Analysis of Role of Magnet Designation in Developing a Culture of Professional Nursing Partnerships and Evidence-Based Practice in the ICU: An Expanded Secondary Analysis of a National ICU Survey

by

Matthew A. Pyankov

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This thesis/dissertation was presented

by

Matthew A. Pyankov

It was defended on

October 21, 2020

and approved by

Judith F. Zedreck Gonzales, DNP, MPM, NEA-BC, Professor,
Department of Acute and Tertiary Care

Diane S. Hupp, DNP, RN, NEA-BC, Chief Nursing Officer and Vice President of Operation and Patient Care Services, UPMC Children's Hospital of Pittsburgh

Dianxu Ren, MD, PhD, Associate Professor, Associate Director for Statistical Support Services,
Department of Health and Community Systems

Thesis Advisor: Jennifer B. Seaman PhD RN, CHPN, Assistant Professor,
Department of Acute and Tertiary Care

Analysis of Role of Magnet Designation in Developing a Culture of Professional Nursing Partnerships and Evidence-Based Practice in the ICU: An Expanded Secondary Analysis of a National ICU Survey

Matthew A. Pyankov, BSN-H

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The American Nurse Credentialing Center (ANCC) Magnet® hospital designation indicates a hospital's commitment to patient-centered care; evidence-based nursing practice, and a culture of interprofessional collaboration. A key characteristic of Magnet institutions is participation in generating new knowledge. The purpose of this study was to determine, in a random sample of US adult acute care hospitals, if Magnet designation was associated with greater rates of research participation of ICU nurse managers, and among hospitals with participating nurse managers if there were differences between Magnet and non-Magnet hospitals on measures of interprofessional collaboration and the demographics of nursing leadership. We conducted an expanded secondary analysis of data from an online survey of ICU nurse managers and medical directors regarding practices, barriers, and facilitators related to interdisciplinary family meetings. The parent study sample (n= 525) was randomly selected from the 2015 American Hospital Association database and stratified by region, hospital size and model of intensivist care. We obtained contact information and surveyed 304 nurse managers; of those, 164 completed the survey. Subsequently, we compared responses from Magnet and non-Magnet participants on their ICU's practices as well as managers' level of education and experience. Fifty-four of 525 sampled hospitals were Magnet designated; and 29 of 164 respondents were from Magnet designated hospitals. Nurse managers of Magnet ICUs were significantly more likely to receive and return the survey (53%) compared to those of non-Magnet ICUs (29%), $p < 0.001$. Regarding patient and family-centered interprofessional collaborative practices, RNs at Magnet hospitals were significantly more likely to attend team rounds (p=0.027) and ICUs were significantly more likely to include families in team rounds (p=0.006). However, we found no differences between Magnet and non-Magnet ICUs regarding nurse manager education and experience or other measures of interprofessional collaborative practice. Overall, nurse managers of Magnet hospital ICUs demonstrated a significantly greater willingness to provide contact information and complete the survey, which may suggest a greater commitment to knowledge generation through research participation. Magnet ICUs were more likely to include nurses and families in team rounds, demonstrating empirical nurse-centered Magnet outcomes indicative of empowered nursing and patient-centered care.

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Preface

First and foremost, I would like to thank my mentor Dr. Jennifer Seaman for her constant support and feedback throughout the process of writing this thesis. From the day I first met with Jen in my freshman year, she has been a source of knowledge, guidance, and wisdom from whom I can rely for mentorship. She has helped me grow as a researcher, student, and soon-to-be nurse. I am so fortunate to have been introduced to Jen and to have been able to perform this research on her survey data. Without her emails, calls, and texts over the past three years, this thesis would never have been completed. I would also like to thank my statistician, Dr. Dianxu Ren, for supporting the analysis of the data and offering your wealth of knowledge to my thesis and studies. A big thanks also should be extended to my external examiner, Dr. Diane S. Hupp, for taking time from her busy schedule to offer a unique view into Magnet organizations and their functions on a day-to-day basis. Her expertise and enthusiasm for Magnet is encouraging and has helped give further insight into the matter. Dr. Judith Zedreck also deserves my thanks, for providing me with a basis of background knowledge about Magnet organizations that was unparalleled and helped propel my research forward. Thank you to Anne Sullivan for abstracting Magnet data from the AACN website so that I could perform my analysis smoothly. Also, thank you so much to Amanda Carpenter, who offered feedback and helped push the project forward when things got slow. Finally, I would like to thank the University of Pittsburgh School of Nursing and the University of Pittsburgh Honors College for giving me the opportunity to participate in this scholarly research in addition to my undergraduate degree.

1.0 Introduction

In the middle of the 20th century, a nursing shortage began to bloom as hospitals, nurses' primary employers, struggled to retain skilled nursing staff. Initially, it appeared as though only increases in nurse wages could entice nurses to remain in the workplace. However, in the 1970s, research began to show that nurses valued other characteristics of their employment - professional autonomy, quality of working life, role in decision-making processes, and recognition of work - equally so, if not more than their wages, (Aiken, 1984). Subsequently, in 1983, a study by the American Academy of Nursing found a number of structural similarities in hospitals that managed to prevent nurse turnover. Following this, the term "Magnet" was chosen to indicate the force exerted on nursing staff, and the concept of Magnet designation was developed by the American Nurses Credentialing Center as an indicator of nursing excellence in hospitals. Soon, hospitals nationwide began to seek Magnet designation as a means to improve patient care by improving the work-environment for nursing staff (Kramer & Schmalenberg, 2005). Following the first Magnet designations, efforts to achieve credentialing spread across the country as a means to stand out in the arena of nursing excellence. The Magnet designation gained popularity and attained a worldwide reputation, and in 2000, the first Magnet designation went abroad. Organizations receiving Magnet designation are recognized for their positive organizational culture. Magnet continues to serve today as a metric by which one can gauge an organization's dedication to fostering a nurturing environment for nurses.

