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Nurse-Friendly Hospital Project

Enhancing Nurse Retention and Quality of Care

Martha Meraviglia, PhD, RN, CNS; Susan J. Grobe, PhD, RN, FAAN; Stephanie Tabone, MSN, RN; Mary Wainwright, MS, RN; Steve Shelton, PA-C; Lydia Yu, MHS; Clair Jordan, MSN, RN

The present shortage of nurses in the United States is expected to continue. Nurse shortage, the nature of the work environment, and employers' expectations and attitudes, among other factors, influence both nurse retention and quality of patient care. The Nurse-Friendly Hospital Project was designed to improve nurses' work environment in rural and small hospitals in Texas. Findings demonstrate improvements in nurse retention, nurse staffing, and quality of care. **Key words:** *nurse retention*, *nurse staffing*, *quality indicators*, *work environment*

THE present shortage of nurses for patient care in acute care facilities in the United States is expected to continue for the next decade. Numerous experts view the current shortage as differing from previous shortages because it is compounded by reductions in the workforce from the retirement of older nurses.[1] At the same time, the current nurse shortage also forces attention on the nature of nurses' work environment including employers' increased expectations from fewer nurses. This influences nurse retention, nurse staffing, and quality of nursing care.

Improving the workplace for nurses is a critical element of nurse retention. Nurse retention is directly related to nurse satisfaction in terms of both working conditions and responsibilities. Common reasons nurses give for dissatisfaction with their job are unprofessional behaviors such as verbal abuse, understaffing, complexity of patients, physically demanding work, and too much paperwork.[2,3]

Several recent studies have shown that a positive work environment and adequate nurse staffing are associated with improved quality of care. Needleman and associates found that high proportion of RNs was associated with lower rates of nosocomial infections.[1] Aiken and colleagues have examined the hospital work environment and reported on the strong association among reduced nurse staffing levels, nurse dissatisfaction, and poorer patient outcomes such as mortality and failure-to-rescue.[4,5]

In response to this dramatic shortage of nurses and forecasts of increased nurse retirements, 3 Texas Area Health Education Center offices partnered with Texas Nurses Association (TNA) to assist rural or small hospitals to incorporate 12 Nurse-Friendly (NF) hospital criteria. The 12 criteria were identified by these organizations to represent essential elements for creating a positive work environment that enhances nurse retention, nursing staffing, and thus the quality of patient care.[6]

Author Affiliations: *School of Nursing, The University of Texas at Austin (Drs Meraviglia and Grobe); Texas Nurses Association, Austin (Mss Tabone and Jordan); and East Texas Area Health Education Center, Galveston (Mss Wainwright and Yu and Mr Shelton).*

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Corresponding Author: *Martha Meraviglia, PhD, RN, CNS, School of Nursing, the University of Texas at Austin, 1700 Red River, Austin, TX 78701 (mmeraviglia@mail.utexas.edu).*

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NURSE-FRIENDLY PROJECT

The primary aim of the NF Hospital Project was to assist rural or small hospitals (average daily census < 100) with implementing 12 NF criteria into the policies and practices of the hospital to create a positive work environment. Changing the work environment to be nurse friendly would improve the hospital's retention of its nurses and the quality of patient care given.[7] After a hospital had successfully implemented the criteria into the policies and practices of the facility, they were designated NF by the TNA.

The NF criteria, created by the Professional Practice Committee of the TNA, represent workplace policies believed to be essential for a work environment supportive of the highest level of professional nursing practice. Similar criteria for acute care organizations, known as Magnet Hospital Criteria, have been used to focus on policies and practices that demonstrate a commitment to fashioning an ideal nursing work environment.[8]

The 12 NF criteria were originally identified by the TNA Committee on Practice Issues with input from nurse leaders. Following a thorough review of the literature, criterion statements, with operational indicators for judging the presence of each criterion, were authored by the TNA's practice director and then approved by the Practice Committee members, representing clinical leadership in Texas. These criteria are shown in Table 1.

