Chapter 46. Magnet Environments for Professional Nursing Practice

Vicki A. Lundmark

Background

In hospital settings, nurses fulfill two roles. Based upon expert knowledge, nurses provide care to the ill or prevent illness. Nurses also maintain and manage the environment surrounding the delivery of care, which has increasingly involved coordinating the care activities provided by other health care providers. Of three reports published since the year 2000 by the Institute of Medicine,[1–3] the 2004 report on patient safety was the first to emphasize the connection between nursing, patient safety, and quality of care. The report specifically noted the importance of organizational management practices, strong nursing leadership, and adequate nurse staffing for providing a safe care environment. The report also noted how frequently the patient safety practices identified by the literature "were the same as those recommended by organizations studying the nursing shortage, worker safety, and patient satisfaction"[3] (p. 317).

While it seems logical to assume that safe and effective patient care depends on the presence of "an organizational context that enables the best performance from each health professional"[4] (p. 186), remarkably little knowledge has accumulated about how the organization and delivery of nursing services influences patient outcomes. One explanation for this situation is that health services research so firmly turned its focus to organization/environment and organization/market questions following the rise of health economics and health maintenance organizations (HMOs) in the 1970s that it was caught somewhat unprepared when quality issues began to emerge in the latter part of the 1990s. As a result, few conceptual tools exist "to address the heart of quality concerns: the internal work processes and arrangements inside health care organizations . . . that contribute to variations in quality"[5] (p. 318).

Another limiting factor has been the inherent challenges of measuring organizational practice environments and the complexity of nursing's effects on patient outcomes. Improved theoretical frameworks and greater methodological rigor will be needed to guide and advance the nursing research on patient outcomes.[6, 7] Nursing research has already been leading the way in this effort, which may not be surprising given the deep knowledge nurses have of the internal workings of health care organizations.[5]

The magnet hospital concept, originating from a groundbreaking study in the early 1980s[8] that sought to explain instances of successful nurse recruitment and retention during a severe nurse shortage, provides one framework for specifying the organizational and practice environment conditions that support and facilitate nursing excellence. The purpose of this chapter is to summarize the magnet research evidence related to nurse or patient outcomes.

Magnet Hospitals and the Attraction and Retention of Professional Nurses

The original magnet study began in 1981 when the American Academy of Nursing appointed a task force to investigate the factors impeding or facilitating professional nursing practice in

hospitals. The four researchers on the task force were working from the knowledge that despite a nursing shortage for a large number of hospitals, a certain number "had succeeded in creating nursing practice organizations that serve as 'magnets' for professional nurses; that is, they are able to attract and retain a staff of well-qualified nurses and are therefore consistently able to provide quality care"[8] (p. 2). Therefore, the research goal was set to explore the factors associated with success in attracting and retaining professional nurses.

Through an extensive nominating process, 41 hospitals from across the country were selected to participate in the study based upon their known reputations as being good places for nurses to work and the evidence they submitted to document a relatively low nurse turnover rate.[9] Subsequently, a series of group interviews was held with representatives from each hospital. Two interviews were conducted in each of eight geographically dispersed locations. In the morning, one of the task force researchers interviewed the chief nurse executives from the participating hospitals in that area. Then, in the afternoon, a second group interview session was held with staff nurses. Each staff nurse who participated in the interviews was selected by his or her chief nurse executive.

Based upon their analysis of this interview data, the task force researchers identified and defined a set of characteristics that seemed to account for the success the 41 reputational magnet hospitals had enjoyed in attracting and keeping a staff of well-qualified nurses at a time when other hospitals around them were not able to do so. The labels given to these characteristics, which have come to be known as the forces of magnetism, are listed below in Table 1. Many of the insights they embody have a long history of study within the sociological literature related to organizational performance, leadership, worker autonomy and motivation, decentralized or participative management, work design, coordination and communication, effective groups and teams, and organizational innovation and change.[10]

Table 1. The Magnet Characteristics of a Professional Practice Environment

Forces of Magnetism 1983 (McClure)[8]	Forces of Magnetism 2005 (ANCC)[11]
Administration	
Quality of leadership	1. Quality of nursing leadership
Organizational structure	2. Organizational structure
Management style	3. Management style
Staffing	4. Personnel policies and programs
Personnel policies and programs	[staffing embedded in #4]
Professional practice	
Professional practice models	5. Professional models of care
Quality of care	6. Quality of care
Quality assurance	7. Quality improvement
Consultation and resources	8. Consultation and resources
Autonomy	9. Autonomy
Community and the hospital	10. Community and the hospital
Nurses as teachers	11. Nurses as teachers
Image of nursing	12. Image of nursing
Nurse-physician relationships	13. Interdisciplinary relationships
Professional development	
Orientation	14. Professional development [original
In-service and continuing education	subgroups embedded]
Formal education	
Career development	

Note: Order shown in the left column has been slightly rearranged for ease of comparison.

The relationship of a magnet environment to quality was recently described by one of the original task force researchers. Looking back on the original magnet study more than 20 years later, McClure wrote[12] (p. 199),

> We found that all these settings had a commonality: their corporate cultures were totally supportive of nursing and of quality patient care. What we learned was that this culture permeated the entire institution. It was palpable and it seemed to be almost a part of the bricks and mortar. Simply stated, these were good places for all employees to work (not just nurses) and these were good places for patients to receive care. The goal of quality was not only stated in the mission of these institutions but it was lived on a daily basis.