As Magnet designation became more prevalent, so too did research to validate the model, as many believed that a hospital that cares for its nurses will provide a foundation from which better patient care can rise. Hospitals with a history of repeated Magnet redesignation have

demonstrated the strength and effectiveness of the transformational leadership in their health systems, among other strengths (Hayden, Wolf, & Zedreck-Gonzalez, 2016). However, the descriptions of various Magnet goals have become less clear as the designation has evolved over time (Kramer & Schmalenberg, 2005). Now, as burnout in critical care environments becomes a core focus worldwide, there arise a number of questions about the hospital workplace. Specifically, there is interest in building evidence to determine if Magnet designation and the team-oriented workplace culture can help foster interprofessional collaboration, generate and implement research that produces new knowledge, and improve quality of care for patients in a stressed healthcare system.

Burnout, a syndrome characterized by emotional exhaustion due to perceived inefficacy and cynicism, is present in up to 47% of ICU clinicians (Chuang, Tseng, Lin, Lin, & Chen, 2016; Friganović, Selič, Ilić, & Sedić, 2019; Lacy & Chan, 2018). Registered nurses are some of the valuable members of the healthcare team and play an important role in direct patient-care and recognition of alterations in patient health status. These changes are often nuanced and can have both immediate and long-term consequences with implications for a patient's health if left unaddressed. Supporting the development of a strong nursing core in a healthcare organization is a necessary component to ensure that patients receive the highest quality care and are safe while hospitalized. In critical care, the intensity of nursing responsibilities and their ramifications are often much greater than in other practice environments, forcing nurses into difficult situations in which their moral values are tested, their workload is burdensome, and their efforts are often unsupported by managers. In light of this, the prevalence of burnout in ICU clinicians becomes explicable, but not forgivable. Prevention of burnout depends on a number of factors, and organizations have a role in mitigating stressors as much as possible to ensure that clinicians are

properly prepared for their daily roles and providing an environment that espouses patient and clinician well-being. Magnet status may help mitigate burnout, but there is currently little research on this topic.

1.1 History of Magnet Designation

Magnet designation describes organizational goals that develop a gold standard for nursing through the process of developing excellence in organizational leadership and nursing care in the journey to attain Magnet designation. These standards prevent nurse turnover and reinforce care quality within the organization. To become Magnet designated, organizations typically undergo a multi-year process in which every step of nursing process is closely scrutinized, from executive nursing management to staff nurses. Magnet status is also associated with a number of benefits to both direct patient-care quality and in the organization's financial offices. Despite the obvious benefits, the process to becoming Magnet designated can be daunting, as organizations work to ensure that every minimum requirement is met, such as implementing plans to increase the number of BSN-prepared nurse managers, before submitting a written application and hosting a site visit to ensure criteria are met. The designation, if granted, then lasts four years with mandatory biennial monitoring before the reapplication process begins (American Nursing Credentialing Center, 2019). However, in the eyes of many hospitals, the effort required to become designated is more than justified by the knowledge that hospital characteristics are more important than personal characteristics in attracting nurses to their workplace (Blegen, Spector, Lynn, Barnsteiner, & Ulrich, 2017).

When initially developed, the Magnet designation recognized fourteen consistent qualities of hospitals with outstanding nursing care and identified them as Forces of Magnetism, which served as the driving vision of the program. These Forces of Magnetism include effects such as organization system, nurse teaching, nurse autonomy, quality of care, and quality of nursing leadership. In 2003, the fourteen Forces of Magnetism were pared to eight Essentials of Magnetism following research with staff nurses discussing which issues played the largest role on the units (Kramer & Schmalenberg, 2005). Most recently, in 2008, the ANCC again grouped Forces of Magnetism into five domains: transformational leadership, structural empowerment, exemplary professional practice, new knowledge, innovations and improvements, and empirical outcomes (Figure 1). Each of these domains is interrelated and acts within the context of global nursing issues to provide a new conceptual framework for Magnet goals. The change primarily stems from a shift in the importance of structure and process to emphasizing the value of empirical outcomes in Magnet hospitals. Subsequently, in the most recent Magnet model, each domain acts within the scope of empirical evidence, showing that empirical evidence is essential to demonstrate documented improvements in all areas of nursing excellence in order for Magnet designation to be meaningful. (Wolf, Triolo, & Ponte, 2008)

