to the organization with the outpouring of funds for educational benefits, increased nurse staffing and salaries. The additional responsibilities of a Magnet organization to the nursing professional community are an additional cost. However, these expenses are offset over time. Increased staff satisfaction and reduced nursing turnover rates enable hospitals to save thousands, if not millions, of dollars annually as suggested by Waldman et al. (2004).

Educational levels of nurses are higher in Magnet hospitals than in other organizations. Kramer and Schmalenberg (1996) studied a subset of Magnet hospitals and discovered a median of 51% of staff nurses with a BSN or matriculation in BSN study, as compared to a national average of 33%. Aiken and colleagues (2000) compared the original Magnet hospitals with ANCC Magnet-designated hospitals and found that RNs in ANCC Magnet hospitals had significantly higher educational preparation.

The presence of a separate nursing department and quality leadership by an influential Nurse Executive are prevailing traits of Magnet hospitals (McClure et al., 2002; Havens, 2001). The Nurse Executive's involvement in policy making and organizational decisions contributes to nursing autonomy and job satisfaction. Additionally, Havens (2001) reported the presence of a doctoral-prepared nurse researcher as statistically significant in ANCC-designated Magnet hospitals. The nurse researcher's role is pivotal in providing decisional support to the Nurse Executive and promoting evidence-based practice.

Patient Outcomes

Several studies have shown that optimal work environments not only create improved nursing outcomes but also result in better patient outcomes. Havens (2001) reported that Joint Commission (JCAHO) scores were significantly higher in Magnet hospitals in comparison to scores in a nationwide sample of hospitals.

Aiken and colleagues (1994, 1997, 1999) examined patient mortality rates in Magnet and non-Magnet hospitals. Aiken's first study in 1994 revealed a 7.7% lower Medicare mortality rate in Magnet hospitals when matched with controlled hospitals. After adjusting for severity of illness, Magnet hospitals maintained a 4.6% lower mortality rate than comparison hospitals. In a subsequent study comparing patients with AIDS in Magnet and non-Magnet hospitals, Aiken concluded the risk of death for these patients was lower in Magnet hospitals and related to higher nurse-to-patient ratios. Blegan (1998) demonstrated an association between increased staffing and a reduction in medication errors, patient falls, pressure ulcers, complaints, and mortality.

Patients in Magnet hospitals with dedicated AIDS units were significantly more satisfied with their care than were patients with AIDS on conventional units in non-Magnet hospitals (Aiken, Sloane, & Lake, 1997; Aiken et al., 1999). According to their report, the nursing practice environment was the most important factor in explaining differences in patient satisfaction.

Nurse-Sensitive Outcomes

Hospital nurse staffing levels were significantly decreased in the 1990's in response to regulations that shifted care delivery from inpatient to outpatient settings. This reduction

in inpatient nurse staffing created national concern regarding the potential for adverse effects on patients. These concerns led to Congressional involvement and a report by the IOM. In turn, these developments led to evolution of a national research agenda by the federal government.

Various research agencies promoted this agenda, including the National Institute of Nursing Research at the National Institute of Health (NINR, NIH), the Division of Nursing, Bureau of Health Professions, Health Resources and Services Administration (DN, BHP, HRSA), and the Agency for Health Care Policy and Research (AHCPR) --now the Agency for Healthcare Research and Quality (AHRQ). This movement was met with a parallel effort by Health Care Financing Administration (HCFA) to avoid perceptions that regulatory guidelines created the nurse-staffing crisis in hospitals. All of these agencies joined forces to commission the Harvard-based "Needleman Study."

The purpose of the Needleman study (2002) was "to obtain baseline data on nurse staffing in relation to quality of care." The study examined patient outcomes in hospitals that were potentially sensitive to nurse staffing in terms of: Nursing care hours, skill mix, nursing practice patterns, and organizational and patient variables including risk adjustment for severity of illness.

Prior to these developments, the Secretary of Health and Human Services requested that the topic of nurse staffing and quality of care be examined. The NINR, HRSA, AHCPR, and HCFA co-sponsored the study to examine and to develop evidence regarding any relationship between nurse staffing and patient-level outcomes in hospitals that might be potentially sensitive to nursing performance and productivity (OPSNs). Viewing nursing care as integral to clinical care processes, the study developed a broad range of OPSNs to measure the contributions of nurses in providing inpatient care.

The evidence of the Needleman study findings, published in New England Journal of Medicine in 2002 and the Final Report for DHHS (2001), confirmed that several strong relationships exist. Needleman et al., identified hospital patient discharge data as the best source of data for constructing and exploring these OPSN measures. They employed state hospital financial reports or hospital staffing surveys as sources to construct measures of nurse staffing at the level of registered nurse (RN), licensed practical/vocational nurse (LPN/LVN), and nursing assistant (NA). Analysis was conducted on three samples of hospitals for 1997.

These three samples included: (1) 799 hospitals from 11 states to analyze the relationship between hospital nurse staffing and 14 OPSNs observed in all patients and in Medicare patients; (2) 256 California hospitals that were part of the 11-state sample to analyze the relationship between all patient counts of OPSNs and hospital and section level nurse staffing (e.g., ICU, acute, and long term inpatient services); and, (3) a national sample of 3,357 hospitals to analyze OPSNs calculated for Medicare patients from HCFA discharge abstract files and hospital nurse staffing derived from the American Hospital Association Annual Survey of hospitals.

The Needleman study took into account other variables that may impact the relationship between nurse staffing and patient outcomes. These included: (1) a patient's risk for experiencing each of these complications, based on patient diagnosis, age, sex, presence of chronic diseases, (2) type of payer, and (3) whether the admission was on an emergency basis. Hospital characteristics were incorporated, including location, number

of beds, occupancy rate, and teaching status. Adjustments were also made for patient acuity and the hospital's mix of patients.

Comparisons across hospitals were made by constructing the rate of each outcome -- dividing the number of all selected adverse event admissions (cases) by the number of patients in a particular at-risk pool — subgroups of patients with roughly comparable health status (comparisons). The focus on measuring rates of patient events as the outcome was designed to detect variations at the hospital-level.

The Needleman study found that “The OPSNs with the highest frequencies were common hospital complications, including urinary tract infection, pneumonia, and metabolic derangement. In general, the rates of OPSNs in medical patients ranged from a low of 0.57% for shock/cardiac failure to a high of 7.21% for skin pressure ulcers.” Rates of OPSNs in major surgery patients varied from 0.4% for deep vein thrombosis/pulmonary embolism to 6.84% for metabolic derangement.

In the 11-State, all-patient sample, strong and consistent relationships were found between nurse staffing variables and five patient outcomes: urinary tract infections, pneumonia, length of stay, upper gastrointestinal bleeding, and shock in medical patients. Among major surgery patients, only failure to rescue was strongly associated with nurse staffing variables.

Economic Factors

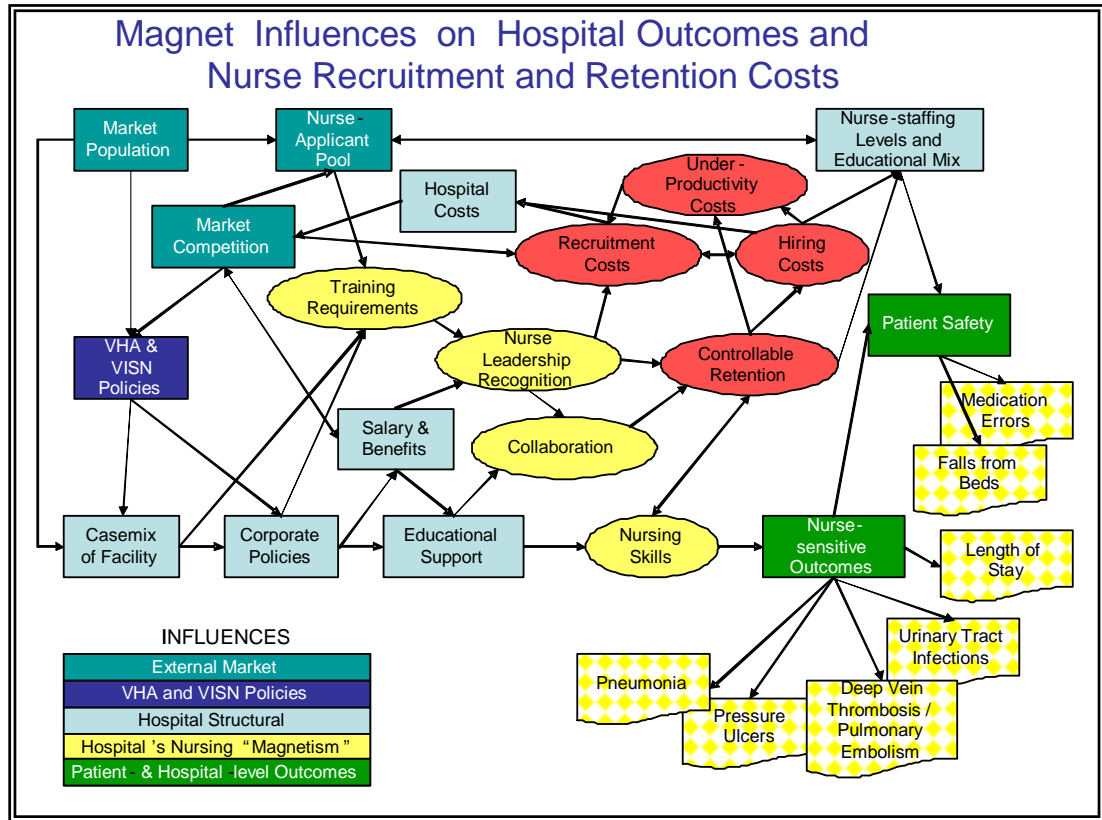
Economic Implications of Magnet Characteristics

A brief review of micro-economic principles will facilitate an understanding of the approaches taken in this business case analysis. The nursing literature supporting Magnet status finds improved organizational, functional and patient care outcomes associated with characteristics of magnetism. Numerous factors that are exogenous to the hospital (e.g., recruitment market, regional and national organizational structures, congressional appropriation of VHA budget) interact to affect a hospital's costs of Nursing Service operations. The interplay of these factors is important.

The costs of controllable recruitment and retention have direct and indirect economic implications – lower turnover means lower costs of nurse recruitment, orientation and under-productive time before new hires assume full patient care responsibilities. Moreover, the positive effect of magnetism in relation to autonomy, decision-making and recognition means longer retention of valued nurses. These costs-savings are passed directly to the hospital's operational expense budget. Positive human resource factors in Magnet organizations, as precursors to the economic values, are believed to result from the attractiveness of the environment for highly skilled nurses.

Indirect benefits of improved patient outcomes and patient safety affect the long-term costs of operations in the hospital. This nexus of positive interacting features is illustrated in Figure 1. Positive press and professional publications benefit the nursing service by lowering recruitment expenses and attracting a more talented nursing applicant pool. Some influences are not controllable (e.g., market demand, population growth). Other factors are within the Nursing Service's influence.

FIGURE 1



The Magnet literature concludes that the key to positive staffing characteristics is development and maintenance of a nurse-valuing work environment, where nurses' independent decision-making and contributions to patient outcomes are recognized, encouraged and supported. Moreover, the American Nursing Credentialing Center's (ANCC) search for, critical assessment and designation of Magnet environments are founded on the belief that a positive influence from Magnet designation, when recognized as a higher standard, brands a hospital as "the place to be." Such an environment is predicted to accrue multiple benefits on the Nursing Service and hospital.

The **direct benefits** of Magnet status are hypothesized to include: (1) increased visibility and prestige, and (2) reduced costs of recruitment and hiring through improved nurse retention. These reductions in costs of operations, both fixed and variable, in part would reduce the overall operational expenditures for the hospital, all other influences held constant. However, hospitals and Nursing Services operate in a dynamic market influenced by population changes among other things, which affect costs of care.

Additionally, VHA medical centers are influenced by national policy changes (e.g., increased enrollment of eligible veterans, means testing for partial co-payments, subvention for Medicare eligible veterans) and regional administrative controls and policies from Veterans Integrated Services Network (VISN) offices.

Improved nurse retention, when coupled with the environment of nursing leadership recognition and improved recruitment results in local and regional markets for the nurse-applicant, is expected to manifest in additional **indirect benefits**. The logic is straightforward. The hospital's patient outcomes and patient safety might be improved through increased educational levels of nurses and advanced skill levels of the nursing staff. These technical skills should theoretically improve patient care and safety. Moreover, increased skills among the nursing staff may reinforce the attraction of high caliber nurses from the relevant applicant pool, thus sustaining effects of magnetism over the longer term.

The timing of these direct and indirect benefits is important. Theoretically, the internal leadership recognition and initial recruitment of nurses with increased skills and education would not immediately be apparent in improved outcomes. There must be some short-term period wherein the motivation and momentum of magnetism increases to a critical level where the effects are discernable and measurable. Reaching a self-sustaining level of magnetism must take several years – the long run. The length of these periods is undocumented at this time.

Economic Cost Relationships

An explanation of the nature of economic costs is important to an understanding of benefit versus cost relationships. Economists find that the operational costs of producing any product will display certain characteristics that are described in Figure 2 (Mansfield, 1993).

In the current case, turnover costs per year include the sum of recruitment, hiring, and reduced productivity costs (Waldman et al., 2004), where fixed costs are a set amount regardless of the number of new hires to be recruited, oriented, and trained by mentoring staff members (Panel A of Figure 5). Variable costs are non-linear as the incremental addition of adding each newly hired nurse does not necessarily add the same incremental amount to the cumulative variable costs (Panel B). This is known as “economies of scale” and produces a curve in the total costs. At a larger volume of newly hired nurses, the variable costs begin to become relatively larger per increment and variable costs curve upward dramatically—“diseconomies of scale.”

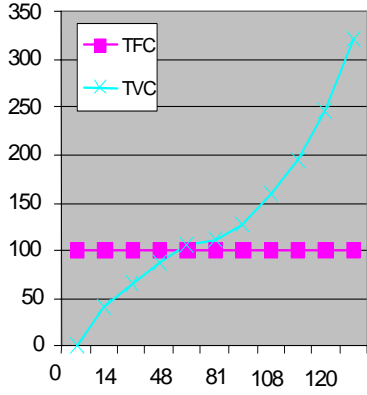
Total costs are the vertical sum of fixed and variable costs and retain the non-linear relationship of the variable cost curve. These fundamental total curves allow the derivation of both average costs (AC) and marginal costs (MC), which become tools for management (Panel C). As shown in Panel D, the point of optimal output, given the “scale” of the current operation (fixed in size), is identified where marginal and average costs are equal; and because management intervenes at this point (Panel E). Therefore, empirical costs are rarely shown to rise again as displayed in the underling tails of the theoretical curves.

Management intervenes most often by changing the scale of the operation (more classes, larger classroom, etc.) or by introducing more technology (video taped presentations). The short-term is defined by a period when some input is fixed, limiting the possibilities of production. In summary, costs are expected to have a non-linear relationship to the output produced. Unfortunately, we can rarely collect enough data to detect curves, and our estimates are linear projections.

FIGURE 2

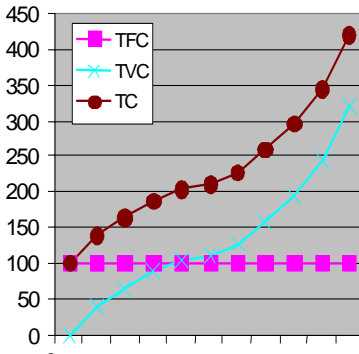
Theoretical Cost Curves

A. Fixed Costs and Variable Costs



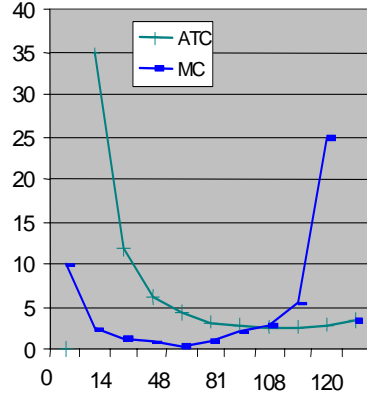
New RNs Hired per year

B. Total Costs = Fixed + Variable



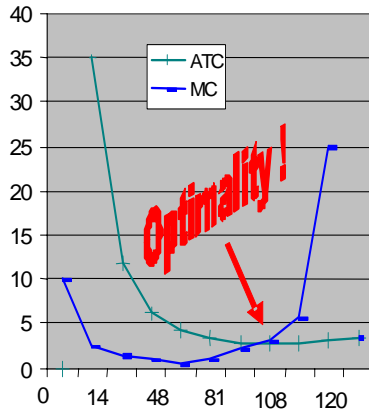
New RNs Hired per year

C. Derived Average and Marginal Costs



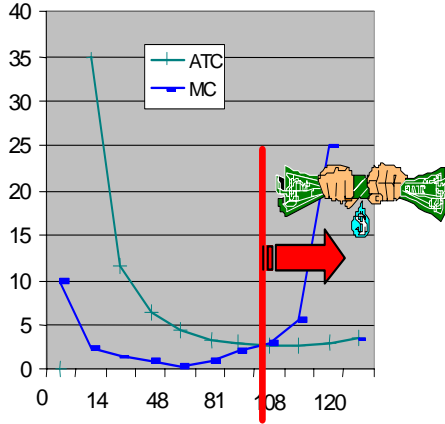
New RNs Hired per year

D. Optimality!



New RNs Hired per year

E. Managing by AC & MC



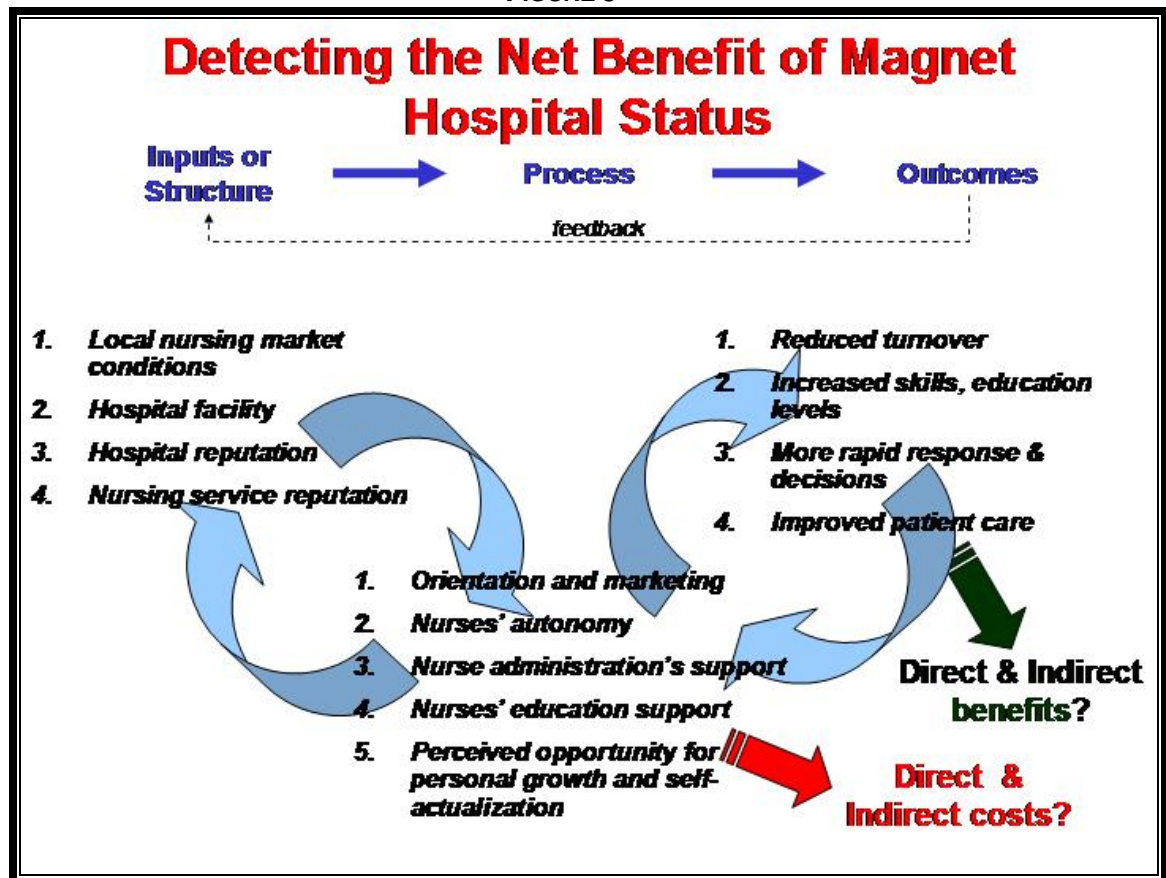
New RNs Hired per year

Economic Assessment of Net-Benefit

From an economist's perspective, achieving Magnet characteristics in nursing services within a facility is not without costs (Bradham, 2004). The decision to seek Magnet designation from the ANCC hinges on the expected economic benefits (short- and long-term, tangible and intangible) and the costs of the process of acquiring and maintaining Magnet status, (short- and long-term, fixed and variable). Overtime, these costs and their offsetting benefits make the decision rational, if the benefits outweigh the costs – a net benefit.

The purpose of this business case study is to provide these net benefit estimates. This economic analysis aims to ensure that the benefits of Magnet-related organizational activities outweigh their opportunity cost, i.e., doing the most beneficial activities with the resources at the organization's disposal. The costs of acquiring Magnet designation must include the opportunity costs of not doing other activities with the same resources (e.g., personnel, supplies, materials). These costs may be direct, (e.g., ANCC application fees, site visitor support) or *indirect*, (e.g., costs of recruitment, hiring, orientation and retention). The net benefits of Magnet designation are described conceptually in Figure 3.

FIGURE 3

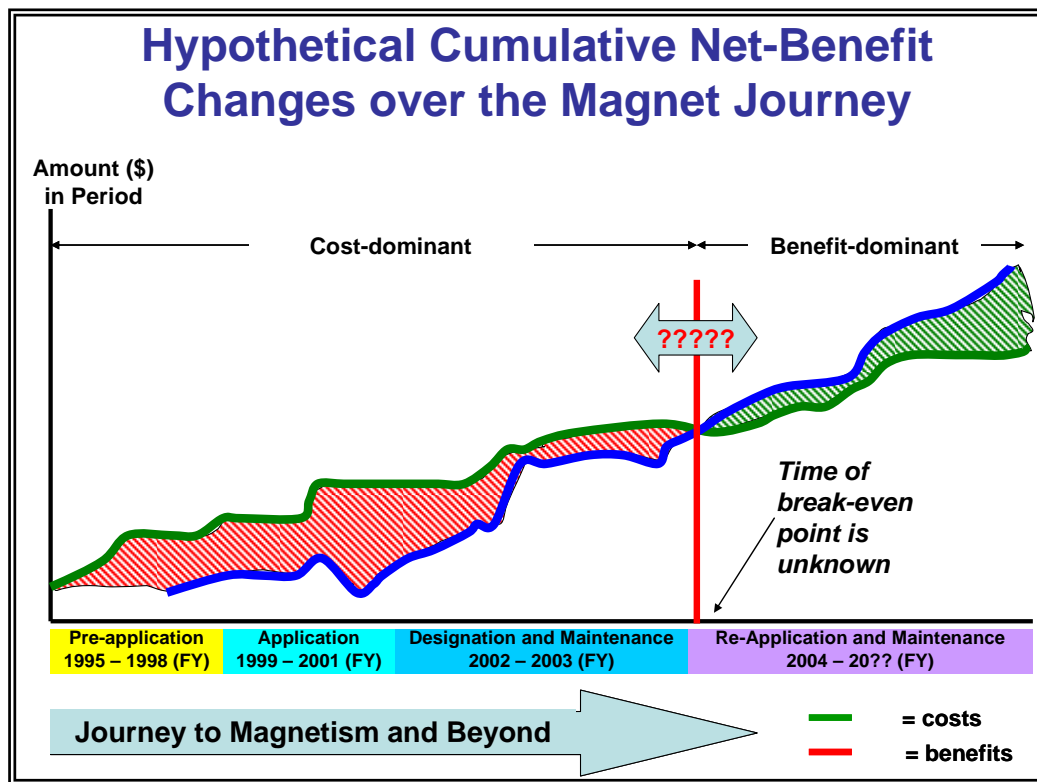


Equally important are the positive impacts gained by achieving Magnet designation, which are direct and indirect benefits. These benefits are characteristically more difficult to quantify. This is the point at which opportunity costs and market prices for similar activities are creatively employed. Clearly, there are some benefits that are intrinsic and are only roughly captured by economic values. These might include prestige or recognition for the hospital as an exemplary institution and the Nursing Service as an outstanding professional model.

The Magnet literature suggests that intrinsic benefits include lower turnover rates and, therefore, lower recruitment expenses and an increased ability to retain highly qualified nurses. Theoretically, economic benefits may be discernable over time. The issue is, "When do benefits offset costs?" Economic analyses of the costs and benefits of various activities are frequently found to display this short-term cost-dominant relationship, which in the long-term becomes a benefit-dominant situation, as shown in Figure 4.

Logically, if the designation status is properly maintained, the measurable economic effects of Magnet designation will eventually offset the costs of acquiring and maintaining that designation. Figure 4 is a hypothetical depiction of the economic effects of Magnet designation over time, suggesting benefits are likely to be dominant in the re-application period. Substantial data from many Magnet hospitals are needed to derive the industry's experience, allowing calculation of the average duration to the break-even point. In reality, there is no fixed duration for the transition from short- to long-term. However, the time to break-even point, when benefits begin to offset costs in each period, is idiosyncratic to activity and industry.

FIGURE 4



In this case study of JAHVH, only the short-term net-benefits are quantified, using data describing fiscal years 1997 through 2003 (October 1 to September 30). Time will tell if the benefits of Magnet designation outweigh the cost.



Methods

Project Design

A case study design was used to compare pre- and post-Magnet designation outcomes at James A. Haley Veterans' Hospital. Data were collected for each clinical specialty area, including mental health, critical care, medical, surgical, telemetry, operating room, emergency room, spinal cord injury, rehabilitation, and primary care practice settings. The Nursing Service budget history was used to place the four-year Magnet recognition period into context.

Qualitative and quantitative approaches were used to collect data. Short-term net-benefits were quantified, using data describing fiscal years 1997 through 2003 (October 1 to September 30). Data collection strategies included historical document review, extant databases, key informant focus groups, surveys of current and former RNs, and clinical and financial databases. We obtained information on tangible and intangible benefits from a series of focus groups with key hospital leaders. This data was triangulated with historical document review.

Sample

Key Informant Focus Groups

The primary wave of key informants identified for this project consisted of leaders within the hospital and Nursing Service at the Tampa VA Hospital over the past decade. These leaders have been involved in the Magnet application process and employed at the hospital for a considerable period of time. Informants generated a list of other potential key informants who were invited to further focus groups using snowball sampling, a non-random, purposive sampling technique where participants are asked to identify other potential participants who are well suited to help answer the research questions (Bernard, 1995).