The Magnet Recognition Program® of the American Nurses Credentialing Center (ANCC)*

In the early 1990s, the American Nurses Association (ANA) initiated a pilot project to develop an evaluation program based upon the conceptual framework identified by the 1983 magnet research. The program's infrastructure was established within the newly incorporated American Nurses Credentialing Center of the ANA, and the first facility to receive Magnet recognition was named in 1994.[11] Interest in Magnet™ has been increasingly accelerating. While only about 225 organizations have achieved Magnet recognition since the program's inception, nearly two-thirds of them did so within the last 3 years, and the applicant list continues to expand.

Applicants for Magnet recognition undergo a lengthy and comprehensive appraisal process[13] to demonstrate that they have met the criteria for all of the forces of magnetism shown in the right column of Table 1. Currently, documentation or sources of evidence are required in support of 164 topics.[11] Organizations that receive high scores on written documentation move to the site-visit stage of the appraisal and a period of public comment. The philosophy of the program is that nurses function at their peak when a Magnet environment is fully expressed and embedded throughout the health care organization, wherever nursing is practiced. Magnet organizations submit annual reports and must reapply every 4 years to maintain their recognition.

In the context of a rapidly evolving health care system, ANCC has the responsibility as a credentialing body to continuously refine and improve the criteria it uses for Magnet recognition in order to "separate true magnets from those that simply want to achieve the recognition"[14] (p. 123). ANCC does so by evaluating new information from multiple sources, the scholarly research literature, expert groups convened to deliberate specific issues, and feedback from Magnet facilities and appraisers, particularly in relation to identifying effective and innovative practices.

Continuity between the original magnet research and ANCC's Magnet program is provided by the conceptual framework for the forces of magnetism. Little has changed in the essential definitions for the forces except that ANCC has revised them to reflect contemporary hospital settings and elaborated under each force a set of required documentation for applicants to submit and appraisers to evaluate. Beginning in 2005, however, an important change appeared in the

* The Magnet Recognition Program® and ANCC Magnet Recognition® names and logos are registered trademarks of the American Nurses Credentialing Center. Magnet™ is a trademark of the American Nurses Credentialing Center. Magnet is capitalized in this chapter when it refers to the ANCC Magnet Recognition Program or to organizations that have been designated Magnet by the Magnet Recognition Program.

Magnet application process. Whereas previous application manuals had itemized evidence requirements according to ANA's *Scope and Standards for Nurse Administrators*,[15] the new manual version[11] reorganized the criteria into the framework of the forces of magnetism. This transition should help to clarify the correspondence between the elements ANCC's Magnet program evaluates in its appraisal process and the magnet characteristics that nursing and health services researchers study.

Reviewing the Evidence

Research studies were retrieved for this review by searching PubMed® and CINAHL® for articles referencing magnet or magnetism in the title or abstract. Two inclusion criteria were used. (More details can be found below, in "Search Strategy.") The articles had to (a) report findings from analyses of primary or secondary data, and (b) investigate relationships between magnet variables and nurse or patient outcomes. Nurse outcomes of interest were job satisfaction, burnout, and intention to leave[16, 17] or similar variables such as mental health. Nurse perceptions of patient care quality has been a frequently used measure in the magnet-related survey research, and one study used nurse perceptions of safety climate as the dependent variable. But studies that included patient outcome variables measured from other sources were seldom found, although patient mortality and patient satisfaction are represented in the evidence tables.

Limitations of the Research

Overwhelmingly, the magnet research has been dominated by cross-sectional survey studies with convenience samples of organizations and staff nurse respondents. The basic approaches used to capture magnet environments in the research have been to include organizations from the 1983 magnet study or with ANCC Magnet recognition in the hospital sample or to administer survey scales believed to measure magnet characteristics, traits, or factors. Usually, but not always, these approaches have been used in combination. Analyses have typically been limited to simple comparisons of survey items or subscale results between two groups.

With few exceptions, the majority of this research has suffered from two major limitations: biased sampling at both the organizational and respondent level; and a scarcity of comprehensive, valid, and reliable measures for assessing the level of magnet characteristics present in any setting. Unless magnet characteristics are measured adequately across the organizations participating in a study, the degree to which their presence differs between the comparison groups cannot be assessed. Because the organizations that have attained ANCC Magnet recognition constitute a voluntary sample, it is possible that high levels of some or many magnet characteristics may also exist in other organizations that have not chosen to apply for the recognition.

Overwhelmingly, the survey scales most frequently used to measure magnet characteristics have all derived from the Nursing Work Index (NWI). Because these scales have dominated the magnet research, it is important to understand how they are constituted and how they have evolved over time. The first version of the NWI was designed to inclusively and comprehensively reflect the findings of the 1983 magnet research study.[18] It was intended to measure four variables: work values related to staff nurse job satisfaction, work values related to perceived productivity, staff nurse job satisfaction, and perceived productivity (the perception of

an environment conducive to quality nursing care). Content validity for the instrument was assured by having three of the four original magnet researchers review it for inclusiveness.[19] The NWI consisted of 65 items and asked respondents to make three Likert-scale judgments on each item.