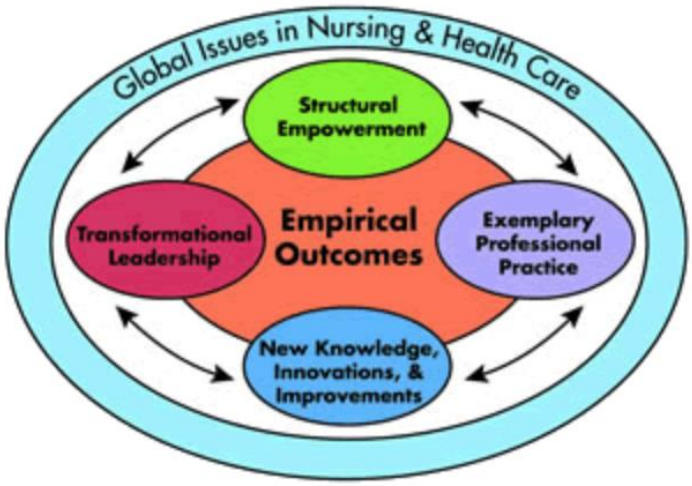

Figure 1. Magnet Domains. Reprinted from https://www.nursingworld.org/organizational-programs/magnet/magnet-model/ by the American Nurses Association. Copyright American Nurses Association. Reprinted with permission. All rights reserved.

1.2 Impact of Magnet Designation

As a baseline, there is research to support ideas showing that Magnet hospitals meet their goals of retaining nurses at higher rates than non-Magnet organizations and the initially stated goals have been met based upon the Magnet domains (Blegen et al., 2017). However, Magnet outcomes can be measured in a variety of different domains, and for this purpose, patient-centered care, impact on nursing staff, and financial impact to hospital organizations have been selected. Patient-centered care drives healthcare, and without evidence supporting improved patient outcomes, the Magnet designation would certainly lose validity. Other considerations include the well-being of the purported beneficiaries of Magnet, the nursing staff, and lastly, the effect on the baseline of organization's finances.

1.2.1 Patient Care Outcomes

Delivering quality care and improving patient outcomes are the central themes of a hospital's mission. In general, Magnet designation is associated with a reduction in excess mortality of 5%. These findings are independent of nurse staffing and non-nurse measures and show that the value of Magnet extends far beyond nurse satisfaction and into the patient room

(Aiken, Smith, & Lake, 1994). More recently, these results are corroborated by the finding that Magnet hospitals have 20% decreased odds of mortality (Evans et al., 2014). Additionally, Magnet designation is associated with decreased rates of central line-associated bloodstream infection (CLABSI), a preventable hospital-acquired infection associated with increased length of hospital stays and healthcare costs, in addition to patient harm (Barnes, Rearden, & McHugh, 2016). Within nursing care specifically, Magnet nurses are seen to be more adherent to protocols around handwashing and repositioning. Increased nursing attention to patient needs and positioning presents a plausible explanation behind the 5% lower fall rate seen in Magnets, as patients are less likely to attempt to move themselves when inappropriate (Kalisch & Lee, 2012; Lake, Shang, Klaus, & Dunton, 2010). Lastly, nurses themselves have reported higher quality of care in Magnet hospitals due to the professional practice environment championed by Magnet status (Stimpfel, Rosen, & McHugh, 2015).

Despite the positive findings regarding Magnet, there remain a number of questions about the true efficacy of Magnet organizations in ensuring improved patient outcomes, as some studies have demonstrated statistically significantly lower rates of infection, post-operative sepsis, and post-operative metabolic derangements among non-Magnet organizations (Goode, Blegen, Park, Vaughn, & Spetz, 2011). Additionally, there is evidence that failure to rescue and pressure injury rates are not significantly better in Magnets organizations than non-Magnet organizations (Mills & Gillespie, 2013). Specifically, within intensive care, it has been shown that Magnet neonatal intensive care units (ICU) were unable to demonstrate better rates of missed nursing care than non-Magnets, although missed nursing care is less likely to result from communication breakdown in Magnets (Tubbs-Cooley et al., 2017). Some of these findings may be related to the idea that certain

non-Magnet organizations may still practice Magnet values and principles, albeit without the official designation.

1.2.2 Impact on Nursing Staff

Following increases in nurse satisfaction, it is hypothesized that many patient outcomes would improve if nurses felt more supported in their care on a daily basis. Magnet organizations are known for their nursing excellence. This culture of excellence has been used to explain the differences in workplace environment between Magnet and non-Magnet organizations, such as a greater sense of nursing support, interprofessional collaboration, decreased nurse turnover, and continued growth and development. These differences are important not only for their immediate impact on nurse turnover, but also on secondary turnover due to a loss of workplace morale and experience following the initial nurse departures. To help decrease turnover, unit level involvement, support, mentorship, and appreciation from management should be present, all of which are addressed in Magnet infrastructure and guiding theory (Buffington, Zwink, Fink, Devine, & Sanders, 2012). To follow this, it has been noted that although physical demands and reported hours worked did not differ between Magnet and non-Magnet organizations, nurses feel that Magnet hospitals have many implicit understandings of better work environments that are not always seen in non-Magnet organizations (Trinkoff et al., 2010). Magnet organizations handle periods of organizational transition more effectively than non-Magnet organizations, as quality metrics remain consistent even as patient acuity levels fluctuate, demonstrating the stability offered by Magnet characteristics. In fact, even during destabilization, nurse interaction with other nurses and with physicians improved and infection rates monitored decreased (Gonzalez, Wolf, Dudjak, & Jordan, 2015).

