Building an International Nursing Outcomes Research Agenda

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A program of research begins with a good idea that materializes into a series of studies that carry the same theme. Each study builds upon the last, expanding on the findings to generate new questions, thus building the evidence base. The Center for Health Outcomes and Policy Research has built a 20-year program of research that has made great strides in establishing the evidence base that professional nurse practice models of care positively influence patient outcomes. This paper traces the evolution of the Center's program of research from a one-state focus to an international enterprise. [Asian Nursing Research 2008;2(2):69–73]

Key Words  magnet hospitals, nursing, nursing research, outcomes, practice environment

INTRODUCTION

In the early 1980s, the American Academy of Nursing conducted a national study designed to identify hospitals that were successful in recruiting and retaining nurses, and to explore the organizational features that these hospitals had in common (McClure, Poulin, Sovie, & Wandelt, 1983). Forty-one hospitals stood apart; they achieved great success in recruiting and retaining nurses and became known as the first magnet hospitals, so named because they were able to attract and retain nurses and were known to be places where nurses wanted to work. These organizations were distinguished by their competent managers, decentralized decision-making by direct caregivers, chief nurse executives who were directly involved in top management decisions, flexible nurse scheduling, investment in their employees, recognizing employee contributions and supporting continuing education of the nursing workforce (Kramer & Schmalenberg, 1988a, 1988b). Today, 289 U.S. institutions and three international (England, New Zealand, Australia) ones have achieved magnet designation.

While intriguing, the findings that magnet hospitals embodied principles of nursing excellence and were highly successful in recruiting and retaining nurses had not been linked to differences in patient outcomes. The Center for Health Outcomes and Policy Research at the University of Pennsylvania set out to answer this question. This undertaking became the foundation of a program of research that has established the empirical basis for linking nurse staffing and the practice environment to patient and nurse outcomes and has expanded beyond the U.S. to many other countries. The purpose of this paper is to trace the evolution of a research program that has successfully identified professional practice models that promote optimal outcomes for patients and nurses, highlighting

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the crucial role that nurses play in obtaining good outcomes on an international scale.

**U.S. STUDIES**

In their first magnet study, Aiken, Smith, and Lake (1994) compared Medicare mortality rates in 39 of the 41 magnet-designated hospitals to 195 comparison-matched hospitals. Aiken et al. (1994) attributed their finding of close to a 5% lower rate of mortality in magnet hospitals to the combination of organizational attributes where nurses experienced more autonomy, more control over their practice and better relationships with physicians. Their second study of magnet hospitals built upon the natural experiment in nursing care reform resulting from the AIDS epidemic in the U.S. Aiken, Sloane, Lake, Sochalski, and Weber (1999) studied differences in patient and nurse outcomes between hospital units dedicated to the care of patients with AIDS, magnet hospitals without dedicated AIDS units, and non-magnet hospitals where the care of AIDS patients took place on general medical units. Across 40 units in 20 hospitals, they found lower death rates in both magnet hospitals and hospitals with dedicated AIDS units as compared to hospitals where AIDS care was scattered throughout. Moreover, patient satisfaction was higher, nurse burnout levels were lower, and needle stick injuries were less in these same units. The practice environment in magnet hospitals and hospitals with dedicated AIDS units were similar. Nurses were supported in their decision-making and staffing was such that nurses were able to engage in the surveillance activities that allow for early detection of complications and avert errors. While these early studies of magnet and magnet-like hospitals were the first to establish a link between the practice environment and nurse and patient outcomes, the findings were based on studies conducted in a small number of hospitals. Aiken et al. (1999) expanded their research initiatives.

A second groundbreaking study by Aiken, Clarke, Cheung, Sloane, and Silber (2003) established that the educational level of nurses in hospitals was associated with patient mortality. Indeed, for every 10% increase in the proportion of baccalaureate-prepared nurses, hospital mortality rates decreased by 5%. These findings were the first to confirm that the educational level of nurses makes a difference in patient outcomes, and provided the impetus to state-level proposals to establish the baccalaureate degree as the minimum level of entry into the nursing profession in the U.S.