Thirty-four potential key informants were identified. These included the Hospital Director, Chief of Staff, Chief Nurse Executive, current and former Associate Chiefs of Nursing, Nurse Managers, Advanced Practice Nurses, and others recognized for their organizational contributions and rich history with the hospital. Sixteen agreed to participate in the focus groups; ten were unable to be contacted or declined to participate; and eight agreed to participate by email. Of the sixteen respondents who were scheduled for participation in the two focus groups, ten participated. Six of eight individuals scheduled for email interview surveys returned their surveys by email.

Extant Databases (Clinical and Financial)

The entire universe of observations within the extant clinical and financial databases were included in the study population from FY 1997-2003.

Staff Surveys

Staff surveys were given to current and former RNs who were employed by James A. Haley Veterans' Hospital. A listing of all RNs ever hired at the hospital was obtained from Nursing Administration. This was sorted into active and inactive RNs. All current RNs (N=494) at the hospital and Orlando outpatient clinic were contacted to complete an electronic survey. Former RNs (N=419) were mailed a survey. All inactive RNs with available addresses were sorted by separation status. All inactive RNs who left by retirement or termination were omitted from the sample, as were those with no contact information. The net response rate was 28% for current RNs and 25% for former RNs.

Case Study Site

This report reflects the experience of one VA hospital (JAHVH). Initial Magnet designation at JAHVH was focused on acute care programs, the subject of this case study. The Nursing Home Care Unit (NHCU) was excluded from this analysis because this area was not included in the hospital's original application for Magnet designation.

Data Collection

Historical Document Review

Historical documents from 1997-2003 were reviewed to describe the organizational structure, processes and outcomes. During that timeframe, any records that provided supporting evidence for Magnet designation were reviewed. These documents included: Select meeting minutes, newsletters, financial reports, publications, personal memorandums, workload journals, executive leadership reports, annual organizational and VISN reports, position descriptions and associated salaries, and organizational award submissions. The project team reviewed documents using content analysis procedures to identify, quantify and analyze key variables.

Key Informant Focus Groups

Key informant focus groups intended to accomplish three objectives:

- To delineate the historical context and the evolution of JAHVH into a Magnet organization
- To identify key milestones in the development of JAHVH into a Magnet organization
- To identify tangible and intangible benefits of Magnet designation at JAHVH

To measure the impact of Magnet designation, it was important to describe conditions of nursing employment at JAHVH prior to and following formal designation. It became clear that a "pre-Magnet time period" was difficult to establish; yet this was important to identify which Tampa VA structures, processes, and outcomes were most affected after formal Magnet designation. The decision to apply for Magnet designation, prepare the

application, and implement organizational changes to conform to Magnet standards involved several years.

The project team determined that it was not valid to limit the “pre-Magnet period” to several years before 2001; the year JAHVH achieved formal Magnet status. A longer pre-designation period of decades was more logical. However, capturing empirical evidence from that timeframe was a challenge.

Consequently, the project team used a key informant focus group approach. Key informants are often used in ethnographic and qualitative research to gain entrée into a research setting, to isolate key factors that should be explored more carefully, and to conduct primary data collection. Key informants are individuals chosen for their expertise in their culture or other topic area to help the researcher gain knowledge and insight into the area (Bernard 1995; LeCompte & Schensul, 1999).

As indicated, the primary wave of key informants included clinical and administrative leaders at JAHVH. Most had been employed at the hospital for many years and participated in the Magnet application process. Originally, focus groups were to be separated into nursing and non-nursing participants. However, the lists were very uneven in these categories, and it was decided to allow potential participants to choose which date fit best into their schedule. Additionally, since some of the potential participants had relocated or for other reasons could not attend a focus group, it was decided to include these individuals by using an email interview survey.

Data were collected during focus groups through flip chart notes, field notes and transcriptions of recorded discussions. Additional data were obtained from key informants who were unable to attend focus groups through an email interview survey, using the same questions asked in focus groups. These data were de-identified and stored electronically.

The project manager contacted potential first wave key informants by telephone to schedule their participation in a focus group. The purpose of the focus groups was explained and their participation was requested. If possible, the participant chose which date to attend a focus session. If the potential participant indicated that he or she was unable to attend either of the focus groups, then the possibility of their participation through an email interview survey was requested. A reminder letter was sent to the participants one week prior to the focus groups.

No incentives were offered for participation in focus groups. Refreshments were provided for participants. An informed consent form (Appendix A) was administered to participants prior to the start of the groups. Participants were given time to read the form. The facilitator solicited questions regarding participation. A standard introduction was used at each group. It described the purpose and ground rules of the focus group (Appendix B).

A cover letter, derived from the focus group introduction, was used to introduce the email survey. The cover letter explained the purpose of the survey, and what participation would require. Additionally, the letter explained that by responding to the email, the individual was implying consent to participate in the project. The focus group questions were asked of email survey participants. Prompts for the questions were included in the text of the email (Appendix C).

RN Retention and Recruitment Surveys

Surveys were used to identify staff nurse perceptions of the benefits of Magnet status. Surveys were provided to all current and former RNs employed by the hospital to identify factors that influenced their decision to work at JAHVH. Nurses were also asked to indicate if each of the “Forces of Magnetism” were present at JAHVH. A listing of all RN hires was sorted into active and inactive nurses. All active RNs were contacted within the hospital and the Orlando Outpatient Clinic. All inactive RNs who left employment after 1990 by retirement or mandated separation were omitted from the sample. Inactive RNs with no contact information were also omitted from the sample. The remaining names of inactive RNs with available addresses were contacted via US Mail with a paper and pencil survey.

An electronic survey (Appendix D) was developed to assess current RN perceptions about factors that led them to apply and accept employment with the organization. All currently employed RNs (N=494) at the hospital and Orlando outpatient clinic were asked to complete the survey. Following approval of the survey instrument by the R&D Committee and Institutional Review Board (IRB), an email message was sent to invite all RNs to participate in the survey. A deadline date for completion of the survey was included. Two email reminders were sent to encourage participation in the survey. After three weeks, the survey was closed and data cleansing and analysis was initiated.

Formerly employed RNs (N=419) were mailed a survey (Appendix E) that included 16 questions designed to identify their perceptions about the factors that were most important in influencing the retention and recruitment of RNs at the Tampa VA Hospital. . The survey was mailed to all former RNs for which a home address was available. The mailed package included a cover letter explaining the project and the survey, a return envelope and a \$5.00 phone card as a token of appreciation for considering participation in the survey. All phone cards were activated, regardless of a return response. A deadline date for participation was provided in the initial mailing of the survey. Two weeks later, a reminder letter was sent to all former RNs. After four weeks, the survey was closed to further input and data cleansing and analysis was initiated.

Net-Benefit Economic Analysis

Net-benefits of an intervention or change in operations are assessed by documenting the costs of operation and the offsetting benefits of the consequences within a reasonable length of time from the initial intervention. The individual sections of the economic analysis at JAHVH were evaluated from the hospital’s Nursing Service perspective.

The time frame for data collection was 1998 through 2003, and limited to direct care RNs. While not the entire pre-designation period, these years include the Magnet application, designation and maintenance periods. In the grander scheme of organizational change and growth, this is the short-term impact of the pre-application change and the actual designation.

The scope of the empirical work was focused on the hospital environment. Since the initial ANCC designation application was focused on the hospital, the scope of our analysis was limited to hospital-based, direct care RNs and their activities.

(a) Estimating Benefits: The benefits of Magnet designation were operationalized in several ways. Over the study period and within each evolutionary period, benefits were composed of the cumulative annual sum of imputed values of:

- 1) Publicity gained for the hospital or nursing programs in local, regional and national media;
- 2) Visibility and professional acknowledgement gained from professional publication by hospital nursing staff members;
- 3) Operational cost-savings (e.g., expenses not incurred) for RN hiring and training compared actual payroll and recruitment expenses to expected values estimated from Waldman et al., (2004) and Florida Hospital Association turnover rates (2004); and
- 4) Healthcare expenditure cost-savings (e.g., expenses not incurred) for positive nurse-sensitive outcomes, following Needleman, et al. (2001, 2002).

Imputed values, rather than actual prices, are necessary because there is no marketplace for intrinsic benefits. The project team made choices to place an economic value on a particular outcome, and examined the rationale for each of these decisions.

(b) Estimating Costs: In this case study, costs of Magnet designation were composed of the cumulative annual sum over the study period and within each period of the Magnet journey, including:

- 1) Application and Site Visit Fees paid to ANCC;
- 2) Costs of personnel, materials and other costs for meetings and efforts to generate the application, maintain ANCC-required documentation, and other related direct costs to the Nursing Service;
- 3) Expenses for nursing staff meetings or general hospital employee events which celebrated, communicated and conveyed knowledge about and pride in the Magnet Designation;
- 4) Expenditures for periodic presentations for Congress, national VHA leadership, etc. regarding the Magnet Journey and the associated experience; and
- 5) Expenses for an individual Nursing Administrator to respond to inquiries from other hospitals and Nursing Services, within and external to VHA, regarding the process of Magnet application, etc.

Since a Bar Code Medication Administration (BCMA) system was implemented during the study period, costs avoided by reduced medication errors were not operationalized. To attribute a change in medication error rate to Magnet designation would be difficult to defend, given the fact that these benefits may be attributed to technological advancement.

(c) Costs of Reduced Productivity: Most existing studies of the indirect costs of and illness or absenteeism use the classic assumption that the value of reduced days

employees miss from work is captured by their wage rate (including fringes and remuneration per day or other period). However, recently, new methods have been proposed.

Pauly and colleagues (2002) proposed a general model to examine the magnitude and incidence of absenteeism costs under different assumptions regarding the size of the firm, the production function, nature of the firm's product, and competitiveness of the labor market. By arguing that if competitive labor markets are in equilibrium, a worker's wage is the lower-bound estimate of the cost of an absence or reduced productivity. These researchers uncovered that the wage rate is valid only under certain conditions—if firms can predict absences perfectly and hire enough equally productive workers to cover for absent workers. They conclude that the cost of lost work time, for illness or other reasons, can be substantially higher than the wage under particular conditions—when perfect substitutes are not available to replace absent workers and there is team production or a penalty associated with not meeting an output target. In the long run, these coworkers are likely to bear much of the incidence of the costs associated with absenteeism. Conversely, they are likely to be the beneficiaries of reductions in absenteeism.

These researchers contend that employees are expected to produce only on days when they are present. Thus, a worker's wage is the best estimate of his/her marginal revenue product and the wage per day worked is the lower estimate for the cost of an absence. However, these economists suggest that many positions in knowledge-based industries are not performed in isolation, but rather require teamwork. Both the time lost (absenteeism) and reduced performance (reduced productivity, but present—"presenteeism") of a worker affects the productivity of all members of the team. If this holds true, then the cost of lost time or reduced productivity is higher than the wage. This is especially true if perfect substitutes are not available, team productivity is reduced, and there is a penalty associated with not meeting an output target. This applies to hospitals, where patient safety is at higher risk when nurses are absent or under-productive because of administrative barriers (e.g., graduate nurses awaiting licensure) or due to lost time (sick leave, in-service education).

Traditional valuation methods underestimate the true loss of reduced productivity in new hires, an effect of turnover. Nicholson, Pauly, Polsky, Sharda, Szrek & Berger (2004) derived multipliers of the expected impact of absenteeism through empirical survey of managers in 12 industries and focused on 35 positions. The survey investigated three specific characteristics of the positions: (1) the likelihood that a perfect substitute for the absent worker can be readily available; (2) the degree to which workers functioned in a team; and (3) the extent that a worker's production, or his or her team's output, is time sensitive. Over 800 managers were surveyed.

Survey participants were asked to report the extent that three characteristics (teamwork, ease of substitution, and time sensitivity) were embodied in each job and the financial consequences of absences. Empirical support was documented for the hypothesis that the cost associated with missed work varies across jobs according to these three characteristics. The research team estimated wage "multipliers" for 35 different jobs, where the multiplier is the cost to the firm of an absence as a proportion of the absent worker's daily wage. A multiplier greater than unity supports that wage alone is not a sufficient valuations technique. These researchers suggest that employers can use such

information to determine the “true cost” of an absence by multiplying the worker's wage by the multiplier for that job, or for a job with the same combination of job characteristics. The implication for the present evaluation of the JAHVH's net-benefit analysis is straightforward. The hiring and training processes for RNs embodied a reduced productivity period while licensure is achieved in the case of graduate nurses and for those in orientation classes. While the model put forward by Waldman et al. (2004) is important, it should be considered only one alternative as it employs the traditional wage rate valuation of that time of absence and reduced productivity.

Our estimates are improved by the wage-multiplier effect, as nursing becomes more team oriented. The evidence suggests that at a minimum, we should examine the sensitivity of our final estimates over the range from simple wage rate to that of a multiplier wage value. Our sensitivity analysis uses a multiplier of 1.33.

Data Analysis

A descriptive analysis was used to examine structural variables described as hospital and staff characteristics in the Magnet literature. Most of these data were collected from documents, extant data, or operational statistics.

Three types of data were incorporated into the spreadsheet analysis to capture direct and indirect costs and benefits: (1) a variety of Magnet-related events (e.g., motivational meetings, planning activities, publications); (2) estimated actual expenses for personnel, materials and supplies consumed in preparing for and conducting each event; and (3) estimates of the value of Magnet benefits. Estimates of the value of Magnet benefits include those gained through increased visibility and professional acknowledgement through publications, savings in recruitment and retention expenses, and the estimated impact on patient care, as measured by healthcare cost-savings.

Retrospective data from calendar years 1997 to 2004 were collected in several areas of Nursing Service to support these estimates, and were tabulated by fiscal years to synchronize with other sources. Relevant position-grade estimates of 2,348 individuals were derived for FY 98 to FY 03 to provide three key elements for the net benefit analysis:

- 1) Orientation rates (derived from new RN hires per fiscal year),
- 2) RN turnover rates (derived from departures and total staff per fiscal year), and
- 3) Position-specific estimated pay rates (including: salary, fringe and bonuses).

To assure credibility and internal consistency of position-level remuneration estimates, several adjustments to the initial data were required. At the individual pay period level, records representing outliers (hours <0; FTE<0 and costs >\$5,000) were eliminated to avoid biasing the annual figures with annual leave “payout” amounts and to avoid counting losses in a later fiscal year. Final estimates are based on 142,679 biweekly pay period records for deidentified individuals who were classified as clinical (not administrative) and working in hospital direct care settings (not Nursing Home Care Units). The latter work classifications were allowed to change by fiscal year, as were position and grade classifications.

Within a fiscal year, biweekly pay period-specific full-time equivalent (FTE) rates per individual varied, requiring adjustment of total costs by FTE to acquire the full salary expected. To annualize the pay period-specific figures, the derived expected remuneration rates per period were multiplied by 26. Variability across pay steps within a pay grade means that derived estimates capture the expected average rates for each position and grade in effect for each fiscal year from 1998 to 2003. These average remuneration rates and estimates of total staff members hired, departing and currently employed for each fiscal year were crucial to the study as they drive various cost estimates for each Magnet phase (Appendix F: Exhibits 1A-1E).

The purpose of deriving position and grade level specific remuneration estimates was to use JAHVH's actual average expected expense for nurses' orientation and training expenses. These rates are purposefully not reflective of a human resources salary chart with uniform intervals, because they include clusters of employees hired at different times and retained for different time periods. These payroll-based estimates are much more realistic than a single figure plucked from the salary chart for a given year.

Further, average turnover expenses generated from these local estimates of reality are more rational than a figure pulled from a consultant site on the internet, or from a published study. These estimates are the fruit of the careful labor invested in micro-costing. They are important to any examination of employee costs of absenteeism, or reduced productivity, which is now referred to in economics literature as "presenteeism" – present but not fully functional, whether by sub-clinical illness, lack of skills, or competence (Murray, Nicholson, Pauly & Berger, 2003; Nicholson et al., 2004).

Costs of Magnet-Related Activities

To retrospectively estimate the costs of Magnet preparation, education, maintenance and promotion activities, we conducted a careful review of original documents describing events, and examination of available expense reports and notes, or estimation of the likely expenses. When historical expenditures were not readily available, current year (2004) estimates were incorporated and estimated values (inflation-adjusted) were obtained for historical values by applying the national general inflation index and the medical care price index (MCPI – for healthcare personnel) from the Federal Bureau of Labor Statistics (BLS).

Examples of expenses include personnel participating in Magnet-related meetings or involved in their preparation, meeting supplies, awards, motivational collar pins, and materials. Some of the costs of Magnet coordination involved responding to other institutions and Congress regarding Magnet designation and its value. For each meeting or event, personnel time that was consumed was valued at the meeting date's (nominal) values, supplied by the Nursing Service.

Estimated Benefits of Magnet Status

Benefits of Magnet designation include: (1) Reduced turnover; (2) increased nursing skills, education; (3) more rapid responses and decisions at the point of care; and (4) improved patient care. In each instance, estimating an expected cost of a similar activity in the market place and comparing JAHVH's estimate to that market expectation

quantified the *estimated benefit* for JAHVH. Quantifiable, operational forms of these conceptual benefits are more complex than this and our approach is described below.

Given the uncertainty of when short-term effects become long-term effects, the team retrospectively gathered longitudinal data to address the indirect benefits of reduced turnover, which should be associated with a more educated and skilled nurse workforce and improved patient care. Data identifying media events and other non-print modes of publicity were explored, but data concerning only a few items were readily retrieved in a retrospective review. This scarcity of documented publicity events revealed the importance of designing a prospective framework for future collection of these items.

Printed publicity items were detailed including the length of the article and the circulation of the media outlet where the article appeared. These articles, (e.g., announcement of the designation in the local newspaper), were valued by their column-length and the same newspapers' advertising rate for JAHVH nursing recruitment advertisements. When the media was television or videotape, a valuation of the expense of preparing the video medium was applied.

Publications, scientific, educational and professional newsletters are valued products in the VHA nursing community. These "professional visibility" items were detailed, including their page length. Articles, (e.g., announcement of the designation in Viewpoint), were valued by their column-length and the same newsletters' advertising rate for JAHVH recruitment ads. The same method of valuation was used for professional education and scientific journal contributions from JAHVH nurses. Professional articles were valued by their page length and the local newspapers' advertising rate for recruitment advertisements.

Benefits of Recruitment and Retention Savings

Nationally and locally, RN recruitment and retention rates have received considerable attention in recent years; yet few research projects have gone beyond a single site's case study. The economic impact of turnover clearly differs as the rates rise, as Gelinias and Bohlen (2002), suggest by their findings:

- Hospitals with high annual RN turnover rates (22% - 44%) had 36% higher costs per discharge than those with turnover rates of 12% or less;
- Hospitals with low turnover had lowered risk-adjusted scores as well as lower severity-adjusted length of stay, compared to hospitals with 22% or higher turnover rates;
- Hospitals with low RN turnover (4 - 12%) averaged 23% return on assets compared to a 17% return for those with high turnover rates.

A recent review by the AFL-CIO's Department of Professional Employees suggests that several groups have tried to estimate the cost of turnover (Wilson, 2004). The Advisory Board Company for the Nursing Executive Center estimated the 2000 cost of replacing a hospital medical/surgical nurse was \$42,000, and the cost of replacing a specialty nurse was \$64,000, (Kemski, 2002). However, such an industry estimate may not apply to the VHA environment.

Reduced turnover rates are expected to result in cost-savings that lead to improved care for patients. The assessment of the intangible benefit of reduced nursing turnover required identifying a method to estimate the expected turnover expenses to be compared to the actual estimated expenses. We found that publication of turnover expenses is rare and wide variations in calculations of nursing turnover costs in the healthcare industry.

One consulting firm on the internet offers an example of what is available. Kei is a web-based Application Service Provider (ASP) at <http://www.keepemployees.com>. The Kei estimation model, based in the Denver, Colorado area, suggests that each RN loss's comprehensive turnover cost estimate should include the following: separation/processing costs, replacement/hiring costs, training new hire costs, and lost productivity and lost business costs. Several of these categories are not applicable to the VHA environment, and others require a local analysis of experience to produce a probability of the estimated applicability (e.g., cost of additional employee losses related to the index loss) so that a conditional amount, not a fixed amount, is incorporated. The Kei model was not directly useful in our case study. An estimation that is based against a routinely collected hospital statistic is more useful to our current need.

We developed two approaches: (1) one based on an academic hospital in New Mexico using the hospital's total operating costs as the anchor point, (Waldman, et al, 2004; and (2) a proportional cost-to-turnover rate model. Waldman's model provides a flexible alternative to estimating turnover costs, but is an approach that does not take into consideration the local market. The second model for estimated turnover costs is based on Florida Hospital Association averages, which is a local-market based alternative.

Based on their retrospective case study of a New Mexico academic medical center, Waldman et al., suggest that at the hospital-level, expected turnover costs include expenses related to *hiring, training, and reduced productivity*. Hiring expenses (including advertising and orientation) are grouped with general training (inservices and policy-related mandates). These expenses amount to approximately 2% of the hospital's operating funds. An additional 1.4 to 3.8 % is assigned for reduced productivity. A more detailed analysis focused on nurses' turnover per se, suggesting Waldman et al.'s estimates show a 0.088% best-case relationship for nurses' hiring, a 0.848% for mandated training and 1.710% for reduced productivity, or a total of 1.247%. The worst-case scenario changed only for the reduced productivity marginal costs, where the expected relationship to total operating costs might be 0.724%, for a total of 1.66%. These values generate a range of from 1.247 to 1.66% of a hospital's total operating funds for expected nurse turnover costs.

This single publication on turnover costs suggests that the expected costs of a teaching hospital can be estimated by its correlation to total operating budget for the institution. The difference between and estimated "expected" and JAHVH estimated actual costs is taken as the benefit (or loss) gained, and it is attributed to the Magnet-induced reduction in costs from increased retention.

Limitations of this benefit valuation technique must be addressed. While the appropriateness of this comparison – "Is the New Mexico hospital similar enough to the James A. Haley Veterans' Hospital?"—is an obvious question to be asked, we examined the range of estimators for nurse turnover costs in applying Waldman's model. In using this approach to estimate the expected RN-turnover costs for an academic hospital, we

implicitly assumed: (1) Changes in bed-size, patient demand and complexity are similar and reflected in the hospital's total operating costs each year; and (2) Non-linearity in turnover costs related to changes in new RN hires is reflective of non-linearity in the hospital's total operating costs.

To estimate JAHVH actual expenses for hiring, training, and reduced productivity [salary and fringe rate by position and grade x 14 days of orientation for each newly hired RN, and new graduate nurses' time spent at less than full patient care responsibility (51.8% full capacity following Waldman) while waiting for licensure (# x 80 days), we delineated retrospective detail from records of motivational meetings, college recruitment trips, and advertisements in professional publications and newsletter, including dates and total pages. Costs were captured as economic expenses for these events and advertisements. Although the JAHVH's Nursing Service has a Nursing Education department and many speakers are used in the two five-day new employee orientation classes, these personnel expenses are typically dismissed as an ongoing expense. However, using the principle of opportunity costs, these expenses must be included in the estimated turnover costs. The Waldman estimate is 51.8% of full-time equivalent. This value was used in our calculation.

To obtain the desired estimated benefit value, the values for actual costs at JAHVH were subtracted from expected values, adapted from Waldman. Waldman's estimated represent a published estimate that focused on reduced productivity in a "steady state" academic medical center (e.g., minimal growth) and avoided the application of average values for turnover that may not be consistent for inclusion or geographic index with the Tampa region. The resulting estimates of JAHVH's per person turnover expense, and that of Waldman are approximately equivalent to popular unit values that are often cited.

As an alternative to the Waldman model for estimating turnover costs, we examined the proportional relationship of JAHVH turnover costs as a function of the relative relationship of Florida Hospital Association (FHA) turnover rates. The strength of this approach is that only JAHVH estimated turnover costs are used. The relative ratio of RN turnover rates (FHA average rate/JAHVH rate per fiscal year) is multiplied by JAHVH costs for each year to project the Florida-based, RN turnover costs. The difference between the JAHVH estimate and this market-based expected value represents the benefit (or disbenefit) that we are attributing to Magnet status.

Benefits of Improved Nurse-Sensitive Outcomes

The Magnet designation impact on nurse-sensitive outcomes was estimated by accessing cases that represent Nurse-Sensitive Outcomes (NSO) in the VHA Administrative and Research databases at Austin from 1997 to 2003, and deriving healthcare expenditure differences between similar cases when these outcomes were not seen versus when the nurse-sensitive outcome occurred. The benefit from Magnet status was estimated as the difference in total VHA expenses for those hospital stays.

In this sub-analysis, the JAHVH experience was compared with other similar teaching hospitals of similar casemix, following methods of quasi-experimental design used in health services and outcomes literature (Miller & Zahn, 2004, Harris, Bradham et al., 2004) and the fundamental documentation of nurse-sensitive outcomes, (Needleman, et al., 2002), as determined by membership in a Medical Center Group (MCG) 7 within the VHA system, using the VHA Management Science Group's definition of hospital groups

(Appendix G). Two comparison groups of retrospective patient hospitalization data were examined relative to JAHVH's experience. The first is Veterans Integrated Service Network 8 (VISN 8), where JAHVH and two other academic medical centers are located. The second comparison is against all other (twenty-two) VHA academic medical centers of similar casemix.

Our strategy was to compare inpatients at JAHVH with specific nurse-sensitive conditions to similar patient admissions in MCG7 hospitals in VISN 8 and the nation. The patient outcomes Needleman found to be associated with nurse staffing are important to our analysis of the James A. Haley Hospital's Magnet designation for several reasons. Definitions and coding rules for Nurse-Sensitive Outcomes (NSO) were constructed to be consistent with Needleman's definitions (Appendix H). Consequently, we focused on the conditions found to be most important for medical patients:

- *urinary tract infections (UTI),*
- *skin pressure ulcers (PU),*
- *deep vein thrombosis/pulmonary embolism (DVT), and*
- *hospital-acquired pneumonia (PN).*

We also examined the length of stay (LOS) among these NSO, because it is an important metric of efficiency of care. Additional importance of LOS lies in the fact that reductions in length of stay not only lower a hospital's costs, but also the expenses of the patient and family, while presumably reducing their psychological costs. The patient complications found to be associated with nurse staffing involve a large number of patients or are associated with a substantial risk of death.

However, to assure that analyses were not biased by several excessive lengths of stay in the VHA data, only admissions of less than one year in length were selected as adverse events or as comparisons. This reduced the national sample of the 2,875,223 admissions to 2,874,288, or 99.97% of the total. Cases were removed equally from each nurse-sensitive diagnosis (NSDx), and equally from adverse and non-adverse subgroups. All admissions, even for repeating unique patients are included as our investigation focused on the institution's rate, not the typical patient's rate.