As healthcare systems experience increasing numbers of higher-acuity patients, the foundation that Magnet designation provides to a system becomes more valuable than it ever has been before. The ability to improve outcomes during times of chaos and change is unique to Magnet organizations and the emphasis on unity and integration of healthcare ensures that clinicians and patients are more likely to be satisfied, which is especially critical in a world impacted by the COVID-19 pandemic. These values help to cultivate a culture in which strong, interconnected professional nursing partnerships with other members of the patient care team can develop, from physicians to members of environmental services to patients and families.

1.2.3 Financial Outcomes

Despite these positive findings, it may be difficult to issue a blanket statement in support of a Magnet journey for all hospitals, as many factors must be considered when making a decision of such magnitude. Magnet designation is optional. Many hospitals that exhibit Magnet-like workplace environments may be restricted from pursuing official recognition, and that these hospitals may have been the ones examined in retrospective case-controlled studies that failed to show the efficacy of Magnet designation. Oftentimes, resistance occurs due to financial implications, as the designation process can take up to four years and cost upwards of $500,000. However, these costs are likely to be paid back within 2 to 3 years of becoming a Magnet organization, as Magnets save about $1.2 million annually more than non-Magnets on discharges (Jayawardhana, Welton, & Lindrooth, 2014). This payoff can become even greater if nearby competition begins to adopt Magnet status, and market competition has driven many organizations to adopt Magnet designation (Richards, Lasater, & McHugh, 2017). Despite there being a clear financial case for a Magnet journey, it remains unclear if initial resources are lacking in smaller

hospitals and in those unaffiliated with a health system. Additionally, frequent leadership changes may lead to different goals for health systems that can impact the pursuit of Magnet designation. Research on the organizational characteristics of Magnet and non-Magnet organizations, including health system affiliation has not been conducted, and could give insight to barriers to Magnet adoption.

1.3 The Relationship of Burnout and Turnover in Healthcare Providers

Burnout syndrome is an occupational phenomenon that has taken healthcare by storm and has been a part of the push to bring issues of mental well-being to the forefront in healthcare (World Health Organization, 2019). Burnout is the interplay between emotional exhaustion, cynicism, and belief of inefficacy that is increasingly being recognized for its negative outcomes in patients, clinicians, and healthcare costs (Leiter & Maslach, 2009). One common outcome of burnout is nurse turnover, which itself leads to secondary organizational issues (Shoorideh, Ashktorab, Yaghmaei, & Alavi Majd, 2015). Hospital environments have been rapidly changing to include new payment methods, electronic medical record integration, patient portals, and public quality metrics. These have all contributed to increased rates of burnout (Dyrbye et al., 2017). Nurses, especially those in critical care environments, are vulnerable to high degrees of emotional exhaustion in daily work, as they struggle morally with situations regarding patient care and appropriate medical responses at the bedside. However, there has not been much effective research on methods to break barriers and prevent burnout, leaving organizations to struggle without evidence-based practices (Dyrbye et al., 2017).

The prevalence of burnout suggests that there are uniting factors across the healthcare system that predispose clinicians to developing the syndrome. ICUs have higher burnout rates compared to other medical units, as well as increased emotional stress (Rushton, Batcheller, Schroeder, & Donohue, 2015). The intense workload reported by many nurses also seems to play a role in development of burnout, which has been associated with serious outcomes for clinicians and patients. In clinicians, serious outcomes such as heart disease have been associated with burnout (Chuang et al., 2016). On the other hand, for every patient added to a nurse's workload, there is a 7% increase in patient odds of mortality, emphasizing the importance of safe staffing for patient safety. Preventing burnout can help mitigate staffing shortages, as nurses in hospitals with higher patient-nurse ratios are more likely to experience burnout and job dissatisfaction, ultimately leaving their jobs (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002). Among ICU nurses, there is a positive correlation between patient-nurse ratio and nurse turnover (Shoorideh et al., 2015).

The average nurse turnover rate was 18% in 2001 at a large, academic hospital, with estimates suggesting greater turnover in critical care environments (Jones, 2008). These turnover rates places stress on unit managers, nurses in the unit, and the financial accounts of healthcare organizations. Replacing an ICU registered nurse can cost up to $82,000, a cost that is rising more quickly than the inflation rate (Jones, 2008). Organizations can save money by focusing on reducing nurse turnover, but there is limited knowledge on effective interventions to reduce turnover. Nurses in Magnet designated hospitals have higher positive perceptions of support for nurses within the organization, which may contribute to increased retention rates. There is conflicting evidence as some studies do not show any difference in intent to stay between Magnet and non-Magnet hospitals (Blegen et al., 2017; S. R. Lacey et al., 2007). To prevent nurse turnover, healthcare organizations must provide opportunities for growth and improvement, as well as

recognize and reward excellence. Improving communication standards and a the presence of a leadership team focused on research involvement also can reduce nurse turnover (Gess, Manojlovich, & Warner, 2008). In fact, the chief nursing officers of hospitals that have achieved Magnet designation or are currently on the Magnet journey have cited authentic leadership as the most important factor in establishing healthy work environments (Burns, Gonzalez, Hoffmann, & Fulginiti, 2018).