Aiken[20] subsequently adapted the NWI to measure only organizational features by dropping the judgment statements related to job satisfaction and perceived productivity. Compared to the NWI, the NWI-Revised (NWI-R) contained fewer items, but otherwise remained the same except that one item was modified and two more were added. Four NWI-R subscales were conceptually derived from an item subset.[21]

Two of the NWI-R subscale domains, nurse autonomy and nurse-physician relationships, are readily recognizable in comparison to the forces of magnetism listed in Table 1. The other two domains, organizational support and control over nursing practice, are represented by sets of items that could be classified across several forces of magnetism. Control over nursing practice is defined as organizational autonomy or the freedom to take the initiative in shaping unit and institutional policies for patient care. Hinshaw[22] described clinical autonomy and organizational autonomy as interactive concepts. Both types of autonomy were evident in the findings from the original magnet study.[8, 23]

Since the NWI-R was developed nearly a decade before any subsequent NWI-derived scale versions appeared, the NWI-R has been the most frequently used measure of magnet characteristics in magnet research. An advantage of this fact has been the ability to compare findings across studies. A disadvantage may have been the formation of a wide impression that the magnet hospital concept is more circumscribed than it actually is. In the literature reviewed here, the phrase most frequently used to introduce the magnet concept to readers directly cites the NWI-R subscales; magnet is said to describe hospitals where nurses have greater autonomy, control over nursing practice, and good nurse-physician relationships. Given nursing's history as a subordinated profession,[24] one can understand that these three dimensions of the magnet concept attracted the most initial attention.

In the last 5 years, three additional versions of the NWI have appeared. Except for minor changes in wording, all use items from the NWI or the NWI-R as originally written. However, each version consists of different, empirically derived scale or subscale formations. Lake[25] created the 31-item Practice Environment Scale of the NWI (PES/NWI) with five subscales and an overarching composite scale. Estabrooks and colleagues[26] created a single-factor, 26-item scale called the Practice Environment Index (PEI). Choi and colleagues[27] created the Perceived Nursing Work Environment scale (PNWE)[†] with 42 items and 7 subscales. Neither the PEI nor the PNWE measures appear in the studies reviewed here.

Research Evidence

The evidence tables in this chapter are divided into three parts. Evidence Table 1 covers the early research period and itemizes studies conducted with hospitals from the group of 41 reputational magnets that participated in the 1983 study. Evidence Table 2 includes studies that compared health care organizations with and without designation as ANCC-recognized Magnets. Finally, Evidence Table 3 itemizes studies that investigated the relationship of various magnet

[†] Subscales for the PNWE are labeled professional practice, staffing and resource adequacy, nurse management, nursing process, nurse-physician collaboration, nurse competence, and positive scheduling climate.

characteristics to outcomes. Insofar as possible, the evidence tables are arranged in chronological order to illustrate how magnet research has progressed since the concept of a magnet environment first appeared in the literature in the 1980s. In addition, each row or panel in the tables represents a single data collection event. If multiple articles were generated from a single data collection effort, they are cited together in the same panel of the table. The purpose of this arrangement is to present a clearer picture of the body of evidence as a whole, revealing that the total number of data sources (with their associated measures and methods) that have constituted the magnet research since 1983 is relatively small. In addition, this arrangement draws attention to which articles are better read as a set by anyone wishing to understand the research in detail. Methodological information related to a single data collection effort can sometimes be scattered across multiple publications.

Evidence Table 1 includes two of the most compelling studies to have come out of the magnet literature, those initiated by Aiken and her colleagues[28-35] within a decade of the publication of the original magnet study. For the Medicare mortality study[28], magnet characteristics were not directly measured. However, the use of risk adjustment techniques for predicted mortality and multivariate matched sampling methods to control for factors that might affect mortality provided strong support for concluding that the set of reputational magnet hospitals was uniquely different as a group. As Aiken has summarized it, these "findings suggest that the same factors that lead hospitals to be identified as effective from the standpoint of the organization of nursing care are associated with lower mortality"[20] (p. 72).

Guided by a conceptual framework originating in the sociology of organizations and professions,[20] the second compelling study[29-35] was formulated to examine how certain modifications to the organization of nursing in hospitals introduced by the AIDS epidemic affected patient and nurse outcomes. The AIDS epidemic in combination with high nurse vacancy rates caused a number of urban hospitals to grant "unusual discretion to nurses to redesign general medical units into dedicated AIDS units"[20] (p. 63). Since the comparison group of hospitals for this study included two reputational magnet hospitals and a third hospital believed to be magnet-comparable, the researchers were able to discern that many of the same positive results achieved in dedicated AIDS units could apparently be attained by making changes at the organizational level. Magnet characteristics (as measured by the NWI-R subscales) were associated with significantly better outcomes for nurse safety, job burnout, patient satisfaction, and mortality 30 days from admission.

The studies shown in Evidence Table 2 consistently display positive results relating magnet characteristics (as measured by the NWI-R or PES/NWI subscales) to nurse job satisfaction, burnout, intention to leave, and perceived quality of care. The exception to this finding is the mixed results shown for the nurse-physician relationship subscale. Havens's[36] study with chief nurse executives found higher levels on the NWI-R subscales to be associated with reports of higher patient care quality, less recruitment difficulty, and fewer patient/family complaints. The studies shown in the first two rows of Evidence Table 2, which demonstrated more favorable results for the ANCC Magnet group compared to the reputational magnet group, also supported the view expressed by McClure and Hinshaw that magnet status "is not a permanent institutional characteristic but rather one that requires constant nurturing"[14] (p. 119).