Finally, comparisons are made regarding three measures:

- Rates of four nurse-sensitive outcomes (UTI, PU, DVT and PN);
- Lengths of stays for the same nurse-sensitive outcomes; and
- Estimated average VHA expenditures for these nurse-sensitive outcomes.

Attributing a benefit value to improved patient care and safety is achieved by assuming that the other MCG7 hospital's experience is the benchmark, against which the JAHVH experience is to be judged. If the JAHVH experience reflects fewer cases (examining rates of nurse-sensitive outcomes), then any healthcare expenditure savings (average cost of care difference) is worth this amount multiplied by the difference in rates, for each fiscal year.

Magnet Designation Periods by Fiscal Years

In all cases, the actual date, or the estimated date of an event, determined whether an event was assigned to a particular period in the Magnet journey. Although roughly consistent, the net-benefit analysis periods are not precisely equivalent to the Magnet Timeline established through Key-Informant Focus Groups. The primary difference is due to an effort to make the economic analysis conform to fiscal years. October 1 to September 30 of each year is assigned the numeric label of the following year (e.g., an event on October 2, 1998 is assigned to FY 99, as is an event on May 15, 1999). The periods for the fiscal years of the case study are shown in Figure 5.

FIGURE 5
MAGNET DESIGNATION PERIODS FOR JAHVH BY FISCAL YEARS

	10/1/1971 9/30/1985	10/1/1985 9/30/1994	10/1/1994 9/30/1997	10/1/1996 9/30/1998	10/1/1998 9/30/2001	10/1/2001 9/30/2004	10/1/2004 9/30/2005
start						Designation Date: 3/15/01	
end							
	1972 (FY) through 1985 (FY)	1986 (FY) through 1994 (FY)	1995 (FY) through 1997 (FY)	1996 (FY) through 1998 (FY)	1999 (FY) through 2001 (FY)	2002 (FY) through 2004 (FY)	2005 (FY) through 2006 (FY)
	Medical Center Development	Nursing Service Development	Cultural Transition among Leadership	"Readiness" for Magnet Application	Magnet Application Period	Magnet Designation and Maintenance Period	Magnet Re- Application Period

VI

Findings: Case Study Description at JAHVH

Description of the Hospital

The JAHVH in Tampa is part of the Florida/Puerto Rico VISN 8 “Sunshine Network.” The hospital provides a continuum of health services to veterans across eight counties in Central Florida. Tampa serves as a specialty referral hospital for the Bay Pines VA Medical Center (VAMC), and is a national referral center for select specialty services, including spinal cord injury (SCI) and traumatic brain injury (TBI). Tampa is a national receiving site for combat wounded soldiers in Operation Iraqi Freedom who have sustained blast injuries from explosive devices. Corporate Tampa serves more “unique” veterans than any other VA facility in the country. The patient workload at JAHVH doubled over the past six years.

The JAHVH includes a 333-bed tertiary care teaching hospital adjacent to a 180-bed Nursing Home Care Unit. The facility also includes outpatient treatment clinics for primary care, specialty and subspecialty follow-up clinics, and ambulatory surgery and invasive procedures. Comprehensive mental health outpatient and addictions services are also provided.

Corporate Tampa operates community outpatient clinics in Orlando, Port Richey, Brevard, Lakeland, Brooksville, Zephyrhills, Sanford, and Kissimmee. A partial hospitalization program is based in the community, and counseling services are provided at Veteran Centers in Tampa and Orlando. The Orlando facility also includes a 120-bed nursing home and a 60-bed domiciliary.

Inpatient Programs

- Three Spinal Cord Injury Units
- General Psychiatry
- General Surgery/ Vascular/Orthopedic/Eye/Plastic/Urology/Nerosurgery/ Neurology/ENT/ GYN
- Surgical Intensive Care Unit
- General Medicine/Oncology/Gastroenterology
- Rehabilitation Medicine including Comprehensive Rehabilitation/Chronic Pain/TBI
- Telemetry/Cardio-thoracic Surgery/Cardiology
- Coronary Care Unit
- Medical Intensive Care Unit
- Pulmonary and General Medicine

Outpatient Programs

- Emergency Department/Walk-in Clinic
- Primary Care and Specialty Outpatient Clinics
- Telephone Triage Program
- Ambulatory Surgery/Invasive Procedures Unit/Ambulatory Oncology
- Primary Care Clinic
- Mental Health Outpatient/Substance Abuse
- Cardiology Outpatient Clinics
- Hemodialysis
- Mental Health Clinic
- Nursing Home Care Unit A - Outpatient Geriatric Clinic
- Spinal Cord Injury Outpatient Clinics

Clinical Programs of Excellence: Seven programs have received VHA designation as *Clinical Programs of Excellence*: Spinal Cord Injury/Disorders Center, Comprehensive Rehabilitation, Home Based Primary Care, Diabetes, Pain Management, Regional Radiation Oncology Center, and Traumatic Brain Injury.

Accreditation: The hospital is accredited by multiple organizations including: 1) Joint Commission [JCAHO] (five separate program areas), 2) Commission for the Accreditation of Rehabilitation Facilities [CARF](seven program areas), 3) Accreditation Council for Graduate Medical Education [ACGME] accredited residency-training programs for specialty and subspecialty residents and fellows in the University of South Florida Health Science Center [USFHSC] , and 4) ANCC Magnet Recognition Program.

Inpatient Workload: Operating beds and bed days of care (BDOCs) are documented in Table 1, reflecting an increase in Average Daily Census (ADC) and a decrease in BDOCs. BDOCs are defined as the difference between the admission date and the discharge date plus one day.

**TABLE 1
INPATIENT SETTING (1997-2003)**

	1997	1998	1999	2000	2001	2002	2003
Operating Beds (Total)	391	343	302	300	297	301	301
Medical	134	113	102	97	93	97	97
Surgical	88	68	54	54	54	54	54
Psychiatry	60	56	46	48	50	50	50
Neurology	8	7	5	6	4	5	5
Nursing Home	180	180	180	231	259	298	298
SCI	60	59	57	57	57	57	57
Rehab	42	40	38	38	38	38	38
Average Daily Census (ADC)							
	223	200.17	212.36	192.14	211.84	215.04	225.52
Medical	75.3	67.73	81.30	71.09	80.18	79.41	83.37
Surgical	43.47	36.77	41.00	36.49	42.82	41.41	41.21
Psychiatry	33.07	34.33	25.13	23.46	22.87	28.61	30.32
Neurology	3.30	1.83	2.42	1.58	1.71	1.87	1.36
Nursing Home	80.43	173.30	171.36	168.90	239.65	242.30	253.73
SCI	43.63	31.30	37.55	35.90	39.19	39.97	44.87
Rehab	24.23	28.20	24.97	23.62	25.07	23.78	24.39
Bed Days of Care (BDOC)							
	83,326	83,464	77,512	70,325	77,321	78,488	82,314
Medical	30,060	30,201	29,674	26,020	29,264	28,986	30,431
Surgical	15,430	14,113	14,965	13,354	15,630	15,113	15,042
Psychiatry	11,009	12,831	9,172	8,586	8,346	10,441	11,065
Neurology	1,391	1,340	883	580	625	681	497
Nursing Home	28,364	62,232	62,547	61,819	87,473	88,439	92,612
SCI	14,951	14,609	13,705	13,141	14,306	14,589	16,376
Rehab	10,395	10,370	9,113	8,644	9,150	8,678	8,903

Outpatient Workload: Table 2 demonstrates the JAHVH's transition from hospital to healthcare system and burgeoning outpatient services. This move to greater ambulatory services has improved veterans' access to care and decreased length of stay.

**TABLE 2
OUTPATIENT SETTING (1997-2003)***

	1997	1998	1999	2000	2001	2002	2003
Outpatient Encounters	539,213	625,095	701,156	811,283	972,196	1,107,103	1,232,335
Average # Patients Enrolled in SCI Home Care/ month	37	38	56	65	78	57	61
Average # Patients Enrolled in Hospital Based Home Care/ month					143.7	141.8	142.2

*Shaded areas indicate timeframes when data was unavailable.

Nursing Organizational Structure

The Associate Chief of Staff for Nursing (ACOS/N) is the Chief Nurse Executive (CNE) in a distinct Nursing department and key member of the executive leadership team with organizational involvement in strategic planning, resource allocation, and program development. The ACOS/Nursing has authority and responsibility for the delivery of quality care for all nursing services. The nursing leadership and robust professional culture ensure a supportive environment for nurses.

Types of Nurses: Table 3 displays the types of nurses employed across the organization. Corporate Tampa employs a total of 1065 nursing FTEE, with one Associate Chief of Staff for Nursing, 12 Associate Chiefs of Nursing, and 31 Nurse Managers. Professional development is an organizational imperative, with 95 advanced practice nurses to mentor and support 926 bedside nurses.

**TABLE 3
TYPES OF NURSES CORPORATE TAMPA**

Site	Staff Nurses (RNs & LPNs)	Advanced Practice Nurses (Nurse Practitioners & Clinical Nurse Specialists)	Nurse Managers	Associate Chiefs of Nursing Services (ACNSs)	Associate Chief of Staff for Nursing (ACOS, Nursing)
Tampa	726	74	25	8	1
Orlando	143	10	5	2	
Port Richey	21	5	0	1	
Brevard	36	6	1	1	
TOTAL	926	95	31	12	1

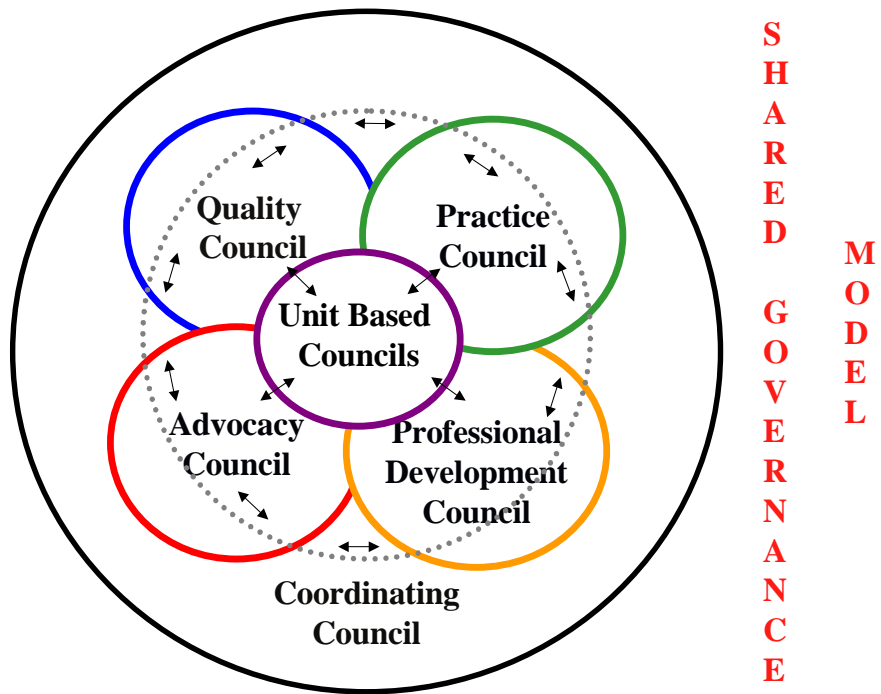
Level of Nursing Education: Table 4 demonstrates JAHVH's emphasis on education as indicated by an increase in Bachelor's prepared nurses. Over the years, staff have been provided support, both financial and scheduling, to advance their careers.

TABLE 4
NURSE EDUCATIONAL LEVELS (1997-2004) N (%)

	1997	1998	1999	2000	2001	2002	2003	2004
Highest Degree Earned								
Diploma	25%	22%	21%	18%	18%	17%	14%	15%
Associate Degree	21%	20%	20%	21%	19%	21%	22%	23%
Bachelors Degree	38%	36%	38%	40%	41%	42%	45%	43%
Masters Degree	16%	21%	19%	19%	20%	18%	17%	17%
PhD	2%	2%	2%	2%	2%	2%	2%	2%

Shared Governance: The nursing organizational structure transitioned to a Shared Governance Model as a result of a 2000 Nursing Satisfaction Survey (Stamps Piedmont Index of Work Satisfaction) in which RNs identified four major areas of concern: autonomy, organizational policy, professional status, and interaction. The Shared Governance Model (Figure 6) is comprised of five councils. The overlapping councils and bi-directional arrows convey the commitment to communication among councils and individual patient care units.

FIGURE 6



Labor Partnerships

The Florida Nurses Association (FNA) represents all RNs as the collective bargaining unit for the JAHVH. The American Federation of Government Employees (AFGE) represents off campus RNs and non-professional nursing employees. The Local Partnership Council is composed of managers and labor representation and serves as another vehicle where issues of concern can be addressed.

Affiliations

The facility maintains formal affiliation agreements with six academic organizations in the community, annually providing training for over 800 students in many healthcare disciplines (Table 5).

**TABLE 5
AFFILIATIONS**

Institution	Program	Degree	Date Contract Initiated
University of Central Florida	RN	MSN & BSN	10-18-99
Hillsborough Comm. College	Nursing	ADN	Dir office
Hills Co. School Board (Brewster)	Patient Care Tech, NA Program	Diploma	9-24-99
Hills Co. School Board (Tampa Tech)	Health Care Science Nurse Assistant	NA	12-15-99
Hills Co. School Board (Erwin Tech)	Nursing	LPN	9-24-99
Sun Coast Center for Natural Health	Massage Therapy	Diploma	8-09-99
University of Phoenix	Nursing	MS/BS	4-24-00
University of Tampa	Nursing Graduate	M.S.	9-24-99
University of Tampa	Nursing	BSN	9-24-99
University of South Florida	Nursing-Gerontology	MS/ BSN	9-24-99
Valencia Community College	Nursing	A.S.	8-02-01
St. Louis University, St. Louis MO	VISN 8 Affiliation	M.S.	10-01-99

Nurse Staffing

Budgeted ceiling levels are assessed at least annually. Ceiling levels are based on a variety of data elements used, including: ADC, nursing hours per patient day (NHPPD), AMIS Patient Classification, patient visits, unit admission, discharge, and patient turnover rate, and others. Table 6 depicts NHPPD in 2002 and 2003 by unit.

**TABLE 6
NURSING HOURS PER PATIENT DAY (NHPPD)**

Division	Unit	2002	2003
Critical Care	CCU	14.9	17.4
	MICU	15.9	15.7
	SICU	17.6	16.7
Mental Health (MH)	2BSW	5.9	6.7
Med/Surg (MS)	4S	5.7	5.9
	5S	5.7	5.8
	6S	6.7	7.1
	7N	6.2	6.3
Nursing Home (NH)	NHCB	4.3	3.9
	NHCC	3.8	3.9
	NHCD	3.7	3.9
Rehabilitation	2CNW	5.8	5.5
Spinal Cord Injury (SCI)	SCI-B	12.0	12.1
	SCI-D	9.2	8.6
	SCI-E	8.8	8.7
Total Average HPPD		6.1	6.2

Table 7 demonstrates nurse-sensitive measures at JAHVH from 1997-2003.

**TABLE 7
NURSE-SENSITIVE MEASURES 1997-2003***

	1997	1998	1999	2000	2001	2002	2003
Nurse-Sensitive Outcomes							
Hospital Acquired Pressure Ulcer Rate			14.8	13.2	16.1	10.6	10.3
Hospital Acquired Urinary Tract Infection			60.3	61.8	59.9	58.6	60.6
Hospital Acquired Pneumonia			31.2	32.1	33.9	33.6	0.8
Deep Vein Thrombosis (DVT)			8.9	7.3	6.7	6.9	7.5
Process							
Length of Stay		6.93	6.64	6.52	6.17	6.70	5.87

VII

Findings: Key Informant Focus Groups

Key informant focus groups were instrumental in delineating the historical context and the evolution of JAHVH into a Magnet organization and identifying key milestones along the way. Focus group findings were used to create a “Journey to Magnet Status Timeline” that is described in this section.

Thirty-four potential key informants were identified for inclusion in focus groups. Sixteen agreed to participate in the focus groups; 10 were unable to be contacted or declined to participate; and 8 agreed to participate by email. Of the 16 respondents who were scheduled for participation in the 2 focus groups, 10 participated. Six of 8 individuals scheduled for email interview surveys returned their surveys by email.

Project personnel felt that some of participants who agreed to participate but did not make it to the focus group were too important to omit. Therefore, an additional group session was scheduled to include their perspectives (n = 5). The same questions and protocol were used. However, one change was made; a timeline summarizing the results of the two prior focus groups and the email interviews was used to stimulate the participants' memories and to develop consensus on conflicting issues and dates.

Field notes, flip chart notes, and focus group transcripts were used in the analysis of the focus groups and email interviews. The data analysis consisted of placement of developments, milestones and issues on a timeline. Additional feedback on the importance of milestones and the placement of events on the timeline was sought from three key informants in order to resolve conflicts in the data. This was accomplished electronically by email and face-to-face with a draft document provided for their review. These three informants were part of the primary wave contacted for participation and are considered experts on the subject matter based on their relative positions and tenure at the facility.

Journey to Magnet Status Timeline

The full timeline is detailed in a series of ten graphics in Figure 7. As the first summary timeline indicates, six major eras of organizational development emerged. An attempt was made to represent each development era as specifically and distinctly as possible. However, the timeline is a representation of organizational processes that did not necessarily occur in discrete time periods. Additionally, the focus group data relied on the recall of participants who were not always able to remember specific dates.

The first era, **Medical Center Development**, lasted from the activation of the hospital in October 1972 until 1985. This period consisted largely of the emergence of the JAHVH into a medical center and less on the professional development of the facility's Nursing Service. The second era, **Nursing Development**, lasted from 1986 to 1995 and contains milestones that emerged more specifically related to the organizational development of JAHVH's Nursing Service.

Within this era is a sub-era in the late 1980's entitled, Cultural Transition among Leadership. All focus group and email survey participants identified this change in the organizational culture. During this era, hospital and nursing leadership became more supportive of change and innovation and established supportive programs and policies. Sufficient data were lacking to more specifically identify a discrete time period or distinct events that contributed to this organizational culture change. However, the emergence of this time period in all focus groups and subsequent agreement about its importance during follow up with key informants led to its inclusion within the Nursing Development era.

The third era, **Readiness for Magnet Application**, lasted from 1996 to 1998. This period was marked by the increasing recognition of JAHVH as an institution known for providing quality care to patients. Different programs sought and received accreditation and awards. Additionally, during this time period, the nursing research program at JAHVH grew substantially under the direction of an Associate Chief of Nursing for Research. For these reasons, it was believed that these events marked a period where the organization was becoming ready to apply for Magnet Designation.

The fourth time period, **Magnet Application**, ran from October 1998 to February 2001. October 1998 was the date when approval to apply for ANCC Magnet Designation was received. The application was prepared throughout 1999 and submitted in 2000. The site visit occurred in January 2001, and notification of the awarding of designation was received in February 2001.

The fifth time period, **Magnet Designation**, lasted from 2001 to 2003. During this time period, the organization continued to be recognized as a quality institution through the designation of Centers of Excellence by the VHA and the re-accreditation of its rehabilitation programs. Additionally, the Nursing Service piloted and adopted a Shared Governance model.

The final era, **Magnet Re-Designation Application**, ran from June to December 2003 to the present. The overlap occurred because the planning for application for Magnet Re-Designation began in June 2003. The significant events during this time period were the awarding of the inaugural Magnet Prize for Innovation to the hospital's Patient Safety Center in October 2003 and the electronic submission of the re-designation application in August 2004. This time period also includes future events, including the pending site visit and notification of re-designation results.

FIGURE 7

James A. Haley Veterans' Hospital (JAHVH) Journey to Magnet Status Development Summary Timeline

October 1972 to 1985	1986 to 1995			1996 to 1998	October 1998 to February 2001	March 2001 to May 2003	June 2003 to 2004
		Late 1980s					
Medical Center Develop- ment	Nursing Develop- ment	Cultural Transition among Leadership	Nursing Develop- ment	"Readiness" for Magnet Application	Magnet Application	Magnet Designa- tion	Magnet Re- Designation Application

Note: Calendar years are represented in the timeline.

JAHVH Journey to Magnet Status Timeline

Organizational & Industry Milestones

JAHVH opens Oct. 7, 1972; University of South Florida (USF) College of Medicine built concurrently

Nov. 1974: Orlando Outpatient Clinic (OPC) opens

JAHVH focuses on Staff Development

November 1984 Nursing Home opens

-Participated in national pilot test of Functional Independence Measure (FIM) for Uniform Data Set (UDS)
-New Port Richey community-based clinic opens; later expands to a full outpatient clinic

MEDICAL CENTER DEVELOPMENT

1972	1970s	1980	1981	1982	1983-1984	1984	1985
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Nurses salaried, not on hourly pay

Establishment of Nursing Research Committee

-Increased number of certified and published nurses
-Commitment to retain Clinical Nurse Specialists (CNS)

Staffing based on San Joaquin Patient Classification System & work sampling

Established Advanced Practice Council

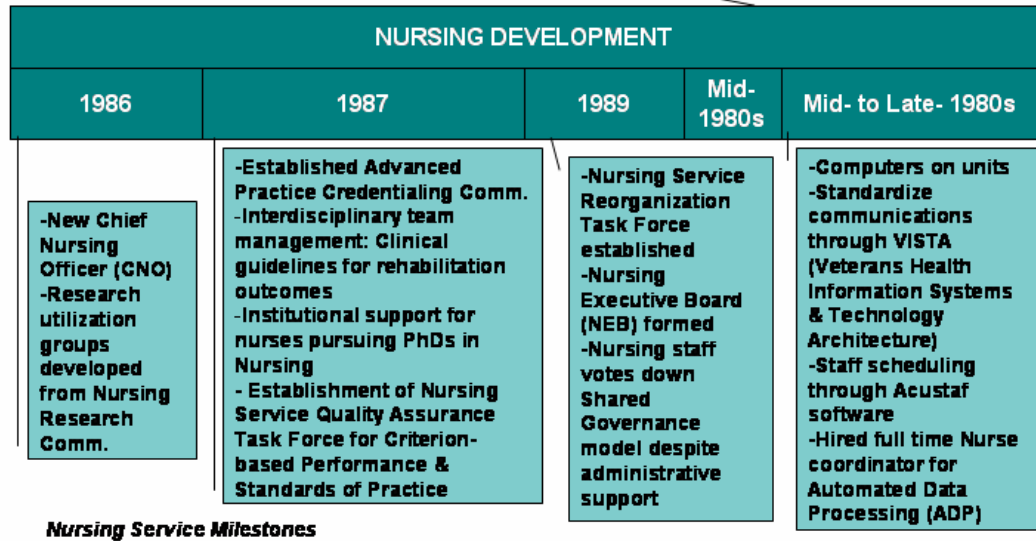
-Collaborative research with University of South Florida (USF) College of Nursing faculty
-First Interdisciplinary Teams: Nutrition Support and Pain Quality Improvement (QI)

Nursing Service Milestones

JAHVH Journey to Magnet Status Timeline

Industry & VA Developments implemented at JAHVH:

- Tuition reimbursement for BSN & MSN
- VA Learning Opportunities Residency (VALOR) program in clinical nursing
- Graduate Nurse Transition (GNT) & Student Nurse Transition (SNT) programs

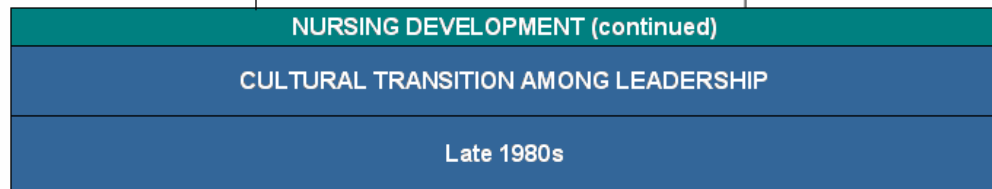


JAHVH Journey to Magnet Status Timeline

Organizational & Industry Milestones

-'Team Tampa' Concept introduced throughout organization
 -JAHVH focuses on Performance Improvement (PI)

Programs awarded as Centers of Excellence (SCI, Rehab, Women Veterans)



Philosophy shift in management styles among supervisory and nursing executive positions (key administrative leaders, CNO, nurse managers)

-End of mandatory shift rotation
 -Greater schedule flexibility & part-time nurses
 -Creating Nursing Quality Improvement (QI) position to support QI program

Nursing Service Milestones

JAHVH Journey to Magnet Status Timeline

Organizational & Industry Milestones

-JAHVH focuses on recruitment & retention of nurses
-Length of stay decreases
-Increased community involvement

PI change to Continuous Quality Improvement (CQI) from Quality Assurance (QA) orientation

VA & JAHVH shift to ambulatory care from inpatient care
-Closing inpatient units

NURSING DEVELOPMENT (continued)			
1990s	1991	1992	1993

Implementation of locality pay

-Decentralization of nursing supervisors
-Associate Chief for Nursing Research position created
-Initiation of the Expert Panel Methodology for Nurse Staffing for data-based decision-making

CNO recognized as part of the triad (top hospital leadership: Director, Associate Director, Chief of Staff)

Nursing Service Milestones

JAHVH Journey to Magnet Status Timeline

Organizational & Industry Milestones

-Establishment of Partnership Council with labor and management
-Facility Quality Council forms QI teams to focus on improving organizational processes (radiology, pain)
-Administrative commitment to attain accreditation for 3 rehabilitation programs from the Commission on Accreditation of Rehabilitation Facilities (CARF)

-JAHVH has change in Joint Commission Accreditation of Healthcare Organizations (JCAHO) scores from 70s to 80s & 90s
-Information Technology (IT) becomes important & available
-December 1995: Veterans Integrated Service Networks (VISN) are established replacing VHA Regional Offices
-Gallup Market Survey to obtain customer service feedback used for strategic goal development
-Orlando OPC expands into closed Naval Hospital

NURSING DEVELOPMENT (continued)	
1994	1995

Title change from Head Nurse to Nurse Manager (NM): validation of changes in NMs' roles and responsibilities from provision of direct patient care to managerial status

-Leadership of CNO encouraged development of a "culture of change of striving to be the very best we could be...accepting innovation and researching best practices"
-1995 to 1996: Introduction of special salary scale for ARNP to increase ARNP recruitment

Nursing Service Milestones

JAHVH Journey to Magnet Status Timeline

1995 to 1999: JAHVH received 5 Hammer and 7 Scissor Awards

Organizational & Industry Milestones

-August 1996 Strategic Quality Planning: Focus on benchmarking organizational performance measures with the VISN, other VA hospitals and the private sector
 -Multiple programs achieve GARF accreditation
 -JAHVH wins Robert W. Carey Achievement Award for recognition of excellence in quality management

-Computerized Patient Record System (CPRS) introduced
 -JAHVH wins Labor-Management Partnership Award
 -Viera (Brevard) OPC opens
 -Sept. 1997 JAHVH wins Robert W. Carey Award

-JAHVH receives President's Quality Award
 -March 1998: Brooksville Community-Based Outpatient Clinic (CBOC) opens

"READINESS" FOR MAGNET APPLICATION

1996	1997	1998	1997-1999
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-Participated in American Nurses Association (ANA) QI Research Pilot Project: the basis for Magnet criteria
 -Continued to hire and maintain a highly educated group of masters- and doctoral-prepared nurses
 -Began University of Phoenix distance learning program with tuition reimbursement

Nursing Service Milestones

-First Nursing Research Center funded
 -Active use of focus groups to collect performance data from staff perspectives

Associate Chief, Nursing Research set up VISN 8 research grant awards

JAHVH Journey to Magnet Status Timeline

Organizational & Industry Milestones

-Electronic remote access to medical records introduced in CPRS
 -Orlando Nursing Home opens

-JAHVH receives President's Quality Award
 -August 2000: Orlando Domiciliary & Sanford CBOC open
 -October 2000: Kissimmee CBOC opens

MAGNET APPLICATION

October 1998	1999	2000	January & February 2001
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Nursing Service receives approval to apply for ANCC Magnet Designation

-February 18-19: Nursing retreat on applying for Magnet Status
 -Began preparing application for Magnet Status
 -Patient Safety Research Center funded

Nursing Service Milestones

-Reorganization of nursing administrative structures—daily operations & accountability at unit level
 -Associate Chief, Nursing Systems established

-January 2001: ANCC Magnet Appraisers' site visit
 -February 2001: Notification of awarding of Magnet Designation

JAHVH Journey to Magnet Status Timeline

Organizational & Industry Milestones

SCI, Home-Based Primary Care, Comprehensive Rehabilitation & Diabetes programs designated as VHA Centers of Excellence

-New SCI building activated
-JAHVH achieves CARF re-accreditation in 3 areas: Brain Injury Rehab, Inpatient Rehab, Interdisciplinary Pain Rehab

MAGNET DESIGNATION

2001	2001-2002	2002	January to May 2003
<p>-Pilot Shared Governance model -Director Patient Safety Center edited 1st SCI Core Curriculum (AASCIN)</p>	<p>Introduction of Nurse Manager special pay scale</p>	<p>-Shared Governance Design Group chartered to draft Nursing Service mission, vision, and values & to initiate Shared Governance structure planning -Staff nurses involved in all phases of new SCI building planning & activation</p>	<p>May 2003 Began organizing for Magnet Re-Designation application</p>

Nursing Service Milestones

JAHVH Journey to Magnet Status Timeline

Organizational & Industry Milestones

Oct. 2003 JAHVH wins inaugural ANCC Magnet Prize for Innovation

MAGNET RE-DESIGNATION APPLICATION

June to December 2003	2003	2004	August 2004
<p>Preparation of Magnet Re-Designation application</p>		<p>-Shared Governance Council structure implemented</p>	<p>-Submission of Magnet Re-Designation application -First hospital to submit electronically</p>

Nursing Service Milestones

VIII

Findings: RN Surveys

The “Forces of Magnetism” were used as a framework for RN Retention and Recruitment Surveys which were designed to assess staff nurse views about the presence of organizational features at James A. Haley Veterans’ Hospital that contribute to nursing recruitment and retention. Surveys were distributed to 494 current RNs and 419 former RN employees. As indicated in Table 8, the net response rate was 28% for current RNs and 25% for former RNs.