**THE INTERNATIONAL HOSPITAL OUTCOMES STUDY PROJECT**

The International Hospital Outcomes Study (IHOS) project is guided by a sociology of organizations framework which proposes that decisions made by hospital leaders that affect staffing, resource allocation, and the practice environment also have impacts on how care is delivered to patients, as well as having impacts on nurses and patients (Clarke, 2004). The high levels of stress and burnout combined with low levels of job satisfaction uncovered by Aiken’s group as well as reports of nursing shortages and discontent from nurses in Canada and the United Kingdom served as the impetus to expand the research program beyond the U.S. The International Hospital Outcomes Research Consortium was formed around the basic principle that if the factors leading to poor nurse retention are similar across countries, the same solutions that work for one country should work for other...
countries, putting solutions on a global rather than national scale. Initial aims focused on challenges nurses faced in their day to day work and to test the effect of the practice environment on job satisfaction, burnout, and quality of care (Sochalski, Aiken, & Fagin, 1997).

Quantifying the quality of the nurse practice environment is a crucial component in establishing links to the outcomes of patients and nurses. The IHOS, continuing under the Center’s leadership, collects and maintains survey data from tens of thousands of registered nurses around the world. Nurses serve as informants to provide first hand information about organizational features and relationships, from which aspects such as organizational support, staffing, and quality of care can be measured. In addition to having the ability to measure organizational features, these survey data are distinctive in that they provide valuable demographic information about nurses, as well as measures of job satisfaction, levels of burnout and levels of emotional exhaustion—something that no other database can provide on as large a scale.

The first phase of the IHOS consisted of eight research teams in five countries (U.S., Canada, the United Kingdom, Germany, and New Zealand) Additional countries were added to include Switzerland, Iceland, Armenia, Japan, Thailand, Belgium, Russia, and South Korea. Recently, the European Union funded the Center and the University of Leuven in Belgium to study 14 countries, including 11 in Europe, China, South Africa, and Botswana. This innovative collaboration has resulted in the largest international set of nurse-based surveys, linked to one of the richest sets of data on hospital organizations generated from primary data collection.

The first five countries
The first research endeavor was to study the impact of hospital restructuring on the nursing workforce and patient outcomes (Aiken, Clarke, & Sloane, 2002; Aiken et al., 2001). More than 43,000 nurses in 700 hospitals in the U.S., Canada, England, Scotland, and Germany were surveyed. Extensive problems were found in the organization and design of nurses’ work in North America and Europe, confirming reports that stress, burnout, and job dissatisfaction were not unique to U.S. hospital nurses. In each country, more than half the nurse respondents reported that there were not enough nurses to provide high quality care. With the exception of Germany, at least one of three nurses had high levels of burnout. In nurses under the age of 30, at least 25% planned to leave their job within a year; in England, more than 50% intended to leave. Nurses were in agreement that working relationships with physicians were good; however, in all hospitals, nurses reported that their hospitals did not provide the support services needed to get their job done, and less than half felt that administration listened and responded to their concerns. Reports of medication errors, nosocomial infections, and patient falls were above acceptable rates. Only one third of nurses described the quality of care on their unit as excellent. This study of nurses in five countries was the first to report nurse ratings of the quality of their work environment. Data from this study served as the launch pad for subsequent international studies.

A second study of the same five countries examined the effects of nurse staffing and organizational support on nurses’ job satisfaction and levels of burnout, and on nurse reports of quality of patient care. Their finding that organizational support influenced nurses’ job satisfaction and burnout validated findings from other U.S. studies. A second important finding sent a clear message to hospital administrators that nurses were much more likely to rate the quality of care as poor if they were working in hospitals where organizational support was low and staffing was poor. Clearly, on an international scale, hospitals were engaging in restructuring activities that were having harmful effects on nurses and patients and which were not conducive to high quality care.