Evidence Table 3 lists three studies that explored the degree to which magnet characteristics could be found in hospitals outside the United States or in nonhospital settings. Thomas-Hawkins and colleagues[37] and Smith, Tallman, and Kelly[38] found that some magnet characteristics linked significantly to intentions to leave in freestanding dialysis units and to job satisfaction in rural

Canadian hospitals, respectively. Rondeau and Wagar[39] found significant associations between magnet characteristics and resident satisfaction and nurse satisfaction, turnover, and vacancy rates in long-term care organizations in western Canada.

The remaining studies shown in Evidence Table 3 are important for a number of reasons. Using multiple measures, a variety of samples and respondent groups, and more powerful analyses, Laschinger and her colleagues[40-44] have been testing a theoretical model linking structural empowerment and magnet characteristics (as measured by the NWI-R or PES/NWI) to nurse and patient outcomes with variables such as trust and burnout posited as mediators. The empowerment dimensions being measured—perceptions of formal and informal power and access to opportunity, information, support, and resources—also appear to overlay some descriptions of magnet characteristics from the original 1983 research. By testing relationships with a set of theoretically selected variables and multivariate statistical methods, the studies of Laschinger and colleagues have been progressively building knowledge about how factors in the complex nursing practice environment interact with each other to affect outcomes.

The work that will be required to explicate how the organization and delivery of nursing services functions as a mechanism to improve patient safety and the quality of care has only just begun. The literature review conducted by Lundstrom and colleagues[45] found a number of studies that start to suggest the mechanisms by which organizational and work environment factors influence worker performance and ultimately patient outcomes. However, the authors also noted, "What we do know about changes in organization and structure of hospitals and the potential for those changes to affect patient outcomes pales by comparison to what we do not know"[45] (p. 103).

Reviewing the magnet research presented in this chapter leads to similar conclusions. The evidence almost uniformly shows consistent positive relations between job satisfaction or nurse-assessed quality of care and the magnet characteristics measured by subscales of the NWI-R or PES/NWI. But the connections from those results based on staff nurse surveys to patient outcomes measured objectively by other means have seldom been studied.

In a recent systematic review of the hospital nursing environment's effect on patient mortality, Kazanjian and colleagues[6] found associations between unfavorable environment attributes and higher patient mortality rates in 19 of 27 studies. However, other studies of the same attributes showed contrary or neutral results. Too much variability existed in measures, settings, and methodological rigor across studies to permit any pooling of results. The authors concluded it would be difficult to determine "how to design optimal practice settings until mechanisms linking practice environment to outcomes are better understood"[6] (p. 111).

Evidence-Based Practice Implications

The magnet framework outlined in Table 1 specifies a set of factors important for establishing positive work environments that support professional nursing practice. As the evidence reviewed in this chapter shows, few studies have explored the relationship of magnet characteristics to patient outcomes. Since the associations found were consistently positive, this constitutes a promising body of work, but one that is just beginning to emerge. In contrast, more evidence has accumulated to demonstrate links between magnet characteristics or Magnet recognition and favorable outcomes for nurses such as lower burnout, higher satisfaction, and fewer reports of intentions to leave. The practice implications suggested by these findings have been delineated in detail by the Institute of Medicine's 2004 report on patient safety, which

included a comprehensive review of the research that clarifies how nurse outcomes reflect and interact with working conditions to affect patient safety and quality.[3]

Keeping Patients Safe: Transforming the Work Environment of Nurses cited conditions in the work environments of nurses as "the primary sources" of threats to patient safety that "must be addressed if patient safety is to be improved"[3] (p. 47). The report presented a series of recommendations for improving leadership, management, and organizational support practices that emphasizes the increased participation of employees in work design, problem-solving, and organizational decisionmaking as a "key ingredient to successful organizational change"[3] (p. 260). The report noted that high involvement in decisionmaking for nurses "has been studied under a number of constructs, including shared governance, nursing empowerment, control over nursing practice, and clinical autonomy"[3] (p. 122).

In keeping with the realization that threats to patient safety result from complex causes,[2] *Keeping Patients Safe* identified a multifactor approach to creating favorable work environments for nurses. Many of the strategies and goals described in the report correspond to the descriptions of magnet environments initially provided by McClure and colleagues[8] and currently elaborated for contemporary settings in the appraisal criteria for Magnet recognition.[11] For example, of the 27 goals the report listed as "Necessary Patient Safeguards in the Work Environment of Nurses"[3] (p. 16–17), 20 are addressed by the current evidence requirements for Magnet recognition.[11] The multidimensionality of the magnet framework reflects the highly complex, variable, multilevel, and multifaceted nature of nursing practice environments, but it also poses measurement challenges for researchers interested in studying the influence of magnet environments on outcomes.

Research Implications

Mick and Mark[5] have argued that while nursing research has contributed substantially to the knowledge about how internal structures and work processes relate to patient safety and quality outcomes in health care organizations, there is a compelling need to improve the methodological sophistication of the research and to expand the theoretical frameworks that guide it. Many of the suggestions they make for doing so are echoed in the research implications generated by this review. Greater attention needs to be paid to addressing sampling bias issues, improving critical measures, collecting objective data from sources other than nurse self-reports, and designing multilevel and longitudinal studies. As Table 1 reveals, the conceptual definition of a magnet environment encompasses many fields and disciplines from which theoretical insights may be borrowed and tested.