The responses from current and former RNs were consistent. Benefits, salary/pay and schedule/hours were the top factors reported to influence recruitment and retention. Professional development also emerged as an important recruitment and retention factor for current RNs. Former RNs departed from this pattern when rating how important various factors were in influencing their decision to separate from JAHVH. Salary, other factors and nursing leadership were the factors that were most frequently cited as very important to this decision. Finally, both groups exhibited significant agreement on the presence of various Forces of Magnetism at JAHVH.

Detailed survey findings for current and former RNs are described below.

Current RN Findings

The survey of RNs currently employed at JAHVH focused on factors influencing recruitment and retention as well as nurse perceptions of the presence of the Forces of Magnetism. Overwhelmingly, current RNs indicated salary, benefits and schedules were important factors in their recruitment. Over 85% of current RN respondents identified professional development and nursing leadership as important or very important in their choice to work at JAHVH.

Less than half of respondents felt Magnet designation influenced their decision to work at JAHVH. Interestingly, over time during their employment at JAHVH, over 50% of current RNs stated Magnet status was an important or very important factor in staying at JAHVH. This finding suggests that as RNs work in the supportive, nurse-oriented environment of a Magnet facility, they may gain an appreciation of the benefits this culture offers.

Forces of Magnetism have permeated our organizational culture. Over half of respondents indicated all 14 Forces of Magnetism are present at JAHVH. The majority of RNs (80%) perceived many of the Forces of Magnetism were present. These findings demonstrate the intangible benefits of Magnet. As the culture continues to be nurtured by

strong leadership, it is believed the values and Forces of Magnetism will have even greater effects on organizational, nursing and patient outcomes.

TABLE 8
RESPONSE RATES: RECRUITMENT & RETENTION SURVEYS

	Former RNs	Current RNs
# Surveys Received	61	140
Surveys Sent	419	494
# Undeliverable	171	NA
Net Sample Size	248	494
% Net Response Rate	25%	28%
# Qualitative Responses	42	55
% Qualitative Responses	68.9%	39.3%

As Table 9 indicates, a majority of respondents (87.1%) rated benefits as a “very important” factor in their decision to work at JAHVH. The next factor to be rated “very important” was salary/pay (71.4%), and over half of the participants stated that schedule/hours was a very important factor (53.6%). Professional development and nursing leadership were ranked as “very important” by almost half of the respondents (49.3%).

TABLE 9
CURRENT RN RATINGS OF RECRUITMENT FACTORS

	Very Important	Important	Of Less Importance	No Response	Total
Recruitment Factors	%	%	%	%	%
Benefits	87.1	7.9	3.6	1.4	100.0
Salary/pay	71.4	22.1	4.1	2.0	100.0
Schedule/hours	53.6	38.6	5.0	2.1	99.3
Professional development	49.3	36.4	11.4	2.9	100.0
Nursing leadership	49.3	35.7	10.0	5.0	100.0
Location	40.7	36.4	19.3	2.9	99.3
Hospital leadership	36.4	35.0	22.9	5.0	99.3
Co-workers	33.6	36.4	25.0	4.3	99.3
Education benefits	29.3	45.7	20.7	4.3	100.0
Magnet status	18.6	27.9	32.9	20.0	99.3
Other	17.9	5.0	2.1	25.7	50.7

Table 10 displays other recruitment factors written in by 33 of survey participants. Job security and retirement were the other factors cited most often. These other factors included education, specialty, work environment, veteran status, personal reasons, and patient population.

**TABLE 10
ADDITIONAL RECRUITMENT FACTORS IDENTIFIED BY CURRENT RNS**

Response Category	Recruitment Factors Identified	%
	No response	77.9
Job security & retirement	<ul style="list-style-type: none"> o Job security o Job security - working for federal government o Retirement TSP* plan o To continue with the federal government for retirement purposes o Transfer from another VA wished to keep grade o Transferred from another VA to Tampa o Opportunities for transfer, promotions, relocation 	5.0
Education	<ul style="list-style-type: none"> o Emphasis on education o Loan repayment o The ability to pursue an advanced degree by USF o The proximity to USF College of Nursing o Valor student 	3.6
Specialty	<ul style="list-style-type: none"> o Ability to work in an SCI** Unit o In 1983, the neonatal positions were filled o Type of work (outpatient mental health) o Variety of specialty areas o Work in the MICU was taking me back to the bedside 	3.6
Work environment	<ul style="list-style-type: none"> o Environment that supports autonomy and innovation o Give RNs flex times and an area to work at o I found out that JAHVH is not what I heard it was o Mobility o The opportunity to work as an RN 	3.6
Veteran status	<ul style="list-style-type: none"> o Able to use my 6 years active duty service o I am a veteran and have special requirements o My time in the military service and my retirement 	2.1
Personal reasons	<ul style="list-style-type: none"> o Need to be closer to aging family member o Proximity to our home - NO TRAFFIC! 	1.4
Patient population	<ul style="list-style-type: none"> o Veteran patients 	.7
Miscellaneous	<ul style="list-style-type: none"> o We did not have Magnet status at my EOD*** o Important to increase night shift differential o Pay does not equal high cost of living in Florida 	3.6
Total		100.0

*Thrift Savings Plan
 ** Spinal Cord Injury
 ***Estimated On-board Date

Table 11 displays combined percentages for recruitment factors ranked as “very important” and “important” by survey participants. Benefits, salary/pay and schedule/hours ranked as the top three recruitment factors for over 90% of respondents. Professional development and nursing leadership were also important recruitment factors with 85.7% and 85.0% of participants marking these factors as “very important” or “important”. All factors, except for Magnet Status and Other, were marked as “very important” or “important” by 70% or more of the respondents.

TABLE 11
IMPORTANT RECRUITMENT FACTORS: CURRENT RNS

Recruitment Factors	% Important/ Very Important
Benefits	95.0
Salary/pay	93.5
Schedule/hours	92.1
Professional development	85.7
Nursing leadership	85.0
Location	77.1
Education benefits	75.0
Hospital leadership	71.4
Co-workers	70.0
Magnet status	46.4
Other	22.9

Survey participants were also asked to list the top three factors influencing their decision to come work at JAHVH (Table 12). Benefits and salary/pay remained the two most crucial recruitment factors for currently employed RNs. Benefits was ranked as the most important factor (32.1%) in recruitment and came in second for both the second and third most important factors (30.7% and 14.3%, respectively). Salary/pay was second in ranking for the first most important recruitment factor (30.0%), came in first for the second most important factor (39.3%) and fourth for the third most important factor (7.9%). Schedule/hours came in first as the third most important recruitment factor (17.1%). Almost 25% of the respondents did not indicate a third most important recruitment factor. Professional development, schedule/hours and location were also cited as important recruitment factors.

TABLE 12
RANKINGS OF FACTORS INFLUENCING RECRUITMENT OF CURRENT RNS

Recruitment Factors	Most Important		Second Most Important		Third Most Important	
	%	Rank	%	Rank	%	Rank
Benefits	32.1	1	30.7	2	14.3	2
Salary/pay	30.0	2	39.3	1	7.9	4
Professional development	9.3	3	5.7	5	6.4	6
Schedule/hours	8.6	4	7.9	3	17.1	1
Location	7.1	5	7.1	4	14.3	2
Other	6.4	6	0.0	10	1.4	8
Education benefits	3.6	7	5.0	6	7.9	4
Co-workers	2.1	8	.7	9	3.6	7
Nursing leadership	0.7	9	1.4	7	1.4	8
Magnet Status	0.0	10	1.4	7	.7	11
Hospital leadership	0.0	10	0.0	10	1.4	8
Total	100.0		99.3		76.4	

Survey questions were also designed to assess factors that influenced staff nurse retention at JAHVH. RNs were requested to rate factors as “very important,” “important,” “of less importance” or “does not apply.” Table 13 displays the results for this question.

A large majority of respondents (86.4%) rated benefits as a “very important” factor in their decision to continue working at JAHVH. The next most important factor was salary/pay (74.3%), and nearly two-thirds of the participants stated that schedule/hours was an “important” factor (63.6%). Nursing leadership and professional development were also ranked as “very important” by just less than half of the respondents (47.1% and 45.7%, respectively). Location was frequently cited as a “very important” factor for 40.0% of respondents.

TABLE 13
RATINGS OF RETENTION FACTORS BY CURRENT RNS

	Very Important	Important	Less Important	N/A	Total
Retention Factors	%	%	%	%	%
Benefits	86.4	10.0	1.4	0.0	97.9
Salary/pay	74.3	19.3	2.1	2.1	97.9
Schedule/hours	63.6	31.4	2.9	0.0	97.9
Nursing leadership	47.1	31.4	17.1	2.1	97.9
Professional development	45.7	32.9	17.1	2.1	97.9
Retention Factors	%	%	%	%	%
Location	40.0	30.0	24.3	2.9	97.9
Co-workers	33.6	41.4	18.6	2.9	96.4
Hospital leadership	29.3	36.4	27.9	4.3	97.9
Education benefits	25.0	38.6	25.7	4.3	93.6
Magnet status	21.4	30.0	40.7	5.7	97.9
Other	9.3	3.6	2.1	25.0	40.0

Table 14 displays the combined percentages for retention factors ranked as “very important” and “important” by survey participants. Consistent with the recruitment factor results, benefits, schedule/hours and salary/pay were the top three retention factors with over 90% of respondents marking each of these factors as “very important” or “important” (i.e., 96.4%, 95.0% and 93.6%, respectively). Professional development and nursing leadership were also important recruitment factors with 78.6% of participants marking each these factors as “very important” or “important.”

TABLE 14
IMPORTANT RETENTION FACTORS: CURRENT RNS

Retention Factors	Very Important/Important
	%
Benefits	96.4
Schedule/hours	95.0
Salary/pay	93.6
Professional development	78.6
Nursing leadership	78.6
Co-workers	75.0
Location	70.0
Hospital leadership	65.7
Education benefits	63.6
Magnet status	51.4
Other	12.8

Table 15 shows the combined percentages for the recruitment and retention factors rated as “very important” and “important” by the Current RN respondents. The table also depicts the percent difference between recruitment and retention factors and their ranked importance. Education benefits, other factors, location and professional development experienced the largest changes ranging from 7.1% to 11.4% differences. All of these changes were negative so fewer participants rated these factors as important for retention as they did for recruitment.

TABLE 15
IMPORTANT RECRUITMENT & RETENTION FACTORS: CURRENT RNS

Recruitment Factors	% Very Important/ Important	Retention Factors	%Very Important/ Important	% Difference
Benefits	95.0	Benefits	96.4	1.4
Salary/pay	93.5	Schedule/hours	95.0	2.9
Schedule/hours	92.1	Salary/pay	93.6	0.0
Professional development	85.7	Professional development	78.6	- 7.1
Nursing leadership	85.0	Nursing leadership	78.6	- 6.4
Location	77.1	Co-workers	75.0	5.0
Education benefits	75.0	Location	70.0	- 7.1
Hospital leadership	71.4	Hospital leadership	65.7	- 5.7
Co-workers	70.0	Education benefits	63.6	- 11.4
Magnet status	46.4	Magnet status	51.4	5.0
Other	22.9	Other	12.8	- 10.0

Survey participants were asked to list the top three factors influencing their decision to remain working at JAHVH (Table 16). Salary/pay and benefits remained the two most important retention factors for currently employed RNs. Salary/pay was ranked first for the first, second and third most important factors in retention of currently employed RNs (32.1%, 37.1% and 20.0%, respectively). The benefits category followed salary/pay for the both the first and second most important factor in retention and was ranked third for the third most important factor. Schedule/hours and professional development were also cited as important retention factors. Fewer than 22% of survey participants did not indicate a third most important retention factor.

TABLE 16
MOST IMPORTANT FACTORS INFLUENCING RETENTION OF CURRENT RNS

Retention Factors	First Most Important		Second Most Important		Third Most Important	
	%	Rank	%	Rank	%	Rank
Salary/pay	32.1	1	37.1	1	20.0	1
Benefits	31.4	2	34.3	2	10.0	3
Schedule/hours	10.7	3	10.0	3	8.6	4
Professional development	7.9	4	3.6	5	7.9	6
Co-workers	5.7	5	3.6	5	1.4	8
Location	4.3	6	5.0	4	16.4	2
Other	3.6	7	0.7	9	0.7	9
Education benefits	2.1	8	2.9	7	8.6	4

Nursing leadership	2.1	8	2.1	8	4.3	7
Magnet Status	0.0	10	0.7	9	0.0	10
Hospital leadership	0.0	10	0.0	11	0.0	10
Total	100.0		100.0		77.9	

Currently employed RNs were asked their opinion regarding the presence of the Forces of Magnetism at JAHVH (Table 17). With the exception of one of the Forces of Magnetism—personnel policies and programs—70% or more of the survey participants responded that all of the forces were currently present. The Forces of Magnetism that were most present included: quality of care (89.3%), quality improvement (88.6%), professional development (87.9%) and nurses as teachers (86.4%).

TABLE 17
CURRENT RN PERCEPTIONS OF FORCES OF MAGNETISM

Forces of Magnetism	Present	Not Present	No Response
	%	%	%
Quality of care	89.3	10.0	0.7
Quality improvement	88.6	9.3	2.1
Professional development	87.9	9.3	2.9
Nurses as teachers	86.4	11.4	2.1
Image of nursing	83.6	14.3	2.1
Autonomy	82.1	15.7	2.1
Consultation and resources	80.7	16.4	2.9
Interdisciplinary relationships	80.7	16.4	2.9
Professional models of care	78.6	17.9	3.6
Community and the hospital	75.0	20.0	5.0
Organizational structure	73.6	24.3	2.1
Quality of nursing leadership	72.1	25.0	2.9
Management style	70.7	26.4	2.9
Personnel policies and programs	56.4	42.9	0.7

Former RN Findings

Over one third of former RN respondents were hired during the Magnet Designation/Re-Designation periods. Their responses showed nearly 25% perceived Magnet designation was important or very important in their recruitment and retention.

Nursing leadership, professional development, and location were forces that greatly influenced RN decisions to join JAHVH. Nearly one quarter of separated nurses sited Magnet status as important in both recruitment and retention.

Half of former RNs agreed that 13 of 14 Forces of Magnetism were present throughout the development of the JAHVH as a Magnet facility. However, more than 50% of former RNs did not perceive that managers involved staff at all levels of the organization.

The average current age of formerly employed RNs who responded to the survey was 48.7 years. These nurses had an average of 15.5 years of experience at the time they were hired by JAHVH. Additionally, the average amount of time worked at JAHVH was 3 years. This was the only value that seemed to diverge substantively from the median value of one year of employment at JAHVH. This may be due to bias from respondents who worked more years at JAHVH (e.g., maximum value of 20 years).

RNs who separated from the hospital because of retirement were excluded from the sample. This may have biased the sample towards persons who were not employed as long as the typical RN population.

Almost 40% of the survey participants fell within the age range of 40 to 49. Another 28% are currently 50 to 59 years old. Only 16.4% of the sample was under 40 years old, which is the same percentage of those who are over 60 years. Over fifty percent (54.1%) of the RNs had a Bachelor's degree when they began their employment at the hospital. This number reduced to 39.3% at the time of departure. This decrease coincided with an almost 15% increase in the number of RNs who had a master's degree. The number of former RNs with diploma and associate's degrees stayed constant.

Table 18 shows the distribution of survey respondents according to their era of initial hire. These time periods correspond to the eras developed from the Journey to Magnet Status focus groups to describe JAHVH's organizational development into a facility meriting Magnet Designation. The survey participants were fairly evenly distributed between the time periods.

Table 19 shows the distribution of participants according to the era in which they stopped working at JAHVH. These time periods also correspond to the eras developed from the focus groups. Over fifty percent of the respondents (52.5%) left the facility in the last four years during the Magnet Designation and Re-Designation Application era. Twenty-five percent left JAHVH during the Magnet Application era from 1999 to 2000. This may be due to the probability that the contact information for the RNs who more recently separated from JAHVH was more accurate. It may have been harder to reach former RNs initially hired in the pre-Magnet era since they may have moved.

TABLE 18
ERA OF INITIAL HIRE FOR FORMER RNS

Era of Initial Hire	%
Pre-Magnet: Hospital and Nursing Development & Readiness for Magnet Application (1972 to 1999)	34.4
Magnet Application (1999 to 2000)	26.2
Magnet Designation & Re-Designation Application (2001 to present)	34.4
Undetermined era of initial hire	4.9
Total	100.0

TABLE 19
ERA OF DEPARTURE FOR FORMER RNS

Era Stopped Working at JAHVH	%
Pre-Magnet: Hospital and Nursing Development & Readiness for Magnet Application (1972 to 1999)	19.7
Magnet Application (1999 to 2000)	24.6
Magnet Designation & Re-Designation Application (2001 to present)	52.5
No answer	3.3
Total	100.0

The survey asked how important several factors were in the respondent's decision to work at JAHVH. Participants were allowed to rate them as "very important," "important," "of less importance" or "does not apply," Table 20 displays the results for this question.

TABLE 20
RATINGS OF IMPORTANT RECRUITMENT FACTORS FOR FORMER RNS

	Very Important	Important	Of Less Importance	Does Not Apply	No Answer	Total
Recruitment Factors	%	%	%	%	%	%
Benefits	73.3	21.7	3.3	1.7	1.7	100.0
Schedule/hours	59.0	32.8	6.6	1.6	0.0	100.0
Salary/pay	55.7	36.1	6.6	1.6	0.0	100.0
Location	39.3	34.4	21.3	4.9	0.0	100.0
Nursing leadership	38.3	33.3	18.3	10.0	1.7	100.0
Professional development	31.1	45.9	14.8	8.2	0.0	100.0
Hospital leadership	26.7	36.7	23.3	13.3	1.7	100.0
Co-workers	21.7	53.3	18.3	6.7	1.7	100.0
Education benefits	21.7	41.7	28.3	8.2	1.7	100.0
Other Factors	18.0	1.6	3.3	8.2	68.9	31.1
Magnet Status	10.3	13.8	48.3	27.6	4.9	100.0

A majority of respondents (73.3%) rated benefits as a very important factor in their decision to work at JAHVH. The next most important factor was schedule/hours (59.0%), and over half of the participants stated that salary/pay was an important factor (55.7%). Location and nursing leadership were also ranked as very important by almost forty percent of the respondents (39.3% and 38.3%, respectively).

Table 21 displays the combined percentages for recruitment factors ranked as very important and important by survey participants. Benefits, schedule/hours and salary/pay were the top three recruitment factors with over 90% of respondents marking each of these factors as very important or important. Professional development, location and co-workers were also important recruitment factors with 77%, 73.8%, and 73.8% of participants, respectively, marking these factors as very important or important. All factors except for Magnet Status and Other were marked as very important or important by 60% or more of the respondents.

TABLE 21
IMPORTANT RECRUITMENT FACTORS: FORMER RNS

Recruitment Factors	Very Important/Important
	%
Benefits	95.1
Schedule/hours	91.8
Salary/Pay	91.8
Professional development	77.0
Location	73.8
Co-workers	73.8
Nursing leadership	70.5
Hospital leadership	62.3
Education benefits	62.3
Magnet Status	22.9
Other Factors	19.7

Survey participants were also asked to list the top three factors influencing their decision to work at JAHVH. Benefits, salary/pay, and schedule/hours remained the three most important recruitment factors for formerly employed RNs. Benefits received the most responses for the most important factor (32.8%) and came in second for the second most important factor (29.5%) and third for the third most important factor (14.8%). Salary/pay received the second most responses for the first and third most important factors (21.3% and 16.4%, respectively), and came in first for the second most important factor (34.4%). Schedule/hours came in first as the third most important recruitment factor (26.2%).

Table 22 displays the combined percentages for the retention factors ranked as very important and important by survey participants. Consistent with recruitment factor results, salary/pay, schedule/hours and benefits were the top three retention factors with over 80% of respondents marking each of these factors as very important or important (i.e., 82.0%, 82.0% and 80.3%, respectively). Co-workers, professional development, location and nursing leadership were also important recruitment factors with over 60% of participants marking each these factors as very important or important.

TABLE 22
RATINGS OF RETENTION FACTORS: FORMER RNS

Retention Factors	Very Important	Important	Of Less Importance	Does Not Apply	No Answer	Total
	%	%	%	%	%	%
Salary/pay	66.7	24.5	5.3	3.5	7.1	100.0
Benefits	66.1	23.2	3.6	7.1	8.2	100.0
Schedule/hours	65.5	25.5	3.6	5.4	10.9	100.0
Location	32.7	40.0	20.0	7.3	10.9	100.0
Nursing leadership	36.4	34.5	12.7	16.4	10.9	100.0
Co-workers	32.7	40.0	16.4	10.9	10.9	100.0
Hospital leadership	31.5	31.5	18.5	18.5	12.7	100.0
Education benefits	27.3	36.4	23.6	12.7	10.9	100.0
Professional development	29.1	45.5	12.7	12.7	10.9	100.0
Other	9.8	1.6	4.9	47.5	36.1	63.9
Magnet Status	7.5	18.9	39.6	34.0	13.1	100.0

Table 23 shows combined percentages for the recruitment and retention factors rated as very important and important by the Former RN survey respondents. Differences reflect any changes in the number of respondents who rated the factor as very important or important. Salary/pay had the largest change with almost 15% fewer participants marking it as a very important or important retention factor than as a recruitment factor. Benefits, schedule/hours and location also experienced a change of 9.8%. All of these changes were negative so fewer participants rated these factors as important for retention as they did for recruitment.

Survey participants were also asked to list the top three factors influencing their decision to remain working at JAHVH. Salary/pay, benefits and schedule/hours remained the three most important retention factors for formerly employed RNs. Salary/pay was ranked first for the first most important factor in retention of formerly employed RNs with 31.1%. It came in second for the second most important factor and third for the third most important retention factor. The benefits category was ranked second for the first and third most important factors (18.0% in each category). For the second most important retention factor, benefits received the highest number of responses (31.1%). Schedule/hours was ranked first for the third most important retention factor category (26.2%).

**TABLE 23
COMBINED RECRUITMENT AND RETENTION FACTORS: FORMER RNs**

Recruitment Factors	Very Important/Important	Retention Factors	Very Important/Important	Difference
	%		%	
Benefits	95.1	Salary/pay	82.0	- 9.8
Schedule/hours	91.8	Schedule/hours	82.0	- 9.8
Salary/Pay	91.8	Benefits	80.3	- 4.8
Professional development	77.0	Co-workers	68.9	- 4.9
Location	73.8	Professional development	67.2	- 9.8
Co-workers	73.8	Location	65.6	- 8.2
Nursing leadership	70.5	Nursing leadership	63.9	- 6.6
Hospital leadership	62.3	Education benefits	57.4	- 4.9
Education benefits	62.3	Hospital leadership	55.7	- 6.6
Magnet Status	22.9	Magnet Status	22.9	0
Other Factors	19.7	Other	11.5	- 8.2

The survey also included a question regarding the reason(s) that former RNs separated from JAHVH. Table 24 displays the combined percentages for the separation factors ranked as very important and important by survey participants. Salary/pay was the top separation factor with 47.5% of the respondents marking it as very important or important. Nursing leadership, other factors, and schedule/hours were the next most important separation factors according to the number of participants rating them as very important or important. Unlike the recruitment and retention factor sets of questions, there was not as widespread agreement about important separation factors.