Burnout includes emotional exhaustion, depersonalization, and reduced personal accomplishment. Of these, emotional exhaustion shows the greatest predictive value for development of burnout. Moral distress, the internal conflict arising from treatment plans and nurse inherent values, is associated with emotional exhaustion and has been shown to be predictive of all aspects of burnout (Christodoulou-Fella, Middleton, Papathanassoglou, & Karanikola, 2017; Rushton et al., 2015). Spiritual well-being, as well as natural resilience, can be protective against development of burnout syndrome (Rushton et al., 2015). Most notably, many established predictors of burnout, such as workload, moral distress, community, fairness, and rewards, are organizational factors, rather than personal factors. An increase in age is one of few personal factors increasing burnout (Leiter & Maslach, 2009; Padilla Fortunatti & Palmeiro-Silva, 2017). Magnet hospitals, with their emphasis on organizational support of nursing staff, are in a unique position to provide the well-being that can be protective against burnout and reduce turnover within their ranks.

The effects of burnout reach far past their impact on the individual clinician, as patient care frequently suffers along with clinician mental health. ICUs, in which more nursing care is left undone than in other medical surgical units, can benefit greatly from interventions to improve patient care (Liu, Zheng, Liu, & You, 2019). This may be explained by the finding that increased

infection rate is related to high burnout, which is also associated with high nurse workloads, leaving nurses less time to effectively provide nursing care. Reducing burnout by 20% in Pennsylvania hospitals would prevent 4,160 infections and save $41 million (Cimiotti, Aiken, Sloane, & Wu, 2012). In a study of ICU clinicians, there was found to be a positive relationship between emotional exhaustion rates and mortality ratio, as staff vigilance was lowered due to burnout. Additionally, burnout in this scenario appears to be contagious, as its effects spread from one team member to another (Welp, Meier, & Manser, 2014). Emotional exhaustion also results in less effective teamwork contributions from ICU clinicians, which results in negative effects towards interpersonal relationships between all members of the care team (Welp, Meier, & Manser, 2016). Lastly, clinician-rated perceptions of safety organization in ICUs was lower when burnout was higher, which was especially noticeable in night-shift employees (Welp, Rothen, Massarotto, & Manser, 2019) Burnout, especially in ICUs, must be addressed effectively to prevent further negative outcomes in patient care and to preserve the well-being of skilled clinicians.

1.4 Professional Nursing Practice and Evidence-Based Care

Facilitating evidence-based practice has emerged as a primary goal for the nursing profession, as we strive for autonomy and respect within healthcare. To achieve this goal, much of nursing's efforts are centered on the development of our knowledge base and the implementation of evidence-based practices. Implementation of evidence-based practice can allow for nursing to stand on a foundation of science and reason, rather than on old wives-tales (Melnyk & Fineout-Overholt, 2005). However, as explained by the Institute of Medicine in 2001, this is not always

simple, as a number of barriers hinder effective evidence-based clinical practice, such as lack of skills producing and consuming research literature (E. A. Lacey, 1996). In fact, to remedy this, a systematic review found that attending conferences, having a graduate degree, working in specialty fields, promoting nursing certifications, or increased job satisfaction all led to greater nursing utilization of research in daily practice (Squires, Estabrooks, Gustavsson, & Wallin, 2011).

As organizations that pride themselves on delivering quality care, Magnet organizations demonstrate their commitment to evidence-based practice through involvement in research. Increased research involvement, through both data collection and collaboration in research, is one of the most reliable indicators of research implementation in quality improvement practices (Bostrom & Suter, 1993). Many of the principles around which Magnet hospitals revolve include research as one of their core components. In addition, high research involvement indicates the presence of a staff that is active and dedicated in the dynamic field of healthcare, in which new findings are constantly informing best practices for patients. Currently, there is no evidence of greater research participation among Magnet facilities. A hospital's participation in research could indicate whether the culture within units, especially high-pressure ICUs, prioritizes ensuring up-to-date patient care through continuous quality improvement.

In addition to the value of participation in research, interprofessional collaboration has become a focal point in nursing, as clinicians from various backgrounds recognize the importance of a coherent team-based approach in patient care. Beyond involving all members of the interprofessional team, the family of patients should also be included. In 2008, the World Health Organization (WHO) listed intersectoral collaboration as one of the keys to ensuring a better healthcare system following new reforms. Many clinicians recognize the value of the interprofessional team, but some, notably older physicians, struggle with sharing care and

responsibility of patient with other healthcare professionals. Despite this, there is evidence that patients with chronic kidney disease have better outcomes when treated with an interprofessional team model in which there is greater patient advocacy from a wider variety of professionals (Saxena & Rizk, 2014).

It is important to recognize that there are a number of interprofessional methods of communication that all convey different activities despite similar labels (Seaman, Arnold, Scheunemann, & White, 2017). An interprofessional family meeting is defined as a meeting with key family decision makers, a physician, and a non-physician clinician in which there is a clinical update and discussion about prognosis, patient values, treatment options, and goals of care (Curtis & White, 2008). Interprofessional family meetings are different than family-centered rounds, in which families are included in discussions during or after rounds, but do not meet all criteria of an interprofessional family meeting. Additionally, within many units there is a checklist of items that should be completed daily to encourage open and clear communication between all members of the care team, including the family.