Taking better account of multiple organizational perspectives and hierarchical levels in the research will build knowledge about how the relationships between magnet characteristics and patient outcomes differ by role or practice location. For example, Laschinger, Almost, and Tuer-Hodes[41] found that magnet characteristics and empowerment related differently to each other and to job satisfaction for nurse practitioners than for staff nurses, and Friese's[46] results differed significantly on some magnet characteristics only for oncology nurses. Distinguishing unit locations may be particularly important. Mick and Mark have claimed that "it is the exploration of work structures and processes at the nursing unit level that is contributing to the lion's share of advancing knowledge about what does and does not have an impact on patient and organizational outcomes"[5] (p. 319).

Finally, while the NWI-R and later versions of the NWI have yielded a wealth of useful data, questions have also been raised as to the measurement adequacy of at least three of them.[47] Variable, unpredictable, contextually sensitive, and multifaceted,[25, 47] "the nursing practice environment is a complex construct to conceptualize and measure"[25] (p. 177). Yet developing, improving, and refining measures to reliably capture all of the factors of a magnet environment may be the most important next step.

Conclusion

The magnet concept defines a framework for facilitating the professional practice of nursing that has demonstrated effectiveness in attracting nurses and shows promise for contributing to optimal patient outcomes. There is a compelling need to improve the measures and methods used to research magnet characteristics and environments before the links that connect organizational context to nurse and patient outcomes can be sufficiently understood.

Search Strategy

A series of searches was carried out in October 2006 using the National Library of Medicine's PubMed database and the Cumulative Index of Nursing and Allied Health Literature (CINAHL) database. Several search terms and phrases including the word "magnet" or "magnetism" were tested in both cases. The most effective were "magnet[Title/abstract] and nursing[Title/abstract]" in PubMed and "magnet" in [TI Title] OR "magnet" in [AB Abstract or Author-Supplied Abstract] with advanced search in CINAHL. Supplementary backup searches were also performed substituting the word "magnetism" for "magnet" in CINAHL and the word "hospitals" for "nursing" in PubMed. The PubMed searches yielded 134 unique titles to review. Cross-checking the CINAHL results against the PubMed lists yielded two additional titles.

The overwhelming majority of articles identified by these searches fell into editorial, interpretive, or narrative categories—especially narratives describing how an individual organization prepared for or achieved ANCC Magnet recognition. If an abstract was ambiguous about whether the article reported results from a primary or secondary data analysis, the article itself was retrieved in order to make a determination. The article by Laschinger and Leiter[44] was previously known and not identified by the search strategy.

Author Affiliations

Vicki A. Lundmark, Ph.D., director, research, American Nurses Credentialing Center. E-mail: Vicki.lundmark@ana.org.

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Evidence Table 1.[‡] Studies With Reputational Magnet Hospitals

Source	Environment Issue/Attribute Related to Clinical Practice	Design Type	Study Design & Study Outcome Measure(s)	Study Setting & Study Population	Key Finding(s)
Kramer and Hafner 1989[19] Kramer and Schmalenberg 1987[48-51] Kramer, Schmalenberg, and Hafner 1988[52]	Nursing Work Index (NWI), 65 items designed to measure work values representing the findings from the 1983 original magnet study Other measures: • culture of excellence, 8 items suggested by Peters and Waterman[53] • locus of control • autonomy-patient advocacy • self-concept/self-esteem • role behavior scales	Cross-sectional studies	Cross-sectional survey, interviews, observations, document review Outcomes: from NWI: • job satisfaction • perceived productivity of quality patient care	1985–86 data collection 16 reputational magnets proportionate by region, 8 comparison county, community, and medical center hospitals in Virginia Survey n = 2,236 staff nurses, 1,634 in reputational magnet and 702 in comparison group; interview n = 800+ staff nurses, 632 nurse managers/executives	Staff nurses in magnet hospitals had significantly higher scores on • job satisfaction • perceived productivity of quality care Causal model testing to predict outcomes with 31 variables produced no findings.
Kramer and Schmalenberg 1991[54, 55]	Magnet factors: • perceived adequacy of staffing • image of nurses • how nursing is valued (how important, how active, how powerful) Other measures: • culture of excellence, 39 items to represent 7 attributes	Cross-sectional studies	Cross-sectional survey Outcome: Overall job satisfaction: • organizational structure (7 items) • professional practice (5 items) • management style (5 items) • quality of leadership (4 items) • professional development (3 items)	1989–90 data collection Survey n = 939 nurses in 14 reputational magnets (from 1985–86 sample), 808 nurses in comparison "panel" sampled from 5,000 *Nursing89* subscribers	Nurses in magnet hospitals had significantly more positive scores on • job satisfaction Nurses in magnet hospitals reported higher levels for • a culture of excellence • perceived adequacy of staffing • image of nursing • value of nursing

[‡] To illustrate how this research has developed and expanded over time, the evidence tables in this chapter are arranged in chronological order by the data collection date for each study, when available, or publication date.