TABLE 24
SEPARATION FACTORS RANKED IMPORTANT: FORMER RNS

Separation Factors	Very Important/Important %
Salary/pay	47.5
Nursing leadership	39.3
Other	36.1
Schedule/hours	36.1
Co-workers	34.4
Location	34.4
Professional development	34.4
Hospital leadership	27.9
Family relocation	21.3
Retirement	19.7
Benefits	18.0

Former RN perceptions of the Forces of Magnetism at JAHVH are displayed in Table 25. With the exception of one of the forces of magnetism—management style—50% or more of the survey respondents responded that all of the forces were present at JAHVH when they worked at the facility. The Forces of Magnetism receiving the highest presence ratings included: nurses as teachers (82.0%), consultation and resources (75.4%), image of nursing (73.8%), professional development (73.8%), quality of care (72.1%), and autonomy (70.5%).

TABLE 25
PRESENCE OF FORCES OF MAGNETISM: FORMER RNS

Forces of Magnetism	Present %	Not Present %	No answer %	Total %
Nurses as teachers	82.0	14.8	3.3	100.0
Consultation and resources	75.4	19.7	4.9	100.0
Image of nursing	73.8	21.3	4.9	100.0
Professional development	73.8	23.0	3.3	100.0
Quality of care	72.1	23.0	4.9	100.0
Autonomy	70.5	24.6	4.9	100.0
Interdisciplinary relationships	68.9	27.9	3.3	100.0
Quality improvement	68.9	27.9	3.3	100.0
Professional models of care	65.6	29.5	4.9	100.0
Community and the hospital	62.3	26.2	11.5	100.0
Personnel policies and programs	55.7	41.0	3.3	100.0
Organizational structure	50.8	42.6	6.6	100.0
Quality of nursing leadership	50.8	45.9	3.3	100.0
Management style	47.5	47.5	4.9	100.0

IX

Findings: Costs & Benefits of Magnet Status

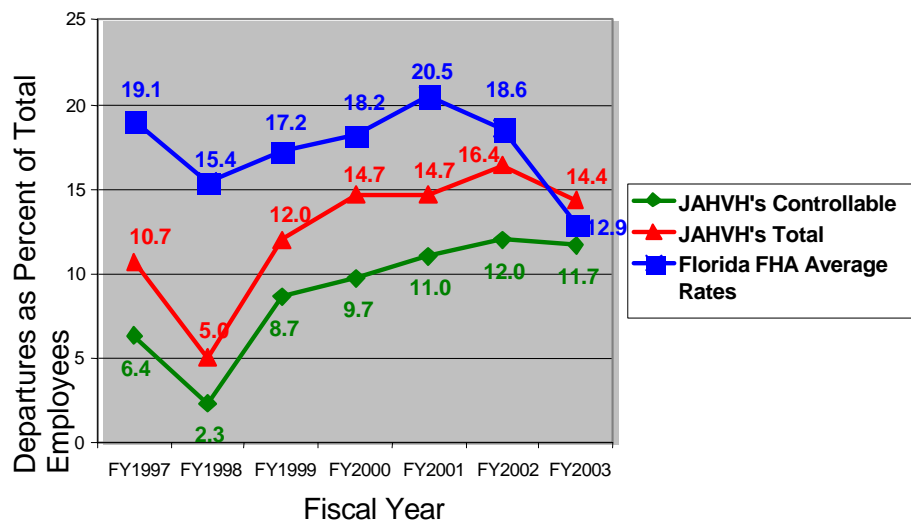
RN Turnover Rates

Although the study period would ideally be longer, our estimation of hospital-based, direct care RN turnover rates is limited to fiscal years 97 to 03. These rates are derived from nursing data that describe controllable and uncontrollable losses. Data on nursing losses were adjusted for newly created positions due to program expansions and confounding name changes over time in the payroll data. These adjusted data differ from payroll estimates in Appendix I. Finally, these RN losses are represented as a percentage of total FTEEs in the hospital in Figure 8.

From FY 97 through FY 03, the Florida Hospital Association's (FHA) estimate of private sector turnover rates across the state exceeded those of JAHVH. This positive outcome is consistent with Magnet literature – relatively better retention rates in the local market. However, we cannot estimate the direct benefit of these differences. We turned to the indirect assessment of turnover costs and offsetting benefits of professional publications and improvements in nurse-sensitive outcomes.

FIGURE 8

**JAHVH RN Turnover Rate by Fiscal Year:
Compared to Florida Hospitals**

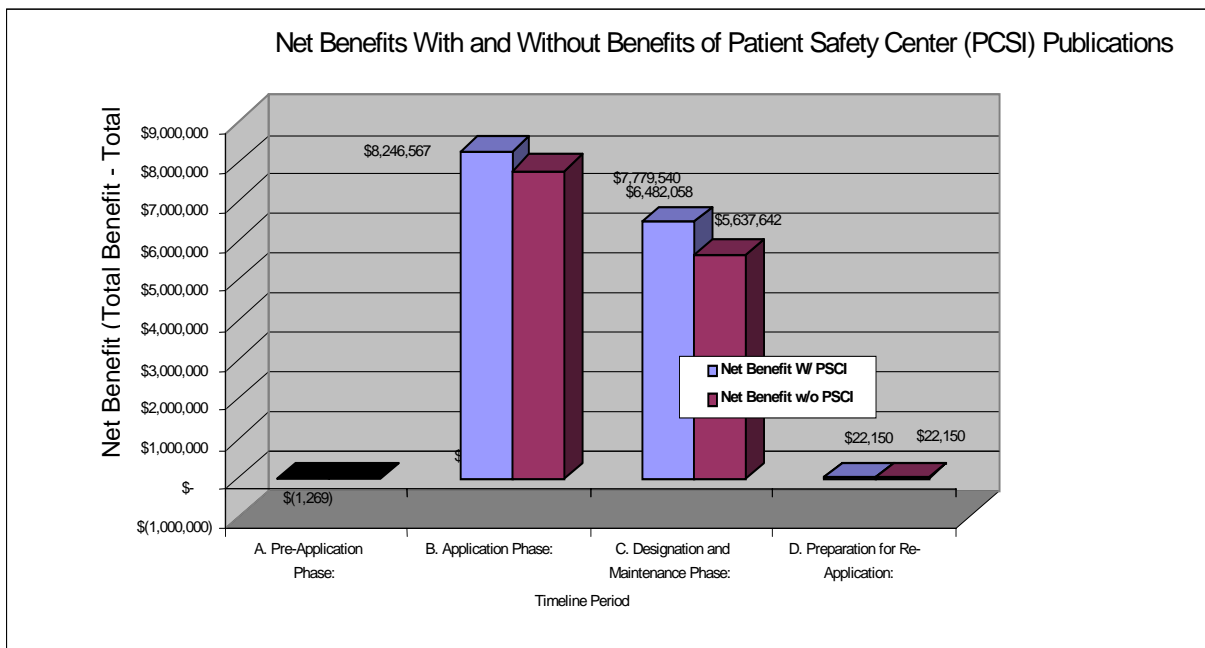


Net-Benefits of Magnet Designation

Net-benefit analysis findings are displayed in Appendix J. Costs of approximately \$144,413 are associated with the Magnet designation processes since 1995 through the majority of FY 03. In this case study, estimated benefits from Magnet-aspired activities from all phases include: improved retention rates, expected versus actual turnover costs, professional publications and improved patient care. Because many hospitals' nursing services will not have a research center serving as a resource and generating professional publications, we have analyzed publications with and without the VISN 8 Patient Safety Center list of publications (Figure 9).

In the Pre-Application phase, negative benefits are estimated from the projection of turnover costs that are larger than expected. Overall, the publication benefits that begin to be seen in the Application phase do not offset the turnover costs. In fact, higher than expected turnover costs for JAHVH from 1998 through 2003 override the benefits gained from publications. However, the inclusion of estimated benefits from improved nursing care, through examination of nurse-sensitive outcomes provides sufficient benefits to overcome the disbenefits of estimated nurse turnover costs exceeding expected values.

FIGURE 9



Costs of Each Period

Costs of Magnet designation or maintenance dominate any offsetting benefits in the early phases, as expected (Figure 10). These expenditures include preparation of the application and maintenance efforts. Such activities were retrospectively described in detailed micro-costing methods. Costs were either retrieved or similar current costs applied and deflated to the appropriate year.

FIGURE 10

		Total Costs =>	\$144,413
<u>Costs, by Designation Phase:</u>			
		START	STOP
A. Pre-Application Phase:		FY95	FY98
1. Review of Process (cost of meeting each stnd)	\$	1,269	\$1,269
2. Evidence Collection (cost of meeting each stnd, and Nurse-sensitive Dx)	\$	-	
3. Review & Preparation of Org Overview (cost of meeting each stnd)	\$	-	
4. Review & Preparation of Application Forms	\$	-	
5. Review & Preparation for Site Visit (cost of preparing for visit)	\$	-	
6. Review & Preparation for Announcement	\$	-	
7. Review & Preparation for Maintenance	\$	-	
8. Review & Preparation for Re-Application	\$	-	
9. Turnover in Patient Care Nurses	\$	-	
10. New Positions - Nursing Administration	\$	-	
B. Application Phase:		FY99	FY00
1. Review of Process (cost of meeting each stnd)	\$	5,312	\$55,589
2. Evidence Collection (cost of meeting each stnd, and Nurse-sensitive Dx)	\$	7,838	
3. Review & Preparation of Org Overview (cost of meeting each stnd)	\$	4,643	
4. Review & Preparation of Application Forms	\$	19,286	
5. Review & Preparation for Site Visit (cost of preparing for visit)	\$	10,762	
6. Review & Preparation for Announcement	\$	7,576	
7. Review & Preparation for Maintenance	\$	173	
8. Review & Preparation for Re-Application	\$	-	
9. Turnover in Patient Care Nurses	\$	-	
10. New Positions - Nursing Administration	\$	-	
C. Designation and Maintenance Phase:		FY01	FY03
1. Review of Process (cost of meeting each stnd)	\$	-	\$87,555
2. Evidence Collection (cost of meeting each stnd, and Nurse-sensitive Dx)	\$	2,371	
3. Review & Preparation of Org Overview (cost of meeting each stnd)	\$	-	
4. Review & Preparation of Application Forms	\$	-	
5. Review & Preparation for Site Visit (cost of preparing for visit3)	\$	2,969	
6. Review & Preparation for Announcement	\$	-	
7. Review & Preparation for Maintenance	\$	56,954	
8. Review & Preparation for Re-Application	\$	4,955	
9. Turnover in Patient Care Nurses	\$	-	
10. New Positions - Nursing Administration	\$	20,305	
D. Preparation for Re-Application:		FY04	FY05
1. Review of Process (cost of meeting each stnd)	\$	-	TBD
2. Evidence Collection (cost of meeting each stnd, and Nurse-sensitive Dx)	\$	-	
3. Review & Preparation of Org Overview (cost of meeting each stnd)	\$	-	
4. Review & Preparation of Application Forms	\$	-	
5. Review & Preparation for Site Visit (cost of preparing for visit)	\$	-	
6. Review & Preparation for Announcement	\$	-	
7. Review & Preparation for Maintenance	\$	-	
8. Review & Preparation for Re-Application	\$	-	
9. Turnover in Patient Care Nurses	\$	-	
10. New Positions - Nursing Administration	\$	-	

Benefits of Each Period

Benefits of Magnet designation were explored for each period and derived from either (a) the estimate of the value of a recognized beneficial activity (e.g., professional publication), or (b) the estimates of an expected cost for a Nursing Service activity versus the actual expenditure. Our approach isolated fiscal year costs and related benefits in an effort to

attribute the benefits to each major phase of the Magnet journey. Figure 11 identifies benefits by designation phase.

With this analysis, it was clear that Magnet's benefit estimations are driven by a single factor—turnover cost-savings. That is, turnover is estimated to be more costly than expected and the cost-savings are not realized. The JAHVH turnover costs are not offset by the publication benefits alone, but are negated with the benefits of improved nurse-sensitive outcomes are included.

FIGURE 11

		with Florida RETENTION RATE MODEL	
		Total Benefits w/ PSCI =>	\$14,893,919
PSCI Difference => \$	1,333,593	w/o PSCI =>	\$13,560,326

Benefits, by Designation Phase:

		FISCAL YEARS			
		START	STOP	Total w/PSCI	Total w/o PSCI
A. Pre-Application Phase:		FY95	FY98	\$0	\$0
1. Visibility from and Contributions to Professional Publications	\$			-	-
2. Nurse-Sensitive Outcomes Health Care Cost Savings	\$			-	-
3. Recruitment and Retention Savings	\$			-	-
4. Other	\$			-	-
				\$	\$
B. Application Phase:		FY99	FY00	\$ 8,302,156	\$ 7,835,129
1. Visibility from and Contributions to Professional Publications				\$ 552,080	\$ 85,053
2. Nurse-Sensitive Outcomes Health Care Cost Savings	\$	(4,784,485)			
3. Recruitment and Retention Savings	\$	12,534,561			
4. Other	\$			-	-
	\$			-	-
C. Designation and Maintenance Phase:		FY01	FY03	\$6,569,612	\$5,725,196
1. Visibility from and Contributions to Professional Publications				\$ 2,577,220	\$ 844,416
2. Nurse-Sensitive Outcomes Health Care Cost Savings	\$	(34,801)			
3. Recruitment and Retention Savings	\$	4,027,193			
4. Other	\$			-	-
	\$			-	-
D. Preparation for Re-Application:		FY04	FY05	\$22,150	\$0
1. Visibility from and Contributions to Professional Publications	\$			-	-
2. Nurse-Sensitive Outcomes Health Care Cost Savings	\$			-	-
3. Recruitment and Retention Savings	\$			-	-
4. Other	\$			-	-
	\$			-	-

Actual versus Expected Costs of RN Turnover

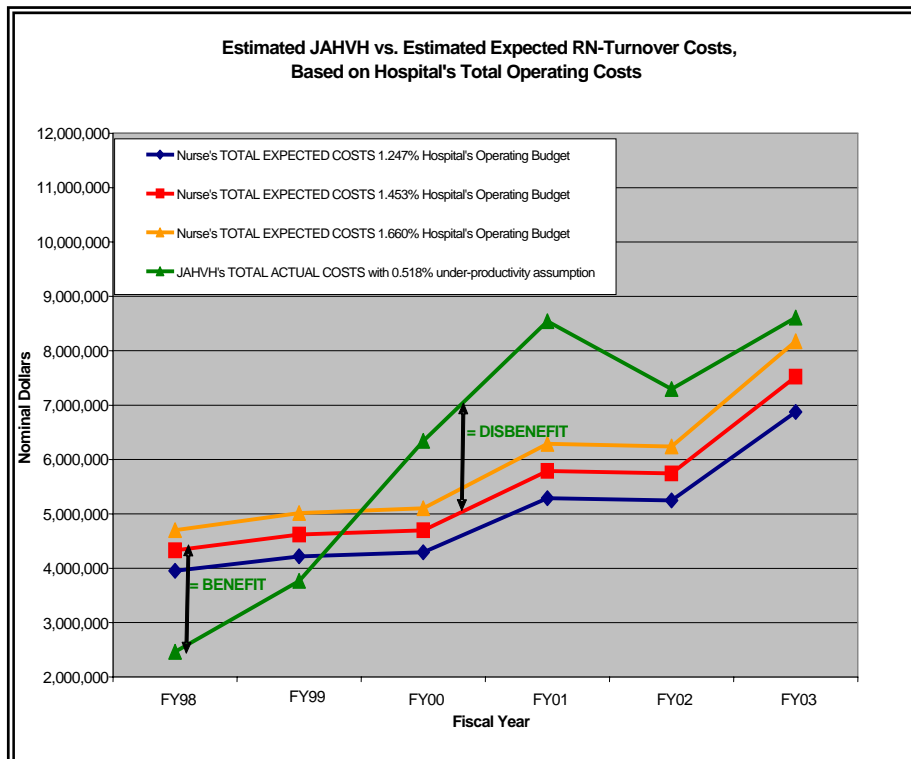
Reduced turnover rates are expected to result in cost-savings that lead to improved care for veterans. The assessment of the intangible benefit of reduced nursing turnover required identifying a method to estimate the expected turnover expenses to be compared to the actual estimated expenses.

We found that publication of turnover expenses is rare and wide variations in calculations of nursing turnover costs in the healthcare industry. However, we developed two models: (1) one based on an academic hospital in New Mexico using the hospital's total operating costs as the anchor point, (Waldman, et al, 2004); and (2) a proportional cost-to-retention rate model. Waldman's model provides a flexible alternative to estimating turnover costs, but is an approach that does not take into consideration the local market. The second model for estimated turnover costs is based on Florida Hospital Association averages, which is a local-market based alternative. Both approaches require specific assumptions.

In using Waldman's approach to estimate the expected RN-turnover costs for an academic hospital, we implicitly assumed: (1) Changes in bed-size, patient demand and complexity are similar and reflected in the hospital's total operating costs each year; and (2) Non-linearity in turnover costs related to changes in new RN hires is reflective of non-linearity in the hospital's total operating costs.

Using Waldman et al.'s model for estimating turnover costs and the hospital's total operating budget as an anchor, the actual JAHVH turnover expenses were estimated through retrospective record review and estimates of nursing data for RNs (excluding new hires) at actual payroll remuneration grade levels. These data are shown for FY 98 through 03 in Figure 12.

FIGURE 12



JAHVH estimated RN turnover expenses are shown in green, and the comparator expected values in red, with variation above and below. The \$2.4 million for 15 new-hires in FY 97 (\$164,370 each) grows to \$8.6 million for 43 individuals in FY 03, or \$200,221 per person. These RN estimated turnover costs are more than twice the popular RN turnover rates quoted in the nursing literature. While in FY 98 and FY 99 a cost-savings is apparent, this is not true in the subsequent four years, when new hires continue to increase annually.

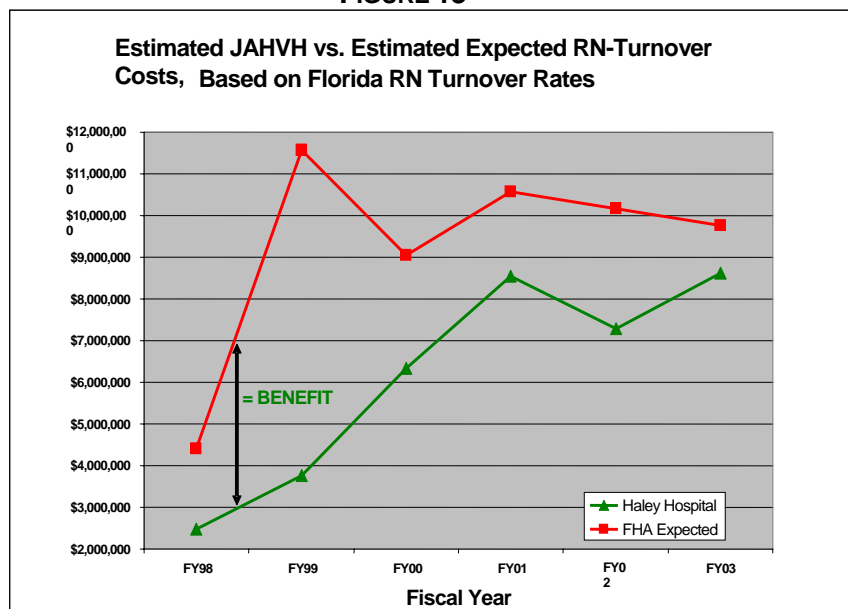
Further examination shows that the number of newly hired RNs at JAHVH and their remuneration-based opportunity costs does not drive RN turnover costs. Instead, it is the number of repetitions in the orientation program (26 per year) and the total opportunity costs of multiple speakers at these 10-day sessions of 7-hour days that drive these amounts.

The benefits calculated by the difference between JAHVH estimated costs and an expected RN turnover derived by proportion of total operating costs (adapted from Waldman, 2004) are benefits for FY 98 and FY 99, but become disbenefits in FY 00 through FY 03. This may represent differences between the academic medical center in New Mexico and JAHVH. The comparability of the calculations, given the constraints of Waldman's published report, may be driving differences as well. Given these caveats, an alternative estimation was in order.

As an alternative, we examined the relationship of JAHVH turnover rates and Florida Hospital Association (FHA) turnover rates shown in Figure 8. The strength of this FHA model is that only JAHVH estimated turnover costs are used. Therefore, we prefer this method for estimating expected RN turnover costs at JAHVH.

The relative ratio of the RN-retention rates (FHA average rate/ JAHVH rate per fiscal year) is multiplied by JAHVH costs for each year to project the expected Florida-based, RN turnover costs. The difference between JAHVH's estimate and this market-based expected value represents the benefit (or disbenefit) that we are attributing to Magnet status. This comparison is displayed in Figure 13.

FIGURE 13



Again, since this estimated benefit is based on JAHVH's estimated RN turnover costs as it is projected to the Florida market-based expectation, this amount is enhanced by a more local valuation. The comparison is for RN new hires, excluding new positions created as a result of organizational growth. These estimated market-relative benefits from FY 98 through FY 03 are carried forward into the net-benefit. Our definition of turnover rates is consistent with the FHA calculations. However, flaws with this comparative approach include the lack of data regarding nurse staffing levels, hospital bed-sizes, patient days, patient complexity and the institution's casemix. Additionally, just as it is difficult to compare the New Mexico academic medical center in Waldman's case study with the JAHVH, the Florida Hospital Association data includes private sector hospitals that are also difficult to compare with a veterans' hospital.

RN Professional Publications

VHA nurses are expected to contribute to professional publications and incentives are in place to encourage this contribution to the nursing profession. We summarized all professional publications, and valued them at the same rate per page as a nursing employment advertisement in the same research or practice journal. The productivity of the VISN 8 Patient Safety Center of Inquiry (PSCI) is incorporated into our analysis as well. However, provisions are made so that both the JAHVH nurses' and the PSCI investigators' products can be included as a benefit in the final analysis (Figure 9).

Improved Nurse-sensitive Outcomes

As discussed above, the JAHVH hospital's performance in nurse-sensitive patient outcomes was compared to similar (MCG7) hospitals in VISN 8 and across the nation. There are several indications of improved care at JAHVH as compared to other VISN 8 (n=2) and all other (n=22) MCG7 hospitals. Only the NSODx data documenting an improved (lower) rate of NSO adverse events by JAHVH as compared to the VISN8 MCG7 counterparts (n=2) were used to generate benefit estimates.

For selected nurse-sensitive outcomes (NSO), which have been associated with nurse staffing levels and are considered by many as clearly related to nursing care quality, (i.e., Urinary Tract Infections (UTI), Pressure Ulcers (PU), Deep Vein Thrombosis (DVT) and Pneumonia (PN)), the rates of events are crucial to patient safety. Among the MCG7 VHA hospitals, we compared JAHVH's experience annually, and for the period of FY '99 through FY '03 with that of other MCG7 institutions in VISN8 (n=2 facilities) and across the nation (n=22 facilities).

Table 26 displays these outcomes for Urinary Tract Infections (UTI), the number of patients without and with the adverse event of an iatrogenic UTI during the hospitalization, and the rates per 1,000 discharges. Comparisons to the VISN 8 and nation's MCG7 hospitals' experience are made by Chi-square statistics comparing the relative risk ratios between JAHVH and the comparator groups. We purposefully chose this conservative test to compare to admissions of similar DRG, diagnostic codes and age (+/- SD with mean of 61.5) to define a non-adversely affected population at each institution, because these are counts of binary events, not continuous measures. Comparison against all admissions not adversely affected, would be a much more liberal and inaccurate test. Even with this more rigorous comparison, for UTI, all contrasts within individual years and the FY 99 to FY 03 period, find significant differences relative to the MCG7 VISN 8 and national hospitals. In all years, JAHVH's rate is higher than its

counterparts in its own marketplace of VISN 8. JAHVH's rates are also higher than the national averages. An estimate of benefits gained is not made in the case of UTIs.

Similar comparisons were made for Pressure Ulcers, Deep Vein Thrombosis (Appendix K) and Pneumonia (Appendix L). For Pressure Ulcers, JAHVH's experience is significantly lower, than its VISN 8 counterparts in FY 99, FY 00, FY 02 and the FY 99 to FY 03 period comparisons. The national comparisons find JAHVH quite similar in adverse event rates, except in FY 02, when JAHVH is lower. When the nurse-sensitive condition is Deep Vein Thrombosis, significant differences in the rate of occurrences are found only at the national level, and in FY 02 and FY 03. Although the rates are considerably smaller (6.7 to 8.9 per 1,000 discharges for JAHVH, as compared to 7.2 to 8.6 for the VISN 8 counterparts, the small samples of this rare event render the test inconclusive. The same is true of the national comparison, when the rates are very similar to JAHVH's. Among cases with iatrogenic Pneumonia, significant difference in rates is seen in one yearly and the period comparisons. Again, JAHVH's rates are less than VISN 8 counterparts, while similar to the national comparison group's rates. Overall, when the national MCG7 hospitals are all (n=23, including JAHVH) considered, the rates of adverse nurse-sensitive events per 1,000 admissions are: 45.97 for UTIs, 13.51 for PUs, 9.16 for DVTs and 21.90 for PN. When rates of occurrence are statistically different, our benefit analysis, based on healthcare costs savings, can be implemented.

TABLE 26

Improved Care & Patient Safety from Magnet-associated Improved Inpatient Care through Better Nurse-Sensitive Outcomes (NSO)								
Iatrogenic Urinary Tract Infection (UTI) in non-SCI Patients			FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY99 to FY03
Cell Value	#	Group						
Number of discharges with NSD event	1	James A. Haley	490	504	487	524	549	2,554
	2	MCG7s in VISN8 (n=2)	591	569	596	678	682	3,116
	3	<i>Haley vs. Other VISN 8 MCG7 hospitals</i>	<i>p < 0.025</i>	<i>p < 0.025</i>	<i>p < 0.05</i>	<i>p < 0.10</i>	<i>p < 0.10</i>	<i>p < 0.005</i>
	4	MCG7 w/o JAH (n=22)	6,656	6,851	6,950	7,087	6,975	34,519
	5	<i>Haley vs. All MCG7 w/o Haley</i>	<i>p < 0.025</i>	<i>p < 0.01</i>	<i>p < 0.025</i>	<i>p < 0.001</i>	<i>p < 0.025</i>	<i>p < 0.001</i>
Number of discharges at risk for adverse event **	6	James A. Haley	8,123	8,159	8,127	8,935	9,052	42,396
	7	MCG7s in VISN8 (n=2)	14,130	13,030	13,369	13,628	13,943	68,100
	8	MCG7 w/o JAH (n=22)	151,465	155,385	154,734	23,671	148,350	764,063
Rate of adverse events per 1000 discharges	9	James A. Haley	60.3	61.8	59.9	58.6	60.6	60.2
	10	MCG7s in VISN8 (n=2)	41.8	43.7	44.6	49.8	48.9	45.8
	11	<i>Haley vs. Other VISN 8 MCG7 hospitals</i>	<i>p < 0.025</i>	<i>p < 0.025</i>	<i>p < 0.05</i>	<i>p < 0.10</i>	<i>p < 0.10</i>	<i>p < 0.005</i>
	12	MCG7 w/o JAH (n=22)	43.9	44.1	44.9	299.4	47.0	45.2
	13	<i>Haley vs. All MCG7 w/o Haley</i>	<i>p < 0.025</i>	<i>p < 0.01</i>	<i>p < 0.025</i>	<i>p < 0.001</i>	<i>p < 0.025</i>	<i>p < 0.001</i>

From: NET BENEFIT SPREADSHEET 8.6.04 modified 10.25.04 6.50 PM.xls: K. NURSE-SENSITIVE OUTCOMES, \$s

For the selected nurse-sensitive outcomes (NSO), which are iatrogenic complications appearing after the admission, including: Urinary Tract Infections (UTI), Pressure Ulcers (PU), Deep Vein Thrombosis (DVT) and Pneumonia (PN), the difference in lengths of stay for these admissions is a measure of healthcare efficiency, with resource consumption implications. To avoid bias in this length of stay comparison and others, admissions of longer than 365 days were omitted. Average ages of both groups in every comparison were not statistically different. The entire group of 23 MCG7 (academic Medical centers with complex cases) across the VHA system generated 2,869,194 such admissions, with adverse NSO events occurring, on average in 2 of every one hundred admissions.