Accumulating international evidence
Researchers associated with the IHOS are finding results that mirror those of the U.S. studies. In Alberta, Canada, researchers studied data from approximately 4800 Canadian nurses in 49 hospitals (Estabrooks, Midodzi, Cummings, Ricker, & Giovannetti, 2005). They found lower mortality in hospitals in which a greater proportion of nurses were educated at the
baccalaureate level, the skill mix contained a higher proportion of registered nurses, and nurses reported good working relationships with physicians. In their study of 75 hospitals in Ontario, Canada, Tourangeau et al. (2007) also found lower 30-day mortality rates in hospitals where nurses have a higher level of education and a richer skill mix.

In England, researchers added to the rapidly accumulating evidence of the strong links between staffing, mortality, and nurse outcomes (Rafferty et al., 2007). Their study of close to 4000 nurses in 30 hospital trusts found that nurses and patients in hospitals with the most favorable staffing levels had better outcomes compared to hospitals with less favorable staffing levels. As the number of patients in a nurse’s workload increased, so too did the mortality rate. Nurses in hospitals with less favorable staffing levels were almost twice as likely to show high levels of burnout, higher job dissatisfaction, and to report low or deteriorating quality of care on their units.

Another study of 695 nurses in one Icelandic hospital tested the effect of the practice environment on job satisfaction and nurse-rated quality of care (Gunnarsdottir, Clarke, Rafferty, & Nutbeam, in press). The researchers found that in units where managerial support was high, nurses had much higher levels of job satisfaction and were twice as likely to rate the quality of care as excellent. Nursing workload made a difference in job satisfaction as well as burnout levels. As the number of patients assigned to a nurse increased, job dissatisfaction as well as level of burnout increased.

The Swiss arm of the IHOS further extended the program of research in their exploration of predictors of rationing of nursing care in eight Swiss acute care hospitals, testing a newly developed instrument designed to measure implicit rationing of care by nurses (Schubert et al., in press). Known as the Basil Extent of Rationing of Nursing Care (BERNCA), the instrument measures how often nurses are unable to carry out basic nursing tasks, such as activities of daily living, patient monitoring, documentation, and patient education. The adjusted outcomes (patient dissatisfaction, falls, medication errors, nosocomial infections, critical incidents, pressure ulcers) were significantly more likely to occur in hospitals where rationing occurred more often. No associations were found between patient outcomes and staffing ratios or the practice environment.

The Swiss study adds an important component to the conceptual underpinnings of the IHOS project by using an empirically tested measure to evaluate the process piece of nursing care and evaluating the effects on patient outcomes. This is the first attempt to explain the how, what and why of the dynamics that underlie the decision-making in which nurses engage. The finding that prioritizing care appears to have deleterious effects on patients is a major contribution to the science and begins to disentangle the complex linkages between workload and patient outcomes.

CONCLUSION

Developing a sustainable and fundable program of research requires massive effort, creative thinking, and innovative approaches. Through unconventional research methods, the Center has managed to work within the traditions of health services research while posing questions from a different angle. This innovative concept provides convincing evidence that nursing indeed has a direct role in outcomes and has influenced other discplines in their conceptualization of the predictors of patient outcomes. By carrying forth themes from study to study, the Center for Health Outcomes and Policy Research has created cumulative knowledge about models of professional practice that support nurses in their roles, allowing them to deliver high quality care that provides the best outcomes for patients and nurses.

The international arm of Aiken’s research program finds that in spite of vast differences in resources and national system design, the same associations are found again and again across many countries, providing compelling evidence across the globe that nurses and countries are facing very similar challenges. Globally, governments are recognizing the important contributions from the Center, as evidenced by the new massive study of 15 countries supported by the European Union.
The Center’s work has shown that the magnet hospital program is a model that has been proven to transform work environments. This enduring enterprise supports the magnet concept as one that characterizes hospitals with high quality care delivered in practice environments that support and value nursing. Hospitals that employ policies that favor highly educated nurses, staffing policies that account for patient acuity and recognize the contributions to quality that registered nurses make, and organizational policies that support nurses in their decision-making are the common attributes of hospitals where nurses will want to work and patients will have good outcomes.

ACKNOWLEDGMENTS

Funding for this work was provided in part by the Center for Nursing Outcomes Research, funded by the National Institute of Nursing Research, P30-NR-005043, Aiken, PI.

REFERENCES