Source	Environment Issue/Attribute Related to Clinical Practice	Design Type	Study Design & Study Outcome Measure(s)	Study Setting & Study Population	Key Finding(s)
Aiken, Smith, and Lake 1994[28]	Status as a reputational magnet hospital	Cross-sectional studies	Cross-sectional; multivariate matched sampling procedure to control for relevant hospital characteristics (e.g., teaching status, technology availability, board certification of physicians, emergency room presence), adjusting for differences in predicted mortality for Medicare patients Outcome: Medicare mortality rate (within 30 days of admission)	1988 Medicare data 39 reputational magnet hospitals (census of all available or eligible), 195 control hospitals (5 matches for each magnet) from all nonmagnet U.S. hospitals with >100 Medicare discharges	Magnet hospitals had a 4.5% lower mortality rate (95% CI (confidence interval) = 0.9 to 9.4 fewer deaths per 1,000 discharges).
Aiken and Sloane 1997[29, 30] Aiken, Sochalski, and Lake 1997[31] Aiken, Sloane and Lake 1997[32] Aiken, Lake, Sochalski 1997[33] Aiken, Sloane, and Klocinski 1997[34] Aiken, Sloane, Lake 1999[35]	Nursing Work Index-Revised (NWI-R), 57 items, with subscales for • nurse autonomy (5 items) • control over nursing practice setting (7 items) • nurse relations with physicians (2 items) • organizational support (10 items from previous 3 subscales)	Cross-sectional studies	Cross-sectional survey, needlestick reports for a 30-day period, patient interviews, patient chart abstraction Outcomes: Nurse — • job burnout • safety (needlesticks) Patient — • satisfaction with care (multi-item scale and a single-item overall rating) • mortality 30 days from admission	1991 data collection 40 medical units, 2 in each of 20 urban hospitals located throughout U.S., 10 hospitals with dedicated AIDS units, 10 matched comparable hospitals without AIDS units (scattered-bed), 2 comparison hospitals were reputational magnets, 1 more was considered magnet based on researcher knowledge of facility Survey n = 820 RNs from all employed on units ≥16 hours per week (86% response rate); interview n = 594 patients; chart outcomes for 1,205 AIDS patients	Patients with AIDS in magnet scattered-bed units had lower odds of dying than in any other setting; higher nurse-to-patient ratios were determined to be the major explanatory factor. Patient satisfaction was highest in magnet hospitals; control over nursing practice setting was determined to be the single most important explanatory factor. Nurses in magnet hospitals sustained significantly fewer needlestick injuries. Nurses in magnet hospitals and dedicated AIDS units had significantly more positive scores for emotional exhaustion, autonomy, nurse control over resources, and nurse-physician relations.

Source	Environment Issue/Attribute Related to Clinical Practice	Design Type	Study Design & Study Outcome Measure(s)	Study Setting & Study Population	Key Finding(s)
Scott, Sochalski, and Aiken 1999[23]		Literature review, narrative	Search method unstated.		Summarizes findings cited in this table and synthesizes insights from these and additional magnet studies to illuminate the leadership characteristics and professional practice attributes found within reputational magnet hospitals.

Evidence Table 2. Studies Comparing Health Care Organizations With and Without ANCC Magnet Recognition

Source	Environment Issue/Attribute Related to Clinical Practice	Design Type	Study Design & Study Outcome Measure(s)	Study Setting & Study Population	Key Finding(s)
Aiken, Havens, and Sloane 2000[56] Friese 2005[46]	NWI-R single items and subscales, Aiken et al.: • nurses' autonomy • nurses' control over the practice setting • nurse relations with physicians Practice Environment Scale/Nursing Work Index (PES/NWI), Friese: • nurse participation in hospital affairs (9 items) • nursing foundations for quality of care (10 items) • nurse manager ability, leadership, and support of nurses (5 items) • staffing and resource adequacy (4 items) • collegial nurse-physician relations (3 items) Other measures: • job characteristics (hours worked, workload, supervisory responsibilities, nonnursing duties)	Cross-sectional studies	Cross-sectional, comparative multisite observational Outcomes: • perceived quality of care • job satisfaction • intent to leave • burnout (Maslach Burnout Inventory)	1998 data collection 7 ANCC Magnets (census as of study date), 13 reputational magnets (12 from Kramer et al.'s 1985–86 sample) with 2 additional teaching hospitals included in Friese's secondary analysis Aiken et al. survey n = 2,045 RNs in medical or surgical units, 1,064 in ANCC Magnet and 981 in reputational magnet group Friese analysis n = 1,956 of which 305 = oncology nurses (155 in ANCC Magnet and 150 in comparison group) and 1,651 = nononcology nurses (755 in ANCC Magnet and 896 in comparison group)	Nurses in ANCC Magnets were significantly more likely to report • higher ratings of care quality • higher job satisfaction • less frequently feeling burned out, emotionally drained, and frustrated by their job Oncology nurses in ANCC Magnets reported nearly half the exhaustion levels of oncology nurses in the 13 reputational magnets and 2 teaching hospitals. In both analyses, most NWI-related subscale scores were significantly higher for nurses in the ANCC Magnet group; exceptions were that scores for nurse-physician relations and nurse manager ability, leadership, and support differed significantly, favoring ANCC Magnets only for oncology nurses.
Havens 2001[36]	NWI-R subscale: • organizational support Other measures: • degree restructuring implemented, 9 items	Cross-sectional studies	Cross-sectional survey; comparative Outcomes: • difficulty recruiting staff RNs (1 item) • quality of patient care (global ratings and reports of complaints)	1999–2000 data collection 21 ANCC Magnets, 35 reputational magnet hospitals (census samples of both groups) Survey n = 43 chief nurse executives, 19 in ANCC Magnet and 24 in reputational magnet group	Chief nurse executives in the ANCC Magnet group reported less difficulty recruiting RNs and were significantly more likely to report • high quality patient care • fewer patient/family complaints • organizational support for autonomy, control over practice, and nurse-physician collaboration