In Appendix M we display the comparison of lengths of stays for discharged admissions where an iatrogenic adverse event took place, and the non-adverse comparison cases. The latter are admissions with the same secondary diagnosis as those at JAHVH. As in the Needleman study, admissions include those where these nurse-sensitive complications are not the primary diagnosis, and occur well after the admission date. The iatrogenic adverse event is generally agreed to be one that is a benchmark of quality nursing care. Note in the table that for UTI, the admission with an adverse event is 2 to 3 times longer than one with no adverse event. This is true for both the Tampa facility and those of the comparison MCG7 groups at the VISN 8 or national level. It is nearly true for all four nurse-sensitive conditions. These differences in length of stay are statistically different in every comparison. Therefore, JAHVH's admissions are handled more efficiently – shorter lengths of stay, which should translate into a cost-savings – a Magnet benefit.

Our goal was to determine the avoided cost-of-care at JAHVH for the adverse events that would have occurred if the JAHVH rate were that of its market counterparts in VISN 8. This is only reasonable if the rates, described above, are significantly different from the VISN 8 market counterparts for the FY 99 to FY 03 period, using. That is the situation for: UTIs, PUs, and PN, but not for DVTs. However, UTIs are found to exhibit higher rates at JAHVH as compared to the VISN MCG7 hospitals.

By comparing the difference between the VHA estimated expenditures for JAHVH's adverse and non-adverse admissions in the three NSO conditions which are significantly different at the FY 98 to FY 03 study period, we obtain an average cost-savings per admission for each adverse and non-adverse NSODx at JAHVH. The difference is the avoided amount, which is in turn multiplied by JAHVH's expected admissions per fiscal year, but at the VISN 8 utilization rate in each specific condition. Thus, we obtain the avoided cases at JAHVH's expense difference -- the avoided healthcare expenditures - a healthcare cost-savings – that is considered a Magnet benefit. This concept is shown in Figure 14.

FIGURE 14

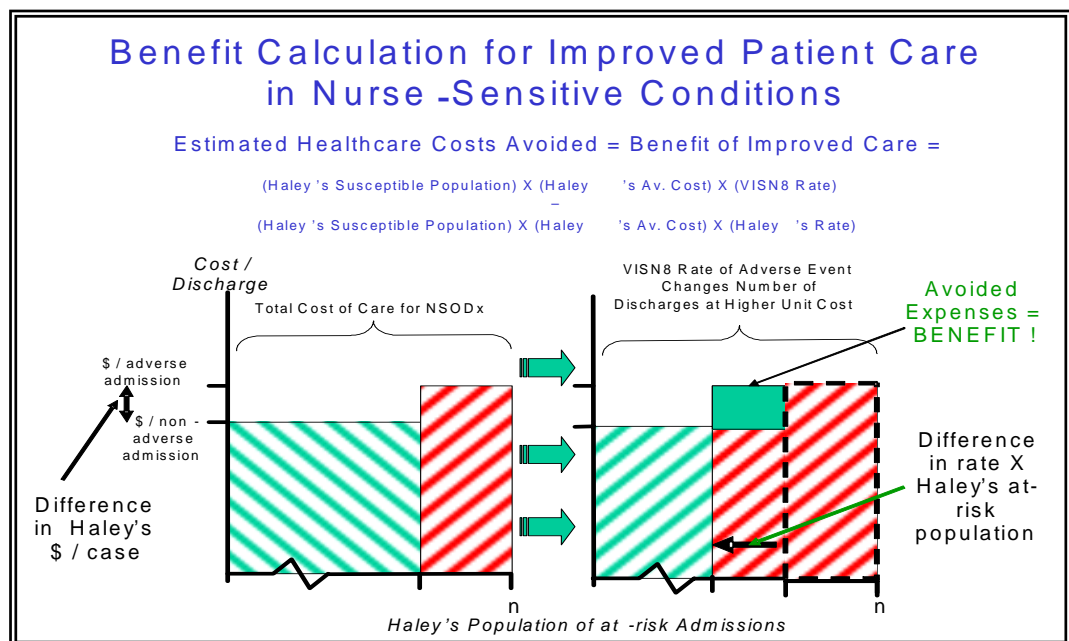


Table 27 displays the estimated healthcare cost-savings for FY 99 through FY 03 gained by improved rates of nurse-sensitive outcomes among specific iatrogenic conditions that appear after admission and are deemed by the literature (Needleman et al., 2002) to be the clinical effect of more attentive, better educated and better trained nursing staff. Over the entire period of FY 99 to FY 03, approximately a minus \$2,197,375 is incurred in patient care expenditures, because the gains from JAHVH's Pressure Ulcers and Pneumonia advantageous rates are more than offset by the disadvantageous rates for Urinary Tract Infections. Appendices N and O provide detailed comparisons of costs of care for nurse sensitive outcomes.

**TABLE 27
COST-SAVING BENEFITS FROM IMPROVED NURSE-SENSITIVE OUTCOMES**

Fiscal Year	1999	2000	2001	2002	2003	FY99 to FY03
NSODx: Urinary Tract Infection (UTI)						
Haley's Adverse NSO Costs/adm	\$21,588	\$23,723	\$31,312	\$30,357	\$31,388	\$27,769
Haley's Non-Adverse NSO Costs/adm	\$10,223	\$11,368	\$11,721	\$11,987	\$12,623	\$11,615
VISN8 MCG7 Rate /1000 admissions	41.8	43.7	44.6	49.8	48.9	45.8
Haley's Rate /1000 admissions	60.3	61.8	59.9	58.6	60.6	60.2
Haley's At-risk population	8,123	8,159	8,127	8,935	9,052	42,396
Total HealthCare Savings	-\$1,707,562	-\$1,825,023	-\$2,442,938	-\$1,460,050	-\$1,993,520	-\$9,920,867
NSODx: Pneumonia (PN)						
Haley's Adverse NSO Costs/adm	\$28,679	\$38,164	\$42,859	\$44,348	\$32,665	\$38,634
Haley's Non-Adverse NSO Costs/adm	\$10,299	\$11,347	\$12,015	\$12,130	\$12,947	\$11,790
VISN8 MCG7 Rate /1000 admissions	31.2	32.1	33.9	33.6	34.1	26.2
Haley's MCG7 Rate /1000 admissions	27.4	26.8	29.4	25.6	27.2	21.6
Haley's At-risk population	7,760	7,953	7,868	8,733	8,705	41,019
Total HealthCare Savings	\$532,450	\$1,136,994	\$1,102,133	\$2,248,130	\$1,182,070	\$5,058,841
NSODx: Pressure Ulcers (PU)						
Haley's Adverse NSO Costs/adm	\$28,217	\$31,905	\$30,401	\$31,039	\$29,947	\$30,244
Haley's Non-Adverse NSO Costs/adm	\$13,893	\$15,287	\$15,888	\$17,039	\$17,901	\$16,039
VISN8 MCG7 Rate /1000 admissions	22.8	24.0	21.4	21.2	15.6	21.1
Haley's MCG7 Rate /1000 admissions	14.8	13.2	16.1	10.6	10.3	12.9
Haley's At-risk population	4,515	4,555	4,474	4,735	4,832	23,111
Total HealthCare Savings	\$512,926	\$817,568	\$344,673	\$706,133	\$306,565	\$2,664,651
Total NSO Healthcare Savings	-\$662,187	\$129,539	-\$996,131	\$1,494,214	-\$504,885	-\$2,197,375



Discussion and Recommendations

Discussion

This unique case study describes the Magnet experience at the James A. Haley Veterans' Hospital and associated costs and benefits of Magnet designation. Three approaches were taken to obtain this information: (1) Focus groups with key informants; (2) Surveys of nurses; and (3) A short-term economic analysis. The following is a discussion of overall findings, limitations that were identified during the course of the study, and future recommendations.

JAHVH's Magnet Experience

We recognized that the Magnet journey begins decades before official designation. A purposeful organizational transformation led to the evolution of a Magnet culture at JAHVH. Key informant focus groups provided critical information to delineate the historical context and development of JAHVH as a Magnet hospital. Qualitative findings from focus group interviews led to creation of a "Journey to Magnet Status Timeline," which detailed six major eras of organizational development. In our case, a cultural transition emerged in the 1980's. During that time, hospital and nursing leaders embraced change and accelerated the development of innovative programs and policies that supported nurses.

Consistent with literature about Magnet hospitals, the JAHVH has historically maintained a distinct department of Nursing. In the 90's, the Head Nurse title was changed to Nurse Manager, validating the significance and responsibilities of this leadership role. Additionally, the Chief Nurse was formally designated as the Associate Chief of Staff for Nursing, underscoring her role as a key member of the hospital quadrad and ensuring that nursing issues and priorities were made explicit at the highest level of the organization.

In the late 90's, the JAHVH received various awards and national recognition for excellence in patient care (e.g., Clinical Programs of Excellence, CARF accreditation, President's Quality Award). Also during this time, the nursing research program at JAHVH rose to national prominence, with an exponential increase in funded grants under the visionary leadership of the Associate Chief of Nursing Research. All of these milestones contributed to a collective sense of pride and confidence to apply for Magnet designation, which was awarded in 2001. In 2002, the nursing organizational structure began to transition to a shared governance model, to further increase staff nurse involvement in organizational decision-making.

These key milestones and changes occurred at JAHVH during a period of extraordinary organizational growth. Various powerful influences impacted the hospital during this time, including dramatic increases in workload, budget constraints, and a nursing shortage.

The “Forces of Magnetism” were used as a framework for RN Retention and Recruitment Surveys, which were distributed to current and former RNs (net response rates 28% and 25%, respectively). Current and former RNs consistently identified benefits, salary/pay, and schedule/hours at the most important factors that influenced their recruitment and retention at JAHVH. As expected, survey findings indicated that many of the fourteen “Forces of Magnetism” are present at JAHVH. As our Magnet culture continues to evolve, it is expected that these intangible benefits will become more prominent and exert an even greater influence on nursing and patient outcomes.

Costs and Benefits of Magnet Designation

According to our short-term net-benefit analysis, Magnet designation at the Tampa VA Hospital was economically beneficial within four years. We did not expect that benefits would outweigh costs as early as four years after designation. For fiscal years 1998 through 2003, the organization’s net-benefit from Magnet designation is estimated as an economic benefit of \$14,749,506, or \$2.46 million on average annually, unadjusted for inflation.

There are many benefits that are economically meaningful to the institution and Nursing Service that we have not captured. Our estimates suggest that RN turnover costs exceeded expected values by one method of estimation (based on total operating cost), but indicated positive benefits using a second method (based on proportional turnover rates published by the Florida Hospital Association). The latter estimates were selected over the former to be consistent with other comparisons in the benefit analysis that are market-based. Magnet hospitals consistently demonstrate reduced turnover rates and the Tampa VA Hospital, despite intense competition resulting from the nursing shortage, experienced lower RN turnover rates than the mean of its regional market.

The findings that JAHVH’s RN hiring and turnover expenses exceeded the method of estimation based on total operating costs and popular nursing industry RN turnover rates, suggest that this is an area for improved management of resources. However, it is important to caution that these are opportunity cost estimates, not managerial costs.

Estimated cost-savings related to healthcare expenditures from improved nursing care provided considerably large direct economic benefits to JAHVH in two of three nurse-sensitive patient outcomes. The rates of lower adverse nurse-sensitive outcomes in two diagnoses (iatrogenic pressure ulcers and pneumonia) and the lengths of stay for these cases confirmed improved nursing care at JAHVH. However, the organization’s experience with iatrogenic urinary tract infections (UTIs) was negative when compared to similar VHA academic hospitals within VISN 8. Our criterion to examine and include estimated benefits, or disbenefits, mandated the inclusion of these disbenefits associated with higher than regional market counterparts’ rates of iatrogenic UTIs at the JAHVH across the entire study period. Thus, the overall benefits detected for considerably improved care by comparison to VHA peer facilities within the local market in iatrogenic pressure ulcers and pneumonia were more than offset by this disbenefit.

Again, this finding offers an additional area of future focus for JAHVH's nursing leadership, given the importance to patients' health and safety and the impact on the hospital's ability to serve additional populations.

Limitations

The following *limitations* were identified during the course of this study:

- 1) Valid and reliable administrative data before 1997 was not available.
- 2) The JAHVH achieved Magnet Status in 2001; while this is adequate time to assess direct costs, it is insufficient time to assess long-term benefits.
- 3) Data from this report reflect RNs in acute care at Corporate Tampa, and do not reflect other nursing personnel (LPN, NA, and APN) or other clinical sites, such as the Nursing Home. However, data collection includes Orlando and other clinics affiliated with the Tampa VA.
- 4) This project received approval from the hospital's Research and Development Committee. However, the Committee did not permit inclusion of demographic data on surveys of current RNs, as a protection of the anonymity of respondents.
- 5) Hospitals define variables differently, making comparisons with the Florida Hospital Association and similar VA medical centers more difficult.
- 6) No industry standard exists to accurately predict the cost of nursing turnover.
- 7) Waldman et. al's model (2004) for estimating hospital turnover costs appears to be the only serious attempt to account for the complex factors associated with healthcare worker turnover. However, this sophisticated approach does not account for all variables that affect turnover costs. Nonetheless, we applied this model to our data because it provides an evidence-based approach that is reproducible. In addition to many other confounding factors that were not examined, a profound difference between Waldman's academic medical center and our VA hospital is that our operating budget includes physician salaries. This factor will cause the model to over predict expected turnover cost.
- 8) For comparisons of nursing turnover costs within our market, we attempted to obtain nursing turnover data from two comparable hospitals in VISN 8; however, this data was not available.
- 9) This project relied heavily on retrospective data available in existing VA databases. For example, we used VHA databases to acquire information related to four Nurse-sensitive outcomes. It may be difficult to accurately establish the date of onset of these patient outcomes because of coding variances. These variances may over- or under-represent rates when making comparisons with other facilities.

- 10) It was necessary to eliminate some nurse-sensitive patient outcome measures because we did not have valid and reliable retrospective data over the entire period of study.
- 11) We could not calculate costs for several key variables, (e.g., nursing occupational injuries, patient falls, and medication errors), based on the quality of data or changes in practices over time (e.g., BCMA).
- 12) Recall bias was a limitation in evoking information relative to specific aspects of applying for Magnet status and in identifying milestones for the Magnet timeline.

Recommendations

The following recommendations are provided for further evaluation of the costs and benefits of Magnet designation:

- 1) Further refinement of this analysis and continued maintenance of databases are critical to ensuring accurate decision-making regarding the value of ANCC Magnet designation, or the effort to achieve it. The analysis would be improved by VHA-wide estimates of several critical components of the calculation, especially retention rates, new hire rates, departure rates, average salary and fringe rates, all by position grade and category.
- 2) Areas that need additional investigation include: (1) Retrospective personnel recruitment data to extend the historical impact assessment; (2) improved estimation of nurse recruitment and orientation economic expenses; and (3) addition refinement of the attribution of costs associated with new hires and attributed to Magnet, and the impact of increased enrollment of veterans and increase scope of nursing responsibility.
- 3) Continued research regarding the valuation of absenteeism among nurses in a team-oriented work environment, and the extent and value of under-productivity among newly hired nurses are both important.
- 4) Investigations should be accomplished on the broader range of nurse skill levels as represented by the position and grade designations for Nursing Assistants, Licensed Practical Nurses, Registered Nurses and Advanced Practice Nurses. The interactive, team-structured work environment suggests an interdependency and added value to magnetism characteristics that is missed when the investigation is focused solely on RNs.
- 5) Further assessment of the economic costs and benefits of Magnet designation in other healthcare sectors (e.g., private, not-for-profit hospitals) is required for comparison to this case study of one VA hospital.
- 6) Because of the lack of evidence-based methods for calculating turnover costs, we strongly recommend further research to accurately evaluate and project nurse turnover expenditures.

- 7) In our case, a scarcity of documented publicity events related to Magnet designation revealed the importance of designing a prospective framework for future collection of these items.
- 8) Given the limitations imposed on this analysis by our retrospective effort in a single healthcare institution, we strongly urge others to use the Magnet Toolkit product developed in the process of our effort to gain insights and to provide a mechanism for prospective data collection.

XI

Dissemination Plan

Findings from this project will be disseminated to VHA's Office of Nursing Services to provide resources and practical tools to enhance VHA planning and participation in the ANCC Magnet Recognition Program. Additionally, findings from this Magnet Business Case project will be presented at the VHA National Nurse Executive Council on November 19, 2004.

Products are designed to guide nurse leaders in their journey to Magnet. The Magnet Tool Kit includes a cluster of products for nurse leaders and others interested in Magnet designation. The Toolkit includes sample forms, worksheets and a multimedia presentation describing the steps in the Magnet application process. Additionally, a Cost-Benefit Spreadsheet is designed to assist Nurse Executives in tracking costs and benefits on an ongoing basis.

Further plans for publishing and presenting findings from this case study are depicted in Table 28.

TABLE 28
DISSEMINATION PLAN: PUBLICATIONS AND PRESENTATIONS

Topic/Title	Presentation/ Publication	Forum	Date/Location
Magnet Business Case Final Report	Presentation	Cathy Rick, Chief Nursing Officer of VHA and National Nurse Executive Council Veterans' Health Administration Nurse Executives	November, 2004 Denver, CO
Development of a Business Case for Magnet Designation in the Veterans' Health Administration	Publication	Journal of Nursing Administration	To be announced
Development of a Nurse Retention/Recruitment Survey to Assess Forces of Magnetism	Presentation	VA HSR&D national meeting	February 16-18, 2005 Washington, DC
Documenting Organizational Change: Using Focus Groups to Reconstruct History at a VA Hospital	Poster Presentation	Society for Applied Anthropology	April 5-10, 2005 San Antonio, TX
Outcomes of a Business Case for Magnet Designation in VHA	Poster Presentation	AONE Conference	April 15-19, 2005 Chicago, IL
Overview of a Business Case for Magnet Designation	Poster Presentation	Forum on Healthcare Leadership	October , 2004 Nashville, TN
Net-Benefit of ANCC Magnet Journey to James A. Haley Veterans' Hospital	Publication	Nursing Economic\$	To be announced
Comparison of Nurse-Sensitive Outcomes in Magnet and non-Magnet Hospitals	Publication	Nursing Research	To be announced
A Magnet Toolkit for Nurse Leaders	Presentation	National Association for Health Care Quality	September, 2005 New Orleans, LA
Applying the "Forces of Magnetism" to Continuing Education	Publication	Journal of Continuing Education	To be announced
Charting the Cultural Transformation for Magnet Designation	Presentation	Florida Magnet Nursing Research Conference	February 3-4, 2005 Tampa, FL
Making the Case for Magnet Designation	Presentation	National Magnet Conference	October 26-28, 2005 Miami Beach, FL

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Appendix A

James A. Haley Veterans' Hospital Consent to Participate in a Research Study

Title of Study: Building a Business Case for Magnet Recognition in VHA

Project Director: Laureen Doloresco, MN, RN, CNAA-BC (813) 972-2000 x. 6056
Project Manager: Christine Melillo (813) 972-2000 x. 7406, Christine.Melillo@med.va.gov
Department: Nursing Research Mail Stop: 118

Purpose of Study

The goal of this project is to enhance VHA planning and participation in the Magnet Recognition program. The project will build a business case for Magnet designation in VHA that will include clinical, financial, and operational outcomes. As a part of the business case study, it is necessary to determine how the Tampa VA developed into an organization meriting Magnet Recognition. The participants in this study will identify key milestones in the development of James A. Haley Veterans' Hospital as a Magnet facility.

Duration and Location of the Study

Your participation in this study will require approximately one and a half hours of your time to participate in a focus group. The location of the focus group will be at the VA Patient Safety Center in Tampa, Florida.

Procedures

If you agree to participate in this study, the study investigators will ask you and the rest of the participants in the focus group questions about the development of the Tampa VA as a Magnet organization. You will be asked to place and write events on a timeline. You will have the choice not to answer any of the questions posed to the focus group, but your participation is encouraged.

Potential Risks

There are no anticipated risks from your participation in this study.

Benefits

There will be no direct benefits from your participation in this study. However, the information gathered from this study will be used in a toolkit for other VA Medical Centers applying and considering applying for Magnet designation. Additionally, you may gain a better understanding of the Tampa VA hospital's development into a Magnet organization.

Confidentiality

No identifying information will be attached to your responses. The responses of group participants will be collected as part of group data and will in no way be directly linked to an individual participant. Electronic transcriptions and notes containing your responses will be kept in password-protected files, and any paper copies of your responses and the consent forms will be kept in a locked area. The confidentiality of the informed consent forms shall be maintained unless otherwise required by law.

The information you give to us will be compiled with the transcripts and notes from two focus groups on the same topic, and will be used to summarize the information that was gathered from both focus groups and the email interviews. The results of the email interviews and focus groups will be used in a toolkit for other VA facilities applying for Magnet designation, will be

included in the report for a business case study of VA Magnet designation, and may appear in a publication.

Your participation in this interview is completely voluntary, and all attempts to preserve your confidentiality will be made. Because of the nature of this project, certain persons may be identified due to the nature of their roles in the events leading to the development of James A. Haley Veterans' Hospital's designation as a Magnet facility (e.g., hospital director). If at any time you wish to withdraw the information you contributed to this project, please contact Christine Melillo at (813) 972-2000 ext. 7406.

Payment for Participation

You will not be paid for your participation in this focus group.

Volunteering to be Part of this Research Project

You understand that your participation in this project is voluntary. You understand that you may withdraw from the study at any time without penalty or loss of services, to which you are otherwise entitled. You also understand that the investigator has the right to remove you from the study at any time.

Questions and Contacts

If you have any questions about this research project, you may contact Christine Melillo at (813) 972-2000 x7406 or Laureen Doloresco at (813) 972-2000 x6056.

Your Consent—By signing this form I agree that:

1. I have fully read or have had read and explained to me in my native language this informed consent form describing a research project.
2. I have had the opportunity to question one of the persons in charge of this research and have received satisfactory answers.
3. I understand that I am being asked to participate in research. I understand the risks and benefits, and I freely give my consent to participate in the research project outlined in this form, under the conditions indicated in it.
4. I have been given a signed copy of this informed consent form, which is mine to keep.

X _____
Signature of Participant

Printed Name of Participant

Date

Investigator Statement

I have carefully explained to the subject the nature of the above protocol. I hereby certify that to the best of my knowledge the subject signing this consent form understands the nature, demands, risks and benefits involved in participating in this study.

X _____
Signature of Investigator

Printed Name of Investigator

Date

Appendix B

Focus Group Introduction

Introduction (10 minutes)

Welcome and introduction of moderator and assistant moderator.

“Good afternoon and welcome to the session today. Thank you for taking the time to discuss your thoughts and opinions regarding floating among units. My name is _____ and I am the moderator for this focus group today. I am a (fill-in your title) _____. I would also like to introduce the other members of our team (fill-in names) _____, who will be assisting in this focus group today. I will be reading this introduction and the discussion questions. As we are conducting multiple focus groups on this topic, we want to be sure to say the same thing to each group.”

Overview of project, explanation of why you asked participants to be in focus group.

There are no RIGHT or WRONG answers to any of the questions. However, people may have different points of view. Please feel free to share your point of view even if it differs from what others have said. Please feel free to expand on what others have said. Persons may have different points of view, and we would like to hear these. We would like to hear from EVERYONE in the group. My role is to act as a facilitator. I will ask questions for the group to discuss.”

Establishment of ground rules & explanation of confidentiality

“Before we begin, let’s establish some ground rules to help this session run smoothly. We ask that only one person speak at a time, and to be allowed to finish his or her point before someone else speaks. We do not want to miss any of your comments.

To hear from everyone in the group, I may call on participants or use other techniques such as going around the table and asking each person to respond or having you write responses on index cards. I will use a flipchart and notes to gather information from the groups today. No identifying information will be attached any notes or other written materials collected in the groups today. Notes from these sessions will be kept in a locked area.

Please don’t discuss what was said during this discussion outside of the focus group. During the discussion, try to avoid referring to a person by name. Our goal is to preserve your confidentiality.

This session today will last approximately 1 hour. We will not take a formal break during the focus group. Feel free to get up at any time if you need to, but please do so quietly.

Please be sure to sign in before you leave today.

Summary results from today’s focus groups will be given to an evaluation team. Written transcripts of the notes from the focus groups will be compiled and used to summarize what was said across focus groups. No identifying information will be attached to either the notes or transcripts.

Let’s start by going around the table and having you tell us your first name and one place you have always wanted to visit. We will not start taking notes until after these introductions.

Ready, then let’s begin.”

Appendix C
Focus Group Email Interview

Dear <Participant's Name>,

February 17, 2004

Thank you very much for agreeing to participate in an email interview about the development of James A. Haley Veterans' Hospital as a Magnet facility. Your perspective on this issue is very important to us, so please respond to this email by **Friday, February 27, 2004**. If you have any questions about this email and the interview, please contact Christine Melillo at (813) 972-2000 ext. 7406 or Christine.Melillo@med.va.gov.

The purpose of this interview is to get your input about how the James A. Haley Veterans' Hospital evolved into a Magnet facility and the key milestones in its development as such. As a person who was involved in some way in the journey to Magnet status, your perspective is critical for us to identify these milestones.

This interview and two focus groups are being conducted as part of a larger project examining the costs and benefits of being a Magnet-designated facility. This project has been funded by the VHA Nursing Headquarters. Laureen Doloresco MN, RN, CNAA-BC, is the Project Director.

It is expected that responding to the questions in this email will take approximately one hour. There are no foreseeable risks to your participation in this project. There are no foreseeable direct benefits to your participation in this study. However, the information gathered through this project will be used to provide a toolkit to other VA hospitals considering applying for Magnet designation. You will not receive any payment for participating in this project.