Interestingly, it is noted that although physicians are the most resistant to interprofessional meetings, they are also noted as the most important driver of the meetings, without whom the meetings can struggle to be successfully implemented (O'Reilly et al., 2017). Other barriers to successful meetings exist uniquely within specific care environments, such as the ICU. For example, it was found that although there is general support for the value of interprofessional family meetings, barriers exist such as lack of unit protocol, discomfort with end-of-life discussions, and lack of physician attendance (Seaman et al., 2017). While meetings can be difficult to successfully implement, there is support within medical ICUs to show that patient-

centered interprofessional rounds increase efficiency of rounding and provider satisfaction without impacting patient or family beliefs about the efficacy of the rounding (Cao et al., 2018).

As interprofessional rounds begin to show their value, especially within the ICU setting, it becomes of value to determine ways to increase the involvement of staff in the meetings, especially bedside nurses. In some ICUs, the use of a morning checklist helps improve patient-care and prompt patient teaching opportunities, as well as serving as a centralized data collection and review of the patient (Centofanti et al., 2014). There is some interest in determining if hospitals that are Magnet designated have greater prevalence of interprofessional meetings as well as higher attendance by key members as these meetings help facilitate the quality care for which Magnet organizations are known.

2.0 Purpose of the Study

The purpose of this study is to add to the existing evidence about the performance of Magnet and non-Magnet organizations on a number of stated Magnet goals in the ICU setting, specifically nursing staff engagement in research and the implementation of evidence-based interprofessional practices. As the full scope of burnout and turnover becomes increasingly apparent and work towards developing solutions moves to the forefront, Magnet designation increasingly positions itself as an option to assist healthcare systems in elevating a motivated, professionally satisfied workforce. Through this journey, there has been a large focus on Magnet status indicators directly related to burnout. Other Magnet status indicators, such as the generation of new knowledge through empirical evidence and research, have been largely ignored. Insight into the implementation of less studied Magnet indicators, such as willingness to help generate new knowledge, will be the primary focus of this study. Information regarding interprofessional relationships in Magnet organizations, especially in stressful environments like the ICU, where such changes would be most valuable, is also lacking.

3.0 Specific Aims of the Study

The primary aim of this study was to explore differences between Magnet and non-Magnet organizations in scholarly research participation as an indicator of support of professional nursing development and self-efficacy using a descriptive secondary analysis of data from an online survey of ICU medical directors and nurse managers at sampled US hospitals. Secondary aims included the exploration of association between Magnet designation and perceived emotional drain on ICU nurses, interprofessional involvement as measured by prevalence of family meetings, RN involvement in family meetings, prevalence of daily team rounds, and RN involvement in team rounds.

4.0 Methods

4.1 Design

This study was an expanded secondary analysis of data from an online survey of ICU nurse managers and medical directors regarding practices, barriers, and facilitators related to interprofessional family meetings. The parent study surveyed a random, stratified sample of 525 hospitals from the American Hospital Association (AHA) database (stratified by region, hospital size, and level of intensivist involvement). Both medical directors and nurse managers of the sampled ICUs were surveyed on a variety of items including demographics and ICU care practices related to family meetings and interprofessional teamwork. This study expanded upon the data from the parent study by identifying hospitals from the parent sample that were Magnet designated and those that were not using the ANCC website. The nurse manager data was analyzed for differences in leadership demographics as well as a number of other variables relating to team-oriented, patient-centered care.

Both the parent study and this study were approved by the University of Pittsburgh Institutional Review Board (IRB). The data was de-identified to protect participant and hospital privacy. Additionally, all findings are reported without hospital names or involvement to minimize confidentiality concerns. The current expanded secondary analysis is approved by Dr. Jennifer Seaman.

4.2 Sample

From the 2015 AHA database, 2,243 hospitals were initially identified as eligible for analysis. Ineligible hospitals were those with no adult critical care unit, ICUs smaller than 6 beds, federal, military, or Veterans Affairs hospitals, hospitals in US territories, and hospitals whose ICUs had been relocated due to mergers, and hospitals that had closed. From the 2,243 hospitals considered, we reached out to 525 hospitals to be selected for the study based on stratification by region, size, and intensivist involvement. This stratification was performed to ensure that the sample would be a representative sample, rather than a convenience sample. Contact information was obtained for 328 clinicians, of whom 304 were nurse managers. The nurse managers were sent the survey to complete. Of the 304 nurse managers sent the survey, 164 responded with completion of the survey (Figure 2).

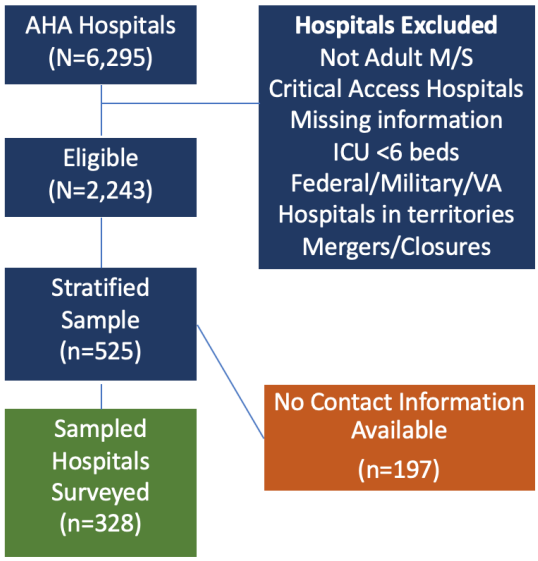

Figure 2. Process to achieve study population with inclusion criteria. Reprinted from "A national survey of barriers, facilitators, practices and care processes related to the conduct of interdisciplinary family meetings in the ICU" by J. B. Seaman. Copyright 2019 by J. B. Seaman. Reprinted with permission.