Source	Environment Issue/Attribute Related to Clinical Practice	Design Type	Study Design & Study Outcome Measure(s)	Study Setting & Study Population	Key Finding(s)
Upenieks 2002, 2003[57, 58]	Power and empowerment – Conditions of Work Effectiveness Questionnaire-II (CWEQ-II) 20 items: • 2 global items • 4 subscales to measure perceived access to opportunity, information, support, and resources	Cross-sectional studies	Cross-sectional survey Outcome: Job satisfaction - NWI-R subscales: • autonomy • nurse control over practice setting • relations between nurses and physicians Plus 3 researcher-designed subscales: • self-governance (7 items) • organizational structure (6 items) • education opportunities (6 items)	Convenience sample of 2 ANCC Magnets, 2 comparable comparison hospitals Survey n = 305 medical-surgical nurses	Nurses in the ANCC Magnet group had significantly higher scores on • job satisfaction • power and empowerment
Brady-Schwartz 2005[59]	Status as ANCC-recognized Magnet	Cross-sectional studies	Cross-sectional survey; quantitative, descriptive correlational Outcome: • overall job satisfaction (total McCloskey Mueller Satisfaction Scale score; subscales: extrinsic rewards, scheduling, family/ work balance, coworkers, interaction, professional opportunities, praise and recognition, control/ responsibility) • intention to leave (Anticipated Turnover Scale)	3 ANCC Magnets, 3 comparison hospitals Survey n = 470 RNs, 173 in ANCC Magnet and 297 in comparison group	Nurses in ANCC Magnet group had significantly higher overall job satisfaction, including significant subscale differences for professional opportunities, control/responsibility, and extrinsic rewards. Higher overall job satisfaction correlated with stronger perceptions of voluntarily remaining in current position.

Evidence Table 3. Studies of Magnet Characteristics

Source	Environment Issue/Attribute Related to Clinical Practice	Design Type	Study Design & Study Outcome Measure(s)	Study Setting & Study Population	Key Finding(s)
Laschinger, Shamian, and Thomson 2001[40]	Magnet characteristics—NWI-R subscales: • nurse autonomy • nurse control over practice setting • nurses' relations with physicians Other measures: • trust and confidence in management — Interpersonal Trust at Work Scale • burnout—The Human Services Survey, 3 components (emotional exhaustion, depersonalization, decreased personal accomplishments)	Cross-sectional studies	Cross-sectional survey Outcomes: • job satisfaction • perceived quality of care • perceived quality of unit	Ontario, Canada Survey n = 3,016 staff nurses from medical-surgical settings (subsample from a stratified random sample) in 135 hospitals	Model testing with these variables explained 39–40% of the variance with either job satisfaction or nurse-assessed quality as the outcome. Magnet characteristics influenced job satisfaction and perceptions of care quality with trust in management and emotional exhaustion as important mediators. Higher levels of magnet characteristics were associated with higher levels of trust in management and lower levels of burnout.
Thomas-Hawkins, Denno, Currier 2003[37]	Magnet characteristics – PES/NWI subscales (some items adapted to reflect setting): • nurse participation in hospital affairs • nursing foundations for quality of care • nurse manager ability, leadership, and support of nurses • staffing and resource adequacy • collegial nurse-physician relations	Cross-sectional studies	Cross-sectional survey Outcome: intentions to leave job in next year (1 item)	United States 1,000 staff nurses working in freestanding hemodialysis facilities (random sample from American Nephrology Nurses' Association members)	Nurses who intended to leave their jobs reported significantly lower levels of magnet characteristics represented by all of the PES/NWI subscales except for collegial relations between nurses and physicians.

Source	Environment Issue/Attribute Related to Clinical Practice	Design Type	Study Design & Study Outcome Measure(s)	Study Setting & Study Population	Key Finding(s)
Laschinger, Almost, and Tuer-Hodes 2003[41]	Magnet characteristics—NWI-R subscales: • nurse autonomy • nurse control over practice setting • nurses' relations with physicians Other measures: Empowerment • CWEQ-II, 4 subscales: access to opportunity, information, support, and resources • Job Activities Scale-II, 3 items: perceptions of formal power • Organizational Relationships Scale-II, 4 items: perceptions of informal power	Cross-sectional studies	Cross-sectional survey data from 3 independent studies; predictive, nonexperimental Outcomes: • Global Job Satisfaction Questionnaire (Studies 1, 3) • Nurse Job Satisfaction Questionnaire (Study 2)	Ontario, Canada Study 1: survey n = 233 randomly selected staff nurses from urban tertiary care hospitals throughout Ontario Study 2: survey n = 263 randomly selected staff nurses from 3 rural community hospitals in a western Ontario network of 8 Study 3: survey n = 55 acute care nurse practitioners from urban tertiary care hospitals throughout Ontario	For staff nurses, empowerment and magnet characteristics were significant independent predictors of job satisfaction; for nurse practitioners, the combination of empowerment and magnet characteristics significantly predicted job satisfaction. Average ratings on empowerment and magnet characteristics were moderate for staff nurses and higher for nurse practitioners. Total scores on empowerment and magnet characteristics were strongly correlated for all three samples; the most strongly related empowerment features were access to resources for staff nurses and access to information for nurse practitioners. All empowerment dimensions related significantly to perceptions of autonomy; access to resources related most strongly to control over practice environment; and informal power related most strongly to nurse-physician relationships.