We would like your perspective on how and when this facility became a Magnet facility. There are no RIGHT or WRONG answers to any of the questions. No identifying information will be attached to your responses. The emails containing your response will be kept in a password-protected file, and any paper copies of your response will be kept in a locked area.

The information you give to us will be compiled with the transcripts and notes from two focus groups on the same topic, and will be used to summarize the information that was gathered from both focus groups and the email interviews. The results of the email interviews and focus groups will be used in a toolkit for other VA facilities applying for Magnet designation, will be included in the report for a business case study of VA Magnet designation, and may appear in a publication.

Your participation in this interview is completely voluntary, and all attempts to preserve your confidentiality will be made. Because of the nature of this project, certain persons may be identified due to their roles in the events leading to the development of James A. Haley Veterans' Hospital's designation as a Magnet facility. If at any time you wish to withdraw the information you contributed to this project, please contact Christine Melillo at (813) 972-2000 ext. 7406.

By responding to this email, you are consenting that you have read and understood the information in this letter. You agree that you know whom to contact if you have any questions about the purpose of this email interview and the project. Additionally, you agree that you understand that you are being asked to participate in a research project, that you understand the risks and benefits, and you freely give your consent to participate in this project.

Thank you again for your interest and participation.

Sincerely,

Christine Melillo, BSN, RN, MPH
Project Manager
(813) 972-2000 ext. 7406

Please answer all of the following questions to the best of your ability and as thoroughly as possible.

1. Please indicate which of the years from 1989 to 2004 in which you were an employee or worked at the James A. Haley Veterans' Hospital (e.g., 1991 to 2002, 1989 to present).
2. In which position(s) did you work during that period?
3. Significant changes over time at JAHVH contributed to our hospital's readiness to apply for Magnet designation in 1999. Identifying major milestones in our journey may help other VA organizations planning to apply for Magnet status. In your opinion, what were the most important changes? When did they occur? Please write in the year (or range of years) that you remember these happening.

1989

1990

1991

1992

1993

1994

1995

1996

1997

1998 Approval to apply for Magnet

1999 Started application process

2000 Aug. 2000 Submitted application

2001 Jan. 2001 Site visit; March 2001 Notified of Magnet designation

4. There are several qualities that have been identified as being characteristic of a Magnet facility. I'm going to give you a brief description of each quality. How did JAH develop these characteristics? Please answer as many as you can.

Forces of Magnetism:

1 Quality of nursing leadership—Knowledgeable, strong nurse leaders are willing to take risks and advocate for their staff.

2 Organizational structure—Nursing departments are decentralized, with unit-based decision-making and strong nurse representation in committees throughout the organization. The nursing leader serves at the executive level of the organization.

3 Management style—Managers involve staff at all levels of the organization. Nurse leaders make an effort to communicate with staff, and staff members feel their opinions are heard and valued by management.

4 Personnel policies and programs—Salaries and benefits are competitive. Creative and flexible staffing, with staff involvement. Many opportunities for promotion, both in clinical and administrative areas.

5 Professional models of care—Nurses have responsibility, accountability and authority in their patient care. They coordinate their own care with support and proper resources from the organization.

6 Quality of care—Nurses believe that they are giving high-quality care to their patients, and that their organization sees high-quality care as a priority.

7 Quality improvement—Staff nurses participate in the quality improvement process and believe that it helps improve patient care within the organization.

8 Consultation and resources—Consultation, including advanced practice nurses and peer support, is available and used.

9 Autonomy—Nurses are allowed and expected to work autonomously, consistent with professional standards as members of a multidisciplinary team.

10 Community and the hospital—Hospitals maintain a strong community presence that includes a variety of long-term outreach programs.

11 Nurses as teachers—Nurses teach in all aspects of their practice.

12 Image of nursing—Nurses are seen as essential to the hospital's delivery of patient care.

13 Interdisciplinary relationships—Physicians, nurses, pharmacists, therapists and all other members of the health care disciplines treat each other with respect.

14 Professional development—Organizations emphasize orientation, inservice education, continuing education, formal education and career development.

5. In your opinion and experience, describe the tangible and intangible benefits of JAH VAMC becoming a Magnet facility.

Thank you very much for your participation!

Appendix D

Current RN Retention and Recruitment Survey

This is a simulated copy of the electronic version of the RN Recruitment and Retention Survey that is to be made available to all JAHVH RNs on the network drive.

Instructions: The purpose of this survey is to identify the most important factors influencing the retention and recruitment of RNs at the James A. Haley Veterans' Hospital (JAHVH). Your perspective as a current RN at JAHVH is very important to us. Please answer the questions as fully as possible. Answers should be based on your most recent employment with James A. Haley VA. Your response to this survey is confidential and your identity will not be linked with your responses. When you respond to this survey, investigators will only have an ID code to track duplicate submissions. This code is not used in any way to identify respondents or their email addresses. As per AFGE master agreement, participation in this survey is voluntary. If you have any questions about this survey, please contact Christine Melillo, RN, MPH at 972-2000 ext. 7406 or by email at Christine.Melillo@med.va.gov.

Recruitment and Retention

1. How important was each of the following items in your decision to work at JAHVH?

Table with 5 columns: Very Important, Important, Of Less Importance, Does Not Apply. Rows include Salary/pay, Benefits, Schedule/hours, Location, Co-workers, Education benefits, Professional development, Hospital leadership, Nursing leadership, Magnet Status, and Other.

2. If you marked 'Other' in the above question, please describe.

3. Please rank the top three items that influenced your decision to work at JAHVH by listing their assigned name from Question 1.

First _____ Second _____ Third _____

4. How important were each of the following items in your choice to continue working during your service at JAHVH?

Table with 5 columns: Very Important, Important, Of Less Importance, Does Not Apply. Rows include Salary/pay, Benefits, and Schedule/hours.

- d. Location
- e. Co-workers.....
- f. Education benefits.....
- g. Professional development..
- h. Hospital leadership.....
- i. Nursing leadership
- j. Magnet Status
- k. Other

5. If you marked 'Other' in the above question, please describe.

6. Please rank the top three items that influenced your decision to continue working at JAHVH by listing their assigned name from Question 4.

First _____ Second _____ Third _____

6. In 2001, JAHVH was the first Veterans' Hospital to receive Magnet designation. Recent research has identified several important factors in the retention and recruitment of RNs at Magnet facilities. These general organizational qualities are referred to as "Forces of Magnetism". Please mark whether these qualities are, in your opinion, currently present or not present at JAHVH using the drop down boxes provided.

	<u>Present</u>	<u>Not Present</u>
Quality of Nursing Leadership (Knowledgeable, strong nurse leaders are willing to take risks and advocate for their staff.)		
Organizational Structure (Nursing departments are decentralized, with unit-based decision-making and strong nurse representation in committees throughout the organization. The nursing leader serves at the executive level of the organization).....		
Management Style (Managers involve staff at all levels of the organization. Nurse leaders make an effort to communicate with staff, and staff members feel their opinions are heard and valued by management)		
Personnel Policies and Programs (Salaries and benefits are competitive. Creative and flexible staffing, with staff involvement. Many opportunities for promotion, both in clinical and administrative areas).....		
Professional Models of Care (Nurses have responsibility, accountability and authority in their patient care. They coordinate their own care with support and proper resources from the organization.).....		
Quality of Care (Nurses believe that they are giving high-quality care to their patients, and that their organization sees high-quality care as a priority)		
Quality Improvement (Staff nurses participate in the quality improvement process and believe that it helps improve patient care within the organization.)		
Consultation and Resources (Consultation, including advanced		

practice nurses and peer support, is available and used)		
Autonomy (Nurses are allowed and expected to work autonomously, consistent with professional standards as members of a multidisciplinary team)		
Community and the Hospital (Hospitals maintain a strong community presence that includes a variety of long-term outreach programs)		
Nurses as Teachers (Nurses teach in all aspects of their practice)		
Image of Nursing (Nurses are seen as essential to the hospital's delivery of patient care)		
Interdisciplinary Relationships (Physicians, nurses, pharmacists, therapists and all other members of the health care disciplines treat each other with respect.)		
Professional Development (Organizations emphasize orientation, in-service education, continuing education, formal education and career development.)		

8. Please share any other opinions or comments you have about RN retention and recruitment at JAHVH or this survey.

Appendix E RN Retention and Recruitment Survey

Instructions: The purpose of this survey is to identify the most important factors influencing the retention and recruitment of RNs at the James A. Haley Veterans' Hospital (JAHVH). Your perspective as a former RN at JAHVH is very important to us. Please answer the questions as fully as possible. Answers should be based on your most recent employment with James A. Haley VA. Your response to this survey is confidential and your identity will not be linked with your responses. If you have any questions about this survey, please contact Christine Melillo, RN, MPH at 972-2000 ext. 7406 or by email at Christine.Melillo@med.va.gov.

Career Information

1. What is your current age? _____

2. What was your highest educational degree achieved when **hired** at this VA?

- | | |
|--|---|
| <input type="checkbox"/> GED | <input type="checkbox"/> Master Degree |
| <input type="checkbox"/> High School Diploma | <input type="checkbox"/> PhD |
| <input type="checkbox"/> Associate Degree | <input type="checkbox"/> Other professional degree |
| <input type="checkbox"/> Diploma Degree | <input type="checkbox"/> N/A-no educational degree at the time of my hire |
| <input type="checkbox"/> Bachelor Degree | |

3. How many years experience did you have as a nurse when hired to serve at JAHVH? _____

Background Information

4. How many times have you been employed by JAHVH? _____

5. What year did you most recently start working at JAHVH? _____

6. During your most recent employment at JAHVH, what type of employment did you accept?

- Full-time Part-time PRN

7. During your most recent employment at JAHVH, in which bed section did you routinely work? (If you routinely worked in more than one bed section, please mark only the bed section you worked on most often.)

- | | | |
|---|--|---|
| <input type="checkbox"/> ER/ED | <input type="checkbox"/> SCI | <input type="checkbox"/> OR services |
| <input type="checkbox"/> Nursing Home | <input type="checkbox"/> Ambulatory Care | <input type="checkbox"/> Administration |
| <input type="checkbox"/> Psychiatry | <input type="checkbox"/> Rehabilitation | <input type="checkbox"/> Education |
| <input type="checkbox"/> Intensive Care | <input type="checkbox"/> Medical | <input type="checkbox"/> Surgical |
| <input type="checkbox"/> Other _____ | | |

8. What year did you most recently stop working at JAHVH? _____

9. What was your highest educational degree achieved when you left JAHVA?

- | | |
|---|--|
| <input type="checkbox"/> Associate Degree | <input type="checkbox"/> other Master Degree |
| <input type="checkbox"/> Diploma | <input type="checkbox"/> MD |
| <input type="checkbox"/> Bachelor Degree | <input type="checkbox"/> PhD |
| <input type="checkbox"/> Master Degree in Nursing | <input type="checkbox"/> Other professional degree |

Recruitment and Retention

10. How important was each of the following items in your decision to work at JAHVH?

	Very Important	Important	Of Less Importance	Does Not Apply
a. Salary/pay.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Benefits.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Schedule/hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Co-workers.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Education benefits.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Very Important	Important	Of Less Importance	Does Not Apply
g. Professional development.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Hospital leadership.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Nursing leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Magnet Status	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. If you marked 'Other' in the above question, please describe.

12. Please rank the top three items that influenced your decision to start working at JAHVH by listing their assigned name from Question 11.

First _____ Second _____ Third _____

13. How important were each of the following items in your choice to continue working during your service at JAHVH?

	Very Important	Important	Of Less Importance	Does Not Apply
a. Salary/pay.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Benefits.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Schedule/hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Co-workers.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Education benefits.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Professional development.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Hospital leadership.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Nursing leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Magnet Status	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. If you marked 'Other' in the above question, please describe.

15. Please rank the top three items that influenced your decision to continue working at JAHVH by listing

their assigned name from Question 14.

First _____ Second _____ Third _____

16. In 2001, JAHVH was the first Veterans' Hospital to receive Magnet designation from the ANCC. Several qualities have been identified as being important factors in the retention and recruitment of RNs at Magnet facilities. Please mark whether these qualities were present at JAHVH at the time of your most recent separation.

	<u>Present</u>	<u>Not Present</u>
Quality of Nursing Leadership (Knowledgeable, strong nurse leaders are willing to take risks and advocate for their staff.)		
Organizational Structure (Nursing departments are decentralized, with unit-based decision-making and strong nurse representation in committees throughout the organization. The nursing leader serves at the executive level of the organization).....		
Management Style (Managers involve staff at all levels of the organization. Nurse leaders make an effort to communicate with staff, and staff members feel their opinions are heard and valued by management)		
Personnel Policies and Programs (Salaries and benefits are competitive. Creative and flexible staffing, with staff involvement. Many opportunities for promotion, both in clinical and administrative areas).....		
Professional Models of Care (Nurses have responsibility, accountability and authority in their patient care. They coordinate their own care with support and proper resources from the organization.).....		
Quality of Care (Nurses believe that they are giving high-quality care to their patients, and that their organization sees high-quality care as a priority)		
Quality Improvement (Staff nurses participate in the quality improvement process and believe that it helps improve patient care within the organization.)		
Consultation and Resources (Consultation, including advanced practice nurses and peer support, is available and used)		
Autonomy (Nurses are allowed and expected to work autonomously, consistent with professional standards as members of a multidisciplinary team)		
Community and the Hospital (Hospitals maintain a strong community presence that includes a variety of long-term outreach programs)		
Nurses as Teachers (Nurses teach in all aspects of their practice)		
Image of Nursing (Nurses are seen as essential to the hospital's delivery of patient care)		
Interdisciplinary Relationships (Physicians, nurses, pharmacists,		

therapists and all other members of the health care disciplines treat each other with respect.)		
Professional Development (Organizations emphasize orientation, in-service education, continuing education, formal education and career development.)		

17. Please rate the reasons for your separation.

	<u>Very Important</u>	<u>Important</u>	<u>Of Less Importance</u>	<u>Does Not Apply</u>
a. Salary/pay.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Benefits.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Schedule/hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Co-workers.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Education benefits.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Professional development.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Hospital leadership.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Nursing leadership	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Retirement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Family illness.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Family Relocation.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Return to School.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. If you marked 'Other' in the above question, please describe.

19. Please rank the top three items that influenced your decision to separate from JAHVH by listing their assigned name from Question 18.

First _____ Second _____ Third _____

20. Please share any other opinions or comments you have about RN retention and recruitment at JAHVH or this survey.

Thank You Very Much for Your Participation!

Estimates Derived from Fiscal Service's Nursing Payroll Data FY 97 through FY 04

Exhibit 1 A: JAHVH New Nursing Hires by Fiscal Year

FISCAL YEAR HIRED (use FY98 - FY03)	1997	1998	1999	2000	2001	2002	2003	2004
	BASE							PARIAL
1 Nursing Assist 1	11							5
2 Nursing Assist 2	2	13	1	10	3	1	4	0
3 Nursing Assist 3	0	0	0	0	0	0	0	0
4 Nursing Assist 4	1	5	1	0	1	0	1	2
5 Nursing Assist 5	67	5	6	7	19	1	4	21
6 Nursing Assist 6	19	0	0	0	1	0	0	3
7 LPN 3	5	0	1	1	0	0	0	0
8 LPN 4	8	4	3	6	2	0	0	2
9 LPN 5	20	1	3	7	2	3	5	8
10 LPN 6	64	9	13	8	14	9	10	13
11 LPN 7	108	0	5	2	4	5	10	3
12 RN 1	0	0	0	0	0	0	0	0
13 RN 2	116	6	17	40	51	52	45	33
14 RN 3	253	28	27	49	57	30	38	30
15 RN 4	24	2	2	1	4	1	6	3
16 RN 5	0	0	0	0	0	0	0	0
17 Adv. Prac. Nurse 1	3	2	0	0	0	0	0	0
18 Adv. Prac. Nurse 2	0	2	1	0	0	0	0	0
19 Adv. Prac. Nurse 3	11	3	3	4	5	3	3	4
20 Adv. Prac. Nurse 4	0	0	0	1	0	0	0	1
TOTAL by FY		80	83	136	163	105	126	

NOTE: from: NEW HIRES.xls derived from: MAGNET ALL FY PERIOD w ADJCST DELETE TRACKING 10.10.04 11.59 AM.sav

Exhibit 1 B: JAHVH Nursing Losses by Fiscal Year

FISCAL YEAR DEPARTED (use FY98 - FY03)	1997	1998	1999	2000	2001	2002	2003	2004
	BASE							PARIAL
1 Nursing Assist 1	39							143
2 Nursing Assist 2	0	8	5	1	11	1	0	4
3 Nursing Assist 3	0	0	2	1	2	0	1	0
4 Nursing Assist 4	1	0	1	1	1	0	2	5
5 Nursing Assist 5	12	16	9	19	26	4	8	59
6 Nursing Assist 6	1	1	2	0	1	2	0	29
7 LPN 3	1	1	0	0	1	1	0	0
8 LPN 4	5	4	6	4	2	2	1	4
9 LPN 5	6	3	3	5	6	5	2	18
10 LPN 6	12	11	12	13	7	16	13	49
11 LPN 7	16	11	14	10	6	13	11	110
12 RN 1	0	0	0	0	0	0	0	0
13 RN 2	19	17	20	23	32	33	27	163
14 RN 3	37	24	40	44	48	47	34	310
15 RN 4	1	0	2	3	0	1	1	19
16 RN 5	0	0	0	0	0	0	0	0
17 Adv. Prac. Nurse 1	0	0	0	0	0	0	0	0
18 Adv. Prac. Nurse 2	0	0	0	0	0	1	0	2
19 Adv. Prac. Nurse 3	1	3	1	3	2	4	6	38
20 Adv. Prac. Nurse 4	0	0	0	0	1	1	0	5
TOTAL by FY		100	117	127	146	131	106	

NOTE: from: NEW HIRES.xls derived from: MAGNET ALL FY PERIOD w ADJCST DELETE TRACKING 10.10.04 11.59 AM.sav

Exhibit 1 C: JAHVH Direct Care FTEs Nursing Staff by Fiscal Year

SUM of Percent of FTE by Position, Grade & FY	1997	1998	1999	2000	2001	2002	2003
1 Nursing Assist 1	0.2	9.3	5.0	7.7	8.2	1.7	4.4
2 Nursing Assist 2	.	.	3.0	4.4	4.1	2.0	0.3
3 Nursing Assist 3	0.3	3.3	3.8	1.5	1.8	1.6	1.4
4 Nursing Assist 4	44.6	44.8	50.2	43.5	41.8	37.6	44.9
5 Nursing Assist 5	19.1	17.7	17.8	18.0	18.7	16.6	19.0
6 Nursing Assist 6	2.8	3.1	3.3	3.7	3.9	3.6	4.0
7 LPN 3	2.1	5.8	4.3	8.1	5.6	0.7	1.5
8 LPN 4	15.1	4.0	11.2	9.6	18.4	13.3	10.9
9 LPN 5	47.4	47.4	37.2	33.5	38.2	45.4	38.0
10 LPN 6	94.9	85.4	85.7	83.3	82.9	80.1	89.0
11 LPN 7	.	.	.	.	.	.	.
12 RN 1	79.9	68.3	63.2	59.9	81.3	86.5	107.8
13 RN 2	208.0	216.8	221.3	231.4	251.1	250.1	253.3
14 RN 3	20.9	10.1	9.3	8.3	12.1	13.2	13.6
15 RN 4	.	.	.	.	.	.	.
16 RN 5	.	.	.	.	.	.	.
17 Adv. Prac. Nurse 1	0.5	1.5	.	.	.	.	.
18 Adv. Prac. Nurse 2	.	2.0	5.7	3.3	2.1	2.4	2.0
19 Adv. Prac. Nurse 3	8.8	19.8	23.1	27.5	32.1	31.3	30.5
20 Adv. Prac. Nurse 4	.	2.0	2.0	3.0	3.5	3.3	4.0
Totals by Fiscal Year	545	541	546	547	606	589	625

NOTE: from FINAL NUM,HR,FTE,COST,ADJ RATE.xls and TEST CAPTURE DELETION OF RECORDS.spo using 142,679 records, for 6,920 lds.

Exhibit 1 D: Estimated Average Remuneration Rate in Haley Hospital

Patient-care Nursing Staff by Fiscal Year

Average Annual Actual Rate by Position, Grade & FY	1997	1998	1999	2000	2001	2002	2003
1 Nursing Assist 1	14,212	18,203	19,596	20,042	21,337	24,115	23,980
2 Nursing Assist 2	.	.	22,308	23,324	25,437	25,565	29,704
3 Nursing Assist 3	19,228	24,354	25,570	24,218	30,431	32,555	30,823
4 Nursing Assist 4	27,664	29,672	28,509	34,836	30,776	35,017	36,382
5 Nursing Assist 5	33,532	34,566	42,581	39,594	40,676	39,291	44,262
6 Nursing Assist 6	33,554	34,968	36,387	37,846	41,050	43,998	48,173
7 LPN 3	26,448	26,935	29,610	29,982	32,452	33,685	36,538
8 LPN 4	27,896	28,460	29,631	34,984	35,847	38,270	40,962
9 LPN 5	32,774	39,855	35,050	34,427	38,091	42,129	46,115
10 LPN 6	37,311	38,822	42,842	43,111	44,806	46,792	52,590
11 LPN 7	.	.	.	.	.	.	.
12 RN 1	45,883	49,634	53,069	52,682	53,477	57,949	59,701
13 RN 2	56,475	59,396	60,019	64,940	67,582	69,133	74,221
14 RN 3	65,500	66,613	71,868	74,784	77,908	81,362	87,907
15 RN 4	.	.	.	.	.	.	.
16 RN 5	.	.	.	.	.	.	.
17 Adv. Prac. Nurse 1	39,850	40,493	.	.	.	.	.
18 Adv. Prac. Nurse 2	.	60,200	60,984	67,236	72,357	72,332	79,510
19 Adv. Prac. Nurse 3	63,921	67,804	71,975	74,373	78,188	82,164	88,883
20 Adv. Prac. Nurse 4	.	73,724	79,057	82,082	85,629	91,294	97,037
Totals by Fiscal Year	524,247	693,701	709,057	738,462	776,044	815,651	876,790

NOTE: from FINAL NUM,HR,FTE,COST,ADJ RATE.xls and TEST CAPTURE DELETION OF RECORDS.spo using 142,679 records, for 6,920 lds.

Exhibit 1 E: JAHVH Estimated Total Annual Salary Expense for

Direct Care Nurses by Fiscal Year

SUM of TOTAL COSTS / FY by Position, Grade & FY	1997	1998	1999	2000	2001	2002	2003
1 Nursing Assist 1	28,423	309,446	156,768	280,590	362,722	72,344	143,882
2 Nursing Assist 2	.	.	89,230	139,942	127,184	51,130	29,704
3 Nursing Assist 3	19,228	121,772	127,848	48,436	91,293	65,109	92,470
4 Nursing Assist 4	1,853,518	1,631,983	1,710,547	2,055,327	1,815,787	1,470,720	1,891,849
5 Nursing Assist 5	637,107	622,195	809,033	712,683	772,835	707,245	840,986
6 Nursing Assist 6	167,771	139,872	145,550	189,230	164,200	175,990	192,692
7 LPN 3	185,133	296,280	266,489	389,766	227,167	67,371	73,076
8 LPN 4	557,914	199,223	444,472	664,695	788,629	765,408	655,398
9 LPN 5	1,966,413	2,431,152	1,927,775	1,652,510	1,980,736	2,612,008	2,444,093
10 LPN 6	3,992,235	3,688,085	4,198,480	3,966,201	3,942,950	4,304,858	5,364,192
11 LPN 7	.	.	.	.	.	.	.
12 RN 1	5,230,658	4,367,802	4,670,036	5,426,295	6,524,235	8,402,597	9,074,621
13 RN 2	14,288,198	15,086,674	15,545,016	18,313,158	20,612,435	20,601,534	22,340,372
14 RN 3	1,572,005	799,359	790,552	747,840	1,012,798	1,139,070	1,582,327
15 RN 4	.	.	.	.	.	.	.
16 RN 5	.	.	.	.	.	.	.
17 Adv. Prac. Nurse 1	119,550	121,479	.	.	.	.	.
18 Adv. Prac. Nurse 2	.	180,601	365,906	268,946	144,715	216,997	159,021
19 Adv. Prac. Nurse 3	703,128	1,559,483	1,727,405	2,305,565	2,814,762	2,875,741	3,288,676
20 Adv. Prac. Nurse 4	.	147,449	158,114	246,247	342,518	365,176	388,148
Totals by Fiscal Year	31,321,282	31,702,854	33,133,220	37,407,433	41,724,966	43,893,299	48,561,509

NOTE: from FINAL NUM,HR,FTE,COST,ADJ RATE.xls and TEST CAPTURE DELETION OF RECORDS.spo using 142,679 records, for 6,920 lds.

Appendix G

VHA Medical Center Groups

The nine Medical Center Groups used in the FY95 Target Allowance were created by the RPM Field Oversight Committee by combining the Planning Service's hospital groups with the Complexity Index rankings developed by the Management Science Group in Boston.

First, facilities were classified by the Management Decision Group in Boston into one of the six Planning Service mission categories. Facilities were then rank ordered within each of the six missions categories according to their Complexity Index value. Three categories, Core Level 2, Referral Level 1, and Referral Level 2, were considered to have too many hospitals for a group of peer facilities and were each divided in half, based on the mean Complexity Index rankings.

The RPM Field Oversight Committee then decided to move five facilities into different mission categories. Alexandria moved from Specialty Referral to Core Level 2. Biloxi was switched from Specialty Referral to Referral 1. Lebanon and Sheridan are now assigned to Specialty Referral 1 instead of Core Level 2 and Core Level 1, respectively. Walla Walla is now in Core Level 1 instead of Core Level 2. It was determined that the standard workload measures of these five facilities did not currently fix the characteristics of their originally assigned mission category. However, since the Planning Model points the direction the facilities should be going, there is the possibility that any of these five facilities may return to their original mission category in a year or two.

The resulting nine Medical Center Groups, MCG 0 through MCG 8, were then used in the development of the FY95 Target Allowance:

MCG 1: Core Level 1

MCG 2: Core Level 2

MCG 3: Core Level 2 – High Complexity

MCG 4: Referral Level 1

MCG 5: Referral Level 1 – High Complexity

MCG 6: Referral Level 2

MCG 7: Referral Level 2 – High Complexity

MCG 8: Specialty

MCG 0: IOPCs and Misc

MCG 1: Core Level 1

There are Core Level 1 facilities under the Planning Model with Complexity values ranging from 0 (the least complex facility) to 26. These RAM small general facilities treat the smallest percentage of HIV and transplant patients as compared to the other 7 inpatient groups. They treat the largest percentage of RSC and LTC patients, as well as nearly the largest percentage of CPG patients. They are among the smallest facilities, with hardly any teaching responsibilities, averaging only 1 resident.