4.3 Variables and Statistical Analysis

Data was collected from the hospitals through a 15-minute online survey sent to nurse managers who agreed to provide an email address to which the survey was sent. The survey measured nurse manager demographics as well as a number of ICU practices including those related to interprofessional family meetings. These variables included frequency of interprofessional team rounds, family invitation to team rounds, processes to ensure bedside RN attendance at interprofessional family meetings, and actual beside RN attendance and participation in meetings. Specific nurse manager demographics included age, years of experience as a RN, years of ICU experience, years as an ICU nurse manager, and level of education. The online survey was directed to the nurse manager of the medical/generalist ICU if the hospital had more than one ICU. Statistical analysis of the collected data was performed using IBM SPSS Statistics, and while the survey was sent to both the nurse manager and medical director of sample hospitals' ICUs, this analysis is limited to data from nurse managers. The data was separated into two groups by hospital Magnet status and then analyzed. Descriptive data was analyzed using mean, standard deviation, and percentages. Continuous data was analyzed using two-tailed independent t-tests and discrete data was analyzed using chi-square analysis. All statistical testing used a p value of 0.05 as the threshold of statistical significance.

5.0 Results

5.1 Research Participation

The specific aim of this study was to discover differences in research participation between Magnet and non-Magnet organizations as evidenced by the willingness of the ICU nurse manager to engage in a research. This process is twofold, as the ICU nurse manager first had to respond to telephone outreach and express willingness to complete the survey before actually completing and returning the survey. We found that 54 (10.3%) of the 525 hospitals sampled and 29 (17.7%) of the 164 survey respondents were Magnet designated. Nurse managers of Magnet ICUs were significantly more likely to receive and return the survey (53%) compared to those of non-Magnet ICUs (29%; $p < 0.000$).

5.2 Interprofessional Family Meetings

Secondary aims of the study included the identification of ICU practice differences regarding interprofessional family meetings and their perceived emotional drain on nurses in Magnet and non-Magnet designated hospitals. Additionally, nurse manager characteristics were investigated to assess leadership differences between the two types of organizations. There was an 11% difference in rates of nursing leadership with a BSN in Magnet organizations than in non-Magnet organizations, although this difference was no statistically significant. Of note, there were no ADN-prepared or diploma-prepared nurse managers in Magnet organizations, where 10 (34%)

nurse managers were BSN-prepared, 16 (55%) nurse managers were MSN-prepared or held a master's degree in another field of study, such as business, 1 (3%) nurse managers were DNP-prepared, and there were 2 (7%) respondents who did not provide a response to the question. On the other hand, diploma-prepared and ADN-prepared nurses were managers in 19 (14%) of the non-Magnet prepared organizations. In non-Magnet organizations, 59 (44%) nurse managers were BSN-prepared, 44 (33%) were MSN or equivalent masters-prepared, 3 (2%) were DNP-prepared, and 10 (7%) did not provide a response to the question. There was no statistically significant difference in age, years of RN/ICU experience, and years of nurse manager experience (Table 1). However, we did observe several differences between ICUs of Magnet and non-Magnet hospitals on measures related to patient and family-centered care practices, as 19 (65.5%) ICUs at Magnet hospitals invited families to multidisciplinary team rounds, compared to 51 (37.8%) non-Magnet organizations (p=0.006). Additionally, 25 (86.2%) ICU nurse managers in Magnet hospitals reported that bedside RNs were typically involved in interprofessional team rounds, while only 86 (63.7%) non-Magnet nurse managers reported RN involvement (p=0.027). On other measures of ICU interprofessional care practices, such as prevalence of interprofessional team rounds and RN attendance and participation in interprofessional family meetings, there were no statistically significant differences. Additionally, there were no statistically significant differences in perceived emotional drain related to participation in family meetings (Table 1).

Table 1

Participating ICUs	ICUs at Magnet Hospitals (n=29)	ICUs at non-Magnet Hospitals (n=135)	*p*
ICU Nurse Manager Characteristics			
Age M±SD	46.89±10.54	46.66±9.0	0.908
Years RN experience M±SD	22.9±11.7	21.2±9.3	0.477
Years ICU experience M±SD	18.3±11.9	16.5±9.3	0.447
Years as ICU Nurse Manager M±SD	5.5±4.5	6.1 ±6.8	0.687
BSN or greater level of education n(%)	24(82.7)	96(71.1)	0.141
ICU Interprofessional Care Practices			
Have daily interprofessional team rounds n(%)	25(86.2)	95(70.4)	0.081
Families are invited to interprofessional team rounds n(%)	19(65.5)	51(37.8)	0.006*
Bedside RNs are often or always involved in interprofessional team rounds n(%)	25(86.2)	86(63.7)	0.027*
Agree that IPFMs are perceived to be emotionally draining n(%)	13(44.8)	31(23.0)	0.119
Have a process to ensure bedside RNs attend IPFMs** n(%)	17(58.6)	82(60.7)	0.832
Bedside RNs often or always attend IPFMs** n(%)	26(89.7)	119(88.2)	0.404
RN often or always participate in IPFMs** n(%)	18(62.0)	100(74.1)	0.316