Source	Environment Issue/Attribute Related to Clinical Practice	Design Type	Study Design & Study Outcome Measure(s)	Study Setting & Study Population	Key Finding(s)
Tigert and Laschinger 2004[42]	Magnet characteristics – NWI-R subscales: • nurse autonomy • nurse control over practice setting • nurses' relations with physicians Other measures: Empowerment • CWEQ-II, 4 subscales: access to opportunity, information, support, and resources • Job Activities Scale-II, 3 items: perceptions of formal power • Organizational Relationships Scale-II, 4 items: perceptions of informal power	Cross-sectional studies	Cross-sectional, correlational survey design Outcomes: mental health • State of Mind subscale (5 items) from the Pressure Management Indicator • Emotional Exhaustion subscale (6 items) from the Maslach Burnout Inventory	Ontario, Canada; Data collected 2001 Survey n = 75 critical care nurses, a subsample of 239 nurses working in teaching hospitals (randomly selected from College of Nurses of Ontario)	The combined effects of empowerment and magnet characteristics explained 19% of the variance in burnout and 12% of the variance in state of mind. Empowerment related significantly and positively to perceptions of magnet characteristics; however, only empowerment was a significant independent predictor of emotional exhaustion, and only magnet characteristics were a significant predictor of state of mind.
Rondeau and Wagar 2006[39]	Magnet similarity represented by employer-of-choice strength (7 items, e.g., how establishment views, values, treats its nursing personnel; how staff and community view its treatment of nurses) Other magnet characteristics measures: • high involvement (high commitment) work practices (10 items) • progressive, participatory decisionmaking workplace culture (3 items) • training support (10 items)	Cross-sectional studies	Cross-sectional survey Outcomes: • resident satisfaction (3 items) • nurse turnover and vacancy rates • nurse satisfaction (3 items)	Canada Data collected 2003 Survey n = 114 nurse executives sampled from all long-term care organizations (nursing homes) in western Canada with ≥35 beds	Higher scores on magnet employer-of-choice strength were significantly associated with • higher resident satisfaction • lower turnover and vacancy rates • higher nurse satisfaction • high involvement work practices • progressive decisionmaking • nurse training opportunities and assistance

Source	Environment Issue/Attribute Related to Clinical Practice	Design Type	Study Design & Study Outcome Measure(s)	Study Setting & Study Population	Key Finding(s)
Smith, Tallman, and Kelly 2006[38]	Magnet characteristics categories: • supportive management (5 items) • professional autonomy and responsibility (4 items) • nurse-physician working relationship (2 items) • nurse-manager working relationship (2 items)	Cross-sectional studies	Cross-sectional survey, interviews Outcome: job satisfaction (3 items from Job Diagnostic Survey)	Canada Survey n = 123 nurses in diverse clinical areas from 13 rural northwestern hospitals recruited via circulating letter/flyer	All magnet characteristics items were significantly but modestly correlated with job satisfaction except for the 2 items measuring nurse-physician relationship and 1 of the 4 autonomy items.
Armstrong and Laschinger 2006[43]	Magnet characteristics – PES-NWI subscales: • nurse participation in hospital affairs • nursing foundations for quality of care • nurse manager ability, leadership, and support of nurses • staffing and resource adequacy • collegial nurse-physician relations Other measures: Structural empowerment – CWEQ-II, 2 global items and 6 components: access to opportunity, information, support, resources, formal power, and informal power	Cross-sectional studies	Cross-sectional survey; exploratory; predictive, nonexperimental Outcome measure*:* Safety Climate Survey	Canada 40 staff nurses working in a small community hospital in central Canada	The combination of structural empowerment and magnet characteristics was a significant predictor of perceptions of patient safety climate. Overall empowerment significantly positively related to all magnet characteristics, with total empowerment most strongly related to use of a nursing model of care and good nursing leadership on the unit.

Source	Environment Issue/Attribute Related to Clinical Practice	Design Type	Study Design & Study Outcome Measure(s)	Study Setting & Study Population	Key Finding(s)
Laschinger and Leiter 2006[44]	Magnet characteristics – PES-NWI subscales: • nurse participation in hospital affairs • nursing foundations for quality of care • nurse manager ability, leadership, and support of nurses • staffing and resource adequacy • collegial nurse-physician relations Other measures: Maslach Burnout Inventory–Human Service Scale, 3 subscales: • emotional exhaustion (9 items) • depersonalization (5 items) • personal accomplishment (8 items)	Cross-sectional studies	Cross-sectional survey Outcome measure: adverse events (nurse-reported frequency of occurrence of negative patient events in past year: • falls • nosocomial infections • medication errors • patient complaints)	Canada Survey n = 8,597 nurses (4,606 from a stratified random sample of licensing registry lists in Ontario and 3,991 from a census sample of acute care nurses in Alberta), a subset of participants in the *International Survey of Hospital Staffing and Organization of Patient Outcomes* conducted in 5 countries	With all measured components included in the model, structural equation modeling analysis showed direct and indirect effects of all environment factors on patient safety outcomes partially mediated by burnout. Both staffing adequacy and use of a nursing model of care directly affected patient safety outcomes. Staffing adequacy directly affected emotional exhaustion, and use of a nursing care model directly affected personal accomplishment. Nursing leadership played a fundamental role in relation to policy involvement, staffing adequacy, RN-MD relationships, and support for a nursing (vs. medical) model of care.