MCG 2: Core Level 2

MCG 2 consists of those Core Level 2 facilities with Complexity values between 9 and 21. This group is similar to MCG 1 in many ways. MCG 2 is also made up of several small general hospitals but includes a few small affiliated and midsize general facilities. They treat small amounts of HIV and transplant patients as well, and treat higher percentages of RSC patients. Compared to the other 7 inpatient groups, MCG 2 treats the largest percentage of CPG patients. However, the main difference between MCG 1 and MCG 2 is that MCG 2 treat only a little more than half the percentage of LTC patients as MCG 1 does. These small hospitals tend to be affiliated, although they only average 7 residents.

MCG 3: Core Level 2 – High Complexity

These Core Level 2 facilities have Complexity Index values between 21 and 45. This group contains hospitals from four different RAM groups: small affiliated, small general, midsize affiliated and midsize general. They offer a range of services and are larger than those in MCG 1 and MCG 2, on average, but still have small teaching responsibilities, averaging 19 residents.

MCG 4: Referral Level 1

These facilities are designated Referral Level 1 with a Complexity Index value between 30 and 51. These facilities are either small affiliated facilities, midsize affiliated facilities, or midsize general hospitals, but tend to average more PRPs than MCG 3. They treat, on average, the highest percentage of non-bed patients among groups and the lowest percentages of RSC and CPG patients.

MCG 5: Referral Level 1 –High Complexity

These Referral Level 1 facilities have a Complexity Index value between 53 and 90. Facilities in this group were either midsize or metropolitan affiliated. These larger facilities treat, on average, the highest percentage of HIV patients, and the lowest percentage of CMI and LTC patients. This group handles total PRPs second only to MCG 7 and employs a large number of residents, also second only to MCG 7.

MCG 6: Referral Level 2

MCG 6 consists of those Referral Level 2 facilities with Complexity Index values between 38 and 63. These hospitals are predominantly midsize affiliated facilities with only a couple midsize general and metropolitan affiliated facilities. They treat the highest percentage of transplant patients and ESRD patients. MCG 6 facilities are slightly smaller, on average, than MCG 5 ones, and employ less residents.

MCG 7: Referral Level 2 – High Complexity

The remaining Referral Level 2 facilities, with Complexity values between 63 and 100 (the highest ranked facility), make up MCG 7. Over half of the facilities are metropolitan affiliated, with the rest members from the midsize affiliated group. These are the largest hospitals, treating the most PRPs and carrying very strong teaching responsibilities, averaging over 128 residents.

MCG 8: Specialty

These are Specialty Referral facilities. Their Complexity values range from 6 to 32. They are predominantly from the RAM psychiatric group, with a few midsize general facilities. They treat, on average, the largest percentage of CMI patients, and the second highest percentage of LTC

patients. They treat the smallest percentage of transplant, ESRD, and nonbed patients. These small psychiatric facilities average small numbers of PRPs and have small teaching responsibilities, with only 7 residents, both characteristics of which are lowest second only to MCG 1.

MCG 0: IOPCs and Misc

This last group is made up of Independent Facilities. These are all Independent Outpatient Clinics and the White City Domiciliary. A separate Outpatient Complexity Index was computed for these facilities, but the values are not equivalent to the ones for VAMCs.

Appendix H
Nurse-sensitive Outcomes Case Finding Algorithms
(Following the Needleman methodology)

Pressure Ulcers:

1. Exclude SCI patients (SCI=no)
2. Select admission source as "direct" (community) or outpatient facility "OPC"
3. Select cases of longer than 3 days (LOS ">3")
4. Exclusion criteria by condition: all skin disease (MDC 9 = DRG 257-284) and all plegias (ICD-9 342.0-092, 3431, 3432, 3441 and 344.0-.09). Plegias must also be excluded from the secondary diagnoses.

NOTE: This results in number of discharges at risk for adverse event.

5. Select those with PU in Secondary DX (Filter for 7070 or 6820 in secondary diagnoses).
6. Resulting records are national level data. Link also by parent stations to get only the MCG = 7 casemix group of hospitals MCG (facility names enclosed and in Access queries), VISN8 MCGs minus Tampa (Miami, N/FL S/GA HCS), and Tampa.

DVTs:

1. Exclude primary diagnosis of DVT/PE (use DXPRIME field) (ICD-9s 4151, 41511, 45111, 45119, 45181 and 4538). NOTE: This results in number of discharges at risk for adverse event.
2. Select cases with secondary diagnosis of DVT/PE, in step 1. (Filter for same ICD-9s in secondary diagnoses (use DX 2-DX 10 fields).
3. Resulting records are national level data. Link also by parent stations: MCG (facility names enclosed and in Access queries), VISN8 MCGs minus Tampa (Miami, N/FL S/GA HCS), and Tampa.

UTIs

1. Exclude primary diagnosis of UTI (MDC 11-15 = DRG 302-391). The remaining records had no pregnancy or abortion related ICD-9s. NOTE: This results in number of discharges at risk for adverse event.
2. Select cases with secondary diagnosis of UTI, in step 1. (Filter for ICD-9s 5990 and 99664 in secondary diagnose.)
3. Resulting records are national level data. Link also by parent stations: MCG (facility names enclosed and in Access queries), VISN8 MCGs minus Tampa (Miami, N/FL S/GA HCS), and Tampa

PNEUMONIA

1. Exclude MDC 4 cases from all the discharges (filter for the DRG field of the dataset for all DRG <75 and >102)
2. Exclude primary diagnosis of pneumonia ((use DXPRIME field to eliminate DXPRIME coded as 5070 or 514 or 9973.
3. Exclude secondary diagnosis (i.e. DX 2 through DX 10 coded with 480*, 481, 483*, 484*, 487*. Exclude AIDS patients (use DRG= 488 or 489 or 490)
4. Find all secondary diagnoses (use DX2 through DX 10 fields) of pneumonias that are coded as 5070, 9973, 514, 482*, 485*, 486*.

Appendix I
Haley Hospital Patient-care Nursing Staff by Fiscal Year

Number of Employees by Position, Grade & FY	1997	1998	1999	2000	2001	2002	2003
1 Nursing Assist 1	2	18	9	14	17	3	6
2 Nursing Assist 2	-	-	4	6	5	2	1
3 Nursing Assist 3	1	5	5	2	3	2	3
4 Nursing Assist 4	67	56	60	59	61	42	53
5 Nursing Assist 5	19	18	19	18	19	18	19
6 Nursing Assist 6	5	4	4	5	4	4	4
7 LPN 3	8	11	11	15	8	2	2
8 LPN 4	20	7	16	20	24	20	17
9 LPN 5	64	64	57	50	54	63	54
10 LPN 6	108	98	100	93	90	93	103
11 LPN 7	-	-	-	-	-	-	-
12 RN 1	116	93	90	108	130	147	156
13 RN 2	253	256	265	286	309	301	304
14 RN 3	24	12	11	10	13	14	18
15 RN 4	-	-	-	-	-	-	-
16 RN 5	-	-	-	-	-	-	-
17 Adv. Prac. Nurse 1	3	4	-	-	-	-	-
18 Adv. Prac. Nurse 2	-	3	6	4	2	3	2
19 Adv. Prac. Nurse 3	11	23	24	31	36	35	37
20 Adv. Prac. Nurse 4	-	2	2	3	4	4	4
Totals by Fiscal Year	701	674	683	724	779	753	783

NOTE: from FINAL_NUM,HR,FTE,COST,ADJ_RATE.xls and TEST_CAPTURE_DELETION_OF_RECORDS.spo using 142,679 records, for 6,920 lds.

Appendix J Net-Benefit Analysis

NET BENEFITS Analysis Concerning
Magnet Hospital Designation
for
James Haley Hospital
Tampa, Florida

Preliminary, Short-term Economic Impact Analysis *

NET BENEFIT = Gains from Magnet - Cost of Magnet => \$ 14,749,506 *

* includes estimated benefit values of publications from VISN 8 Patient Safety Center of Inquiry (PSCI) 1.3 million.

- COSTS include:**
- ✓ a. Fees for Magnet Application, Site visit, etc.
 - ✓ b. Costs of Meetings, Application Preparation, etc.
 - ✓ c. Additional Personnel to Maintain Designation

- BENEFITS include:**
- ✓ a. Recruitment and Retention Estimated Savings
 - ✓ b. Visibility from and Contributions to Professional Literature
 - ✓ c. Nurse-Sensitive Outcomes Savings in Healthcare Expenditures

Total Costs => \$ 144,413

Total Benefits => \$ 14,893,919

Costs, by Designation Phase:

	FISCAL YEARS START STOP		
<u>A. Pre-Application Phase:</u>	FY95 FY98	\$	1,269
<u>B. Application Phase:</u>	FY99 FY00	\$	55,589
<u>C. Designation and Maintenance Phase:</u>	FY01 FY03	\$	87,555
<u>D. Preparation for Re-Application:</u>	FY04 FY05	\$	-

Benefits, by Designation Phase:

	FISCAL YEARS START STOP		
<u>A. Pre-Application Phase:</u>	FY95 FY98	\$	-
<u>B. Application Phase:</u>	FY99 FY00	\$	8,302,156
<u>C. Designation and Maintenance Phase:</u>	FY01 FY03	\$	6,569,612
<u>D. Preparation for Re-Application:</u>	FY04 FY05	\$	22,150

Appendix K

Improved Nurse-Sensitive Outcomes, Healthcare Cost-savings Benefits – Deep Vein Thrombosis (DVT)

Improved Care & Patient Safety from Magnet-associated Improved Inpatient Care through Better Nurse-Sensitive Outcomes (NSO)								
Iatrogenic Deep Vein Thrombosis (DVT) in non-SCI Patients			FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY99 to FY03
Cell Value	#	Group						
Number of discharges with NSD event	1	James A. Haley	77	64	58	66	73	338
	2	MCG7s in VISN8 (n=2)	128	100	105	141	149	623
	3	<i>Haley vs. Other VISN 8 MCG7 hospitals</i>	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
	4	MCG7 w/o JAH (n=22)	1,219	1,484	1,495	1,606	1,727	7,531
	5	<i>Haley vs. All MCG7 w/o Haley</i>	n.s.	n.s.	n.s.	p < 0.001	p < 0.10	n.s.
Number of discharges at risk for adverse event **	6	James A. Haley	8,640	8,740	8,695	9,587	9,753	45,415
	7	MCG7s in VISN8 (n=2)	14,900	13,796	14,199	14,489	14,990	72,374
	8	MCG7 w/o JAH (n=22)	160,197	164,956	164,672	164,326	159,311	813,462
Rate of adverse events per 1000 discharges	9	James A. Haley	8.9	7.3	6.7	6.9	7.5	7.4
	10	MCG7s in VISN8 (n=2)	8.6	7.2	7.4	9.7	9.9	8.6
	11	<i>Haley vs. Other VISN 8 MCG7 hospitals</i>	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.
	12	MCG7 w/o JAH (n=22)	7.6	9.0	9.1	9.8	10.8	9.3
	13	<i>Haley vs. All MCG7 w/o Haley</i>	n.s.	n.s.	n.s.	p < 0.001	p < 0.10	n.s.

From: NET BENEFIT SPREADSHEET 8.6.04 modified 10.25.04 6.50 PM.xls: K. NURSE-SENSITIVE OUTCOMES, \$

Appendix L
Improved Nurse-Sensitive Outcomes, Healthcare Cost-savings Benefits – Pneumonia (PN)

Improved Care & Patient Safety from Magnet-associated Improved Inpatient Care through Better Nurse-Sensitive Outcomes (NSO)								
Iatrogenic Pneumonia (PN) in non-SCI Patients			FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY99 to FY03
Cell Value	#	Group						
Number of discharges with NSD event	1	James A. Haley	213	213	231	224	237	887
	2	MCG7s in VISN8 (n=2)	413	394	428	435	445	1,681
	3	<i>Haley vs. Other VISN 8 MCG7 hospitals</i>	n.s.	n.s.	n.s.	p < 0.10	p < 0.10	p < 0.05
	4	MCG7 w/o JAH (n=22)	4,034	3,964	4,051	3,441	3,314	15,718
	5	<i>Haley vs. All MCG7 w/o Haley</i>	n.s.	n.s.	n.s.	p < 0.001	n.s.	n.s.
Number of discharges at risk for adverse event **	6	James A. Haley	7,760	7,953	7,868	8,733	8,705	41,019
	7	MCG7s in VISN8 (n=2)	13,245	12,269	12,625	12,931	13,045	64,115
	8	MCG7 w/o JAH (n=22)	145,388	149,730	149,947	126,612	145,414	717,091
Rate of adverse events per 1000 discharges	9	James A. Haley	27.4	26.8	29.4	25.6	27.2	21.6
	10	MCG7s in VISN8 (n=2)	31.2	32.1	33.9	33.6	34.1	26.2
	11	<i>Haley vs. Other VISN 8 MCG7 hospitals</i>	n.s.	n.s.	n.s.	p < 0.10	p < 0.10	p < 0.05
	12	MCG7 w/o JAH (n=22)	27.7	26.5	27.0	27.2	22.8	21.9
	13	<i>Haley vs. All MCG7 w/o Haley</i>	n.s.	n.s.	n.s.	p < 0.001	n.s.	n.s.

From: NET BENEFIT SPREADSHEET 8.6.04 modified 10.25.04 6.50 PM.xls: K. NURSE-SENSITIVE OUTCOMES, \$

Appendix M Comparing Lengths of Stay in Nurse Sensitive Conditions

Length of Stay

Nurse-Sensitive DX: Urinary Tract Infection (UTI)

Haley vs. VISN8 MCG7s (n=2)		Fiscal Year of Discharge																	
		1999			2000			2001			2002			2003			FY99 to FY03		
		Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N
0 All other MCG7 VAMCs (n=2)	0 Non-Adverse	9.12	15.5	13,539	8.91	18.2	12,461	8.69	19.9	12,773	7.66	19.9	12,950	6.45	9.6	13,261	8.16	17.0	64,984
	1 Adverse event	31.20	55.7	591	26.57	51.1	569	26.27	46.2	596	22.92	49.6	678	21.27	59.8	682	25.44	52.9	3,116
1 Tampa - Haley Magnet Hospital - a MCG7 VAMC	0 Non-Adverse	8.01	12.2	7,633	8.00	14.3	7,655	7.56	13.1	7,640	7.26	12.5	8,411	7.30	12.9	8,503	7.61	13.0	39,842
	1 Adverse event	20.39	35.0	490	19.04	43.0	504	25.66	75.1	487	24.45	78.6	524	22.78	51.5	549	22.47	59.3	2,554

Nurse-Sensitive DX: Pneumonia (PU)

Haley vs. VISN8 MCG7s (n=2)		Fiscal Year of Discharge																	
		1999			2000			2001			2002			2003			FY99 to FY03		
		Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N
0 All other MCG7 VAMCs (n=2)	0 Non-Adverse	13.06	18.4	8,154	12.42	17.6	7,410	12.67	22.7	7,865	11.71	23.3	7,060	9.98	11.5	7,313	12.01	19.2	37,802
	1 Adverse event	46.91	56.4	190	42.91	55.6	182	41.29	42.3	172	36.54	51.1	153	25.21	37.1	116	39.77	50.4	813
1 Tampa - Haley Magnet Hospital - a MCG7 VAMC	0 Non-Adverse	10.95	10.7	4,448	10.62	11.3	4,495	10.43	15.4	4,402	10.28	12.3	4,685	10.47	15.5	4,782	10.55	13.2	22,812
	1 Adverse event	18.81	16.9	67	20.18	24.7	60	19.67	19.7	72	16.76	16.8	50	20.80	26.5	50	19.28	21.0	299

Nurse-Sensitive DX: Deep Vein Thrombosis (DVT)

Haley vs. VISN8 MCG7s (n=2)		Fiscal Year of Discharge																	
		1999			2000			2001			2002			2003			Total		
		Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N
0 All other MCG7 VAMCs (n=2)	0 Non-Adverse	9.84	19.4	14,772	9.54	21.2	13,696	9.27	20.8	14,094	8.21	21.0	14,348	7.05	16.2	14,841	8.77	19.8	71,751
	1 Adverse event	19.46	29.2	128	18.32	32.8	100	16.64	28.4	105	22.40	73.8	141	12.58	17.8	149	17.82	42.4	623
1 Tampa - Haley Magnet Hospital - a MCG7 VAMC	0 Non-Adverse	8.62	14.7	8,563	8.52	17.2	8,676	8.53	22.2	8,637	8.12	23.0	9,521	8.06	17.9	9,680	8.36	19.3	45,077
	1 Adverse event	13.52	21.9	77	15.50	13.7	64	13.12	15.7	58	16.27	23.7	66	18.79	23.9	73	15.50	20.5	338

Nurse-Sensitive DX: Pneumonia (PN)

Haley vs. VISN8 MCG7s (n=2)		Fiscal Year of Discharge																	
		1999			2000			2001			2002			2003			Total		
		Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N	Mean	Dev.	N
0 All other MCG7 VAMCs (n=2)	0 Non-Adverse	9.42	18.7	12,832	8.91	20.1	11,875	8.68	20.0	12,197	7.81	22.1	12,496	6.64	15.8	13,034	8.28	19.4	62,434
	1 Adverse event	25.76	37.8	413	28.69	45.3	394	27.02	40.3	428	23.83	38.0	435	36.36	49.5	11	26.34	40.4	1,681
1 Tampa - Haley Magnet Hospital - a MCG7 VAMC	0 Non-Adverse	8.35	13.8	7,547	8.25	15.8	7,740	8.19	18.5	7,637	7.63	14.4	8,509	7.87	15.8	8,699	8.04	15.7	40,132
	1 Adverse event	20.19	31.5	213	24.13	49.5	213	27.26	79.2	231	29.80	97.4	224	23.33	14.3	6	25.42	69.7	887

Appendix N

Comparison of James A Haley Nurse-Sensitive Outcomes Against VISN8 MCG7 Hospitals (n=2) by HERC-estimated Total (case mix adj) National VHA Healthcare Expenditures

Nurse-Sensitive DX: Urinary Tract Infection (UTI)

TAMPA's Haley vs. VISN8 MCG7s (n=2)		Fiscal Year of Discharge																	
		1999			2000			2001			2002			2003			FY99 to FY03		
		Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
All other MCG7 VAMCs (n=2)	Non-Adverse	10,529	18,913	13,539	11,529	21,583	12,461	12,054	20,469	12,773	12,411	22,973	12,950	12,708	21,462	13,261	11,840	21,117	64,984
	Adverse event	27,994	47,620	591	29,696	55,378	569	32,496	59,495	596	29,662	54,734	678	33,522	68,814	682	30,739	57,925	3,116
Tampa - Haley Magnet Hospital - a MCG7 VAMC	Non-Adverse	10,223	14,723	7,633	11,368	17,452	7,655	11,721	16,874	7,640	11,987	20,022	8,411	12,623	22,300	8,503	11,615	18,601	39,842
	Adverse event	21,588	31,886	490	23,723	47,239	504	31,312	67,184	487	30,357	74,191	524	31,388	57,420	549	27,769	57,846	2,554

Nurse-Sensitive DX - when secondary DX: Pressure Ulcers (PU)

TAMPA's Haley vs. VISN8 MCG7s (n=2)		Fiscal Year of Discharge																	
		1999			2000			2001			2002			2003			FY99 to FY03		
		Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
All other MCG7 VAMCs (n=2)	Non-Adverse	14,279	21,463	8,154	15,605	21,996	7,410	16,704	25,241	7,865	18,198	27,725	7,060	18,796	28,545	7,313	16,649	25,113	37,802
	Adverse event	42,132	56,373	190	47,715	66,679	182	45,180	48,954	172	43,189	57,737	153	35,548	40,613	116	43,286	55,741	813
Tampa - Haley Magnet Hospital - a MCG7 VAMC	Non-Adverse	13,893	15,787	4,448	15,287	18,943	4,495	15,888	19,864	4,402	17,039	26,198	4,685	17,901	27,542	4,782	16,039	22,300	22,812
	Adverse event	28,217	38,252	67	31,905	49,000	60	30,401	38,590	72	31,039	41,197	50	29,947	33,617	50	30,244	40,258	299

Nurse-Sensitive DX: Deep Vein Thrombosis (DVT)

TAMPA's Haley vs. VISN8 MCG7s (n=2)		Fiscal Year of Discharge																	
		1999			2000			2001			2002			2003			FY99 to FY03		
		Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
All other MCG7 VAMCs (n=2)	Non-Adverse	11,043	20,794	14,772	12,160	24,093	13,696	12,743	23,357	14,094	12,998	24,431	14,348	13,461	25,374	14,841	12,481	23,668	71,751
	Adverse event	21,365	28,697	128	22,983	38,607	100	20,303	23,805	105	27,648	69,395	141	23,759	44,632	149	23,440	45,438	623
Tampa - Haley Magnet Hospital - a MCG7 VAMC	Non-Adverse	10,686	15,705	8,563	11,860	20,211	8,676	12,651	22,942	8,637	12,775	26,507	9,521	13,431	25,491	9,680	12,319	22,696	45,077
	Adverse event	20,207	46,269	77	21,156	21,032	64	22,348	32,324	58	27,549	27,671	66	32,552	37,695	73	24,854	34,876	338

Nurse-Sensitive DX: Pneumonia (PN)

TAMPA's Haley vs. VISN8 MCG7s (n=2)		Fiscal Year of Discharge																	
		1999			2000			2001			2002			2003			FY99 to FY03		
		Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
All other MCG7 VAMCs (n=2)	Non-Adverse	10,359	19,287	12,832	11,078	20,318	11,875	11,910	20,908	12,197	12,309	23,377	12,496	12,689	22,952	13,034	11,675	21,458	62,434
	Adverse event	36,826	48,716	413	44,506	68,786	394	42,302	63,284	428	40,475	62,406	435	46,735	63,539	11	41,029	61,194	1,681
Tampa - Haley Magnet Hospital - a MCG7 VAMC	Non-Adverse	10,299	14,784	7,547	11,347	17,463	7,740	12,015	18,759	7,637	12,130	20,215	8,509	12,947	22,498	8,699	11,790	19,078	40,132
	Adverse event	28,679	40,329	213	38,164	66,136	213	42,859	79,787	231	44,348	96,422	224	32,665	19,147	6	38,634	73,943	887

Appendix O

Comparison of James A Haley Nurse-Sensitive Outcomes Against 22 Other VHA MCG7 Hospitals by HERC-estimated Total (case mix adj) National VHA Healthcare Expenditures

Nurse-Sensitive DX: Urinary Tract Infection (UTI)

TAMPA's Haley vs. all otherMCG7s (n=22)	Fiscal Year of Discharge																	
	1999			2000			2001			2002			2003			FY99 to FY03		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
All other MCG7 facilities (n=22)	10,508	17,432	144,809	11,234	18,800	148,534	11,977	19,538	147,784	12,455	21,466	147,042	13,488	23,040	141,375	11,923	20,159	729,544
Non-Adverse event	25,103	40,270	6,656	27,166	46,100	6,851	28,882	146,287	6,950	28,415	48,818	7,087	32,291	96,358	6,975	28,406	86,100	34,519
Tampa - Haley Magnet Hospital - a MCG7 VAMC	10,223	14,723	7,633	11,368	17,452	7,655	11,721	16,874	7,640	11,987	20,022	8,411	12,623	22,300	8,503	11,615	18,601	39,842
Non-Adverse event	21,588	31,886	490	23,723	47,239	504	31,312	67,184	487	30,357	74,191	524	31,388	57,420	549	27,769	57,846	2,554

Nurse-Sensitive DX - when secondary DX: Pressure Ulcers (PU)

TAMPA's Haley vs. all otherMCG7s (n=22)	Fiscal Year of Discharge																	
	1999			2000			2001			2002			2003			FY99 to FY03		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
All other MCG7 facilities (n=22)	14,467	19,745	85,573	15,770	21,312	85,937	16,419	21,522	86,700	17,793	24,181	81,583	19,499	26,976	77,553	16,726	22,850	417,346
Non-Adverse event	38,234	52,650	1,188	37,982	51,443	1,156	47,037	333,276	1,238	39,182	54,022	1,151	47,486	207,195	996	41,884	182,090	5,729
Tampa - Haley Magnet Hospital - a MCG7 VAMC	13,893	15,787	4,448	15,287	18,943	4,495	15,888	19,864	4,402	17,039	26,198	4,685	17,901	27,542	4,782	16,039	22,300	22,812
Non-Adverse event	28,217	38,252	67	31,905	49,000	60	30,401	38,590	72	31,039	41,197	50	29,947	33,617	50	30,244	40,258	299

Nurse-Sensitive DX: Deep Vein Thrombosis (DVT)

TAMPA's Haley vs. all otherMCG7s (n=22)	Fiscal Year of Discharge																	
	1999			2000			2001			2002			2003			FY99 to FY03		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
All other MCG7 facilities (n=22)	10,910	18,625	158,978	11,666	20,398	163,472	12,480	35,621	163,177	12,853	22,966	162,720	14,014	30,008	157,584	12,380	26,332	805,931
Non-Adverse event	23,781	38,947	1,219	24,805	39,710	1,484	23,176	30,582	1,495	24,539	38,919	1,606	26,973	44,320	1,727	24,756	38,940	7,531
Tampa - Haley Magnet Hospital - a MCG7 VAMC	10,686	15,705	8,563	11,860	20,211	8,676	12,651	22,942	8,637	12,775	26,507	9,521	13,431	25,491	9,680	12,319	22,696	45,077
Non-Adverse event	20,207	46,269	77	21,156	21,032	64	22,348	32,324	58	27,549	27,671	66	32,552	37,695	73	24,854	34,876	338

Nurse-Sensitive DX: Pneumonia (PN)

TAMPA's Haley vs. all otherMCG7s (n=22)	Fiscal Year of Discharge																	
	1999			2000			2001			2002			2003			FY99 to FY03		
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N
All other MCG7 facilities (n=22)	10,414	16,746	141,354	11,170	18,398	145,766	11,942	19,320	145,896	12,177	21,125	123,171	13,299	22,431	145,186	11,796	19,698	701,373
Non-Adverse event	36,451	52,779	4,034	39,523	60,977	3,964	40,851	191,086	4,051	40,509	61,929	3,441	86,937	180,524	228	39,980	111,386	15,718
Tampa - Haley Magnet Hospital - a MCG7 VAMC	10,299	14,784	7,547	11,347	17,463	7,740	12,015	18,759	7,637	12,130	20,215	8,509	12,947	22,498	8,699	11,790	19,078	40,132
Non-Adverse event	28,679	40,329	213	38,164	66,136	213	42,859	79,787	231	44,348	96,422	224	32,665	19,147	6	38,634	73,943	887
Adverse event	10,803	16,310	7,760	12,065	20,788	7,953	12,921	23,554	7,868	12,957	25,720	8,733	12,961	22,501	8,705	12,371	22,124	41,019