*=statistically significant at ≤.05 **Interprofessional Family Meetings

6.0 Discussion

The purpose of this study was to investigate differences between Magnet and non-Magnet organizations based on the Magnet model, such as participation in the generation of new knowledge and emphasis on family-centered patient care in the ICU. This study found that nurse managers of ICUs in Magnet hospitals were significantly more likely to participate in scholarly research than ICU nurse managers in non-Magnet hospitals (p=0.000). Additionally, this study supports the idea that Magnet hospitals have implemented a greater number of interprofessional care practices through more frequent inclusion of bedside RNs and families in interprofessional team rounds more frequently (p=0.027, p=0.006).

6.1 Generation of New Knowledge

The generation of new knowledge is one of the core domains of Magnet designation, and despite being included within the Magnet domain of empirical evidence, was not supported by the literature prior to this study. Outcomes drive Magnet designation, and this finding helps support the adoption of Magnet designation by a greater audience (Wolf et al., 2008). Increased research involvement is one of the most important indicators of research implementation in practice, which can benefit patients, providers, and hospital systems alike (Bostrom & Suter, 1993). This finding strongly supports one of the fundamental pillars within the Magnet framework and highlights the organizational differences that sets Magnet hospitals apart from other high-achieving hospital

systems. This finding is additionally important because the study occurred in the ICU setting, where it is paramount that providers recognize the importance of ongoing research.

6.2 Culture of Interprofessional Practice

Magnet hospitals supported higher levels of interprofessional team involvement outside of the immediate medical management, as both bedside RNs and families were more likely to be included in interprofessional meetings. As physicians typically lead these meetings, if resistance to nursing's inclusion is met, it is often difficult to overcome this barrier (O'Reilly et al., 2017). This study indicates that ICUs in Magnet hospitals may be better equipped to overcome barriers to interprofessional family meetings due to an organizational structure that empowers the nurse. Evidence already supports the idea that family-centered rounding can increase productivity and provider satisfaction without negatively impacting perception by the family (O'Reilly et al., 2017). As such, there is increased reason to support interventions, such as Magnet designation, that can help improve the likelihood that these meetings will occur with all stakeholders present (Cao et al., 2018). Many hospitals already are successful in gaining wide acceptance of daily interprofessional rounding and of having all important members of the team present, but this study supports the finding that Magnet hospitals value family meetings as well as interprofessional team rounds.

6.3 Leadership and Emotional Drain

The findings in this study indicate that there are small differences in qualifications of leadership when viewed statistically. Despite this, there are some differences to note in leadership education level, despite a lack of statistical significance. Non-Magnet organizations still utilize ADN-prepared nurses as nurse managers, while none of the Magnet organizations employed ADN-prepared nurse managers. With a larger sample size and more robust statistical analyses, further research may be performed to discover more regarding these differences. Leadership qualities that are subtler and may have a greater impact on team morale and nurse productivity were not measured. Additionally, there was no significant difference in perceived emotional drain related to interprofessional family meetings, although this value is difficult to interpret because it was reported by the ICU nurse managers rather than by the nurses themselves. Further research into emotional drain and nursing leadership qualities in ICUs may help expand our understanding of environments that help nurses and families achieve greater participation within the care team. Research in this area could also identify the role that Magnet designation can play in the burnout crisis that is unfolding across healthcare and may contribute much needed evidence to combat this trend.

6.4 Limitations

There were several limitations present in the study. First, hospitals that did not respond to the request for research participation were not included in the data. Because nonparticipating ICU nurse managers were not questioned, reasons for a nonresponse may be a confounding variable

that was unaccounted for by the study statistical analysis. As the study participants were stratified by hospital characteristics rather than nurse manager characteristics, there was no way to determine if there were meaningful differences in nurse manager demographics between respondents and nonrespondents. As a result, the data cannot be expanded to evaluate for the presence of response bias. Additionally, although the survey data analyzed for impact on bedside nursing, the survey is completed by nurse managers, who may not be fully informed about the bedside nurses' day-to-day realities. The data was collected through an online survey, which means that there was no easy way for nurse managers to clarify any misunderstandings with the research team and the questions were unable to be changed in response to any feedback throughout the process. Lastly, the percentage of Magnet organizations nationally is so which reduces the power of statistical analyses and makes it difficult to demonstrate statistically significant differences between the two groups. This could be mitigated in future studies through the use of statistical analyses such as case control or propensity matching.

7.0 Conclusion

In this study, ICU nurse managers in Magnet hospitals showed greater willingness to participate in research and the generation of new knowledge compared to those in non-Magnet hospitals. In addition, ICUs in Magnet hospitals were found to support interprofessional practice through greater involvement of bedside RNs in family meetings and team rounds, and to support patient and family centered care through more frequent inclusion of families in team rounds. These findings provide empirical evidence to support the meaningful implementation of The Magnet Model in healthcare organizations. They also give further evidence to support adoption of Magnet designation in hospitals that have yet to achieve it. Moving forward, there is more work that can be done to explore factors underlying the findings in this study and to promote the impact that Magnet designation can have in supporting their providers and patients in a stressed healthcare system.

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