Following institutional review board approval, NF Project and Area Health Education

Table 1. Texas Nurses Association Nurse-Friendly Hospital criteria

1. Control of nursing practice
   Activities are structured to facilitate nursing standards of care and are evidence-based practice.
2. Safety of the work environment
   Facility demonstrates a concern for the health and safety of nurses.
3. Systems exist to address patient care concerns
   Systems exist to evaluate and resolve issues related to nursing practice and quality of care.
4. Nurse orientation
   Orientation program is competency-based and considers the education, experience, and strengths/weaknesses of nurses.
5. Chief nursing officer
   Activities of CNO in management of nursing services are supported by hospital administration.
6. Professional development
   Professional development program exists to facilitate ongoing educational needs to maintain and/or further develop professional expertise.
7. Competitive wages
   Nursing salaries are competitive, are market adjusted, and recognize outstanding performance and professional commitment.
8. Nurse recognition
   Individual nurse merit and excellence are recognized.
9. Balanced lifestyle
   Facility recognizes the need of nurses to balance their work and nonwork life.
10. Zero tolerance policy for nurse abuse
    Physician abuse of nurses is not tolerated.
11. Middle management accountability
    Facilitation of leadership competency among direct-care supervisors and middle management occurs through a delineated leadership program.
12. Quality initiatives
    Commitment to evidence-based practice is evident.

Center offices staff recruited rural or small hospitals in all regions of Texas. A project team of experts made a site visit to each hospital to assess their alignment with the NF criteria, provide support for needed changes, and assist in developing an application NF designation. Next, hospitals submitted their application with documentation of current hospital policies and practices reflecting the 12 criteria. Concurrent with this initial application process, nurses from the facility completed a nurse survey (designed for this project) that assessed their perception of the presence of NF criteria in their work environment.[9]

Application materials were evaluated by a committee of nurses representing direct patient care, management, and administration. During initial review of the application, if there were disagreements among reviewers for any criterion, the hospital was asked to address the criterion more fully, make changes as needed, and submit additional documentation. A second nurse survey was administered to the hospital's nurses to assess their current perception of the presence of NF criteria in their workplace. A hospital was designated as NF when the 12 criteria were incorporated into the policies of the hospital and the nurses' responses on the second survey were positive for the presence of the NF criteria.

METHODS

Quality indicators

To evaluate the quality of care at the facility, hospitals submitted information on specific patient outcomes. Representatives from each hospital received training in how to collect and report patient outcome indicators that represented the quality of patient care. The nurse-sensitive quality indicators (QIs) reported quarterly prevalence of pressure ulcer, patient fall, and hospital-acquired pneumonia and urinary tract infection (UTI). These QIs were selected from nationally recognized standard measures of quality care[10,11] and drawn from the original National Nursing Quality Study definitions.[12,13] These measures are acceptable indicators for comparing hospitals across regions or states.

Measurement

Once a hospital enrolled in the NF project, the chief nursing officer coordinated completion of the Hospital Information Sheet. This form asked about hospital demographics and nurse staffing. National Quality Forum consensus definitions were used for these data to enable comparisons with published data.[14] In addition, annual *nurse turnover rate* (nurses who resigned by total number of nurses) and *nurse vacancy rate* (budgeted unfilled nursing positions by total nursing positions) were collected as indicators of nurse retention at the hospital.

Hospital nurses completed the nurse survey to assess their perception of the presence of NF criteria at the facility. All nurses working at the hospital (employee and agency) were invited to complete the survey on 2 occasions: before NF criteria were introduced at a hospital and after a hospital had implemented the NF criteria and applied for NF designation (approximately 6–9 months later). The survey consisted of 2 parts, Nurse Demographics Survey and Adapted-Revised Nursing Work Index.[14,15] The Nurse Demographics portion is a 16-item questionnaire with items about nursing education, type of licensure (RN, LVN), years of experience, time employed at this hospital, hours and days worked per week, type of position, other work positions, average time worked in a week, and ethnicity.

The Nursing Work Index–Revised (NWI-R), adapted for this project, consisted of 30 items: 23 were adapted from the NWI-R and 7 created to be consistent with NF criteria's operational indicators. Each item aimed to assess to what extent specific statements were present in the nurse's current work situation. Sample statements from the instrument include the following: "I am not placed in a position of having to do things against my nursing judgment" and "My Chief Nursing Officer is equal

in power and authority to other top level hospital executives." Other items reflecting the presence of NF criteria included hospital quality initiatives, adequacy of support services, flexible work schedules, freedom to make important patient care decisions, and the presence of organizational procedures to support quality of care and maintenance of practice standards. Nurses ranked each item from 1 (*don't know*) to 5 (*strongly agree*). Reliability coefficient alpha for the NWI-R was 0.82[15] and for this project the NWI-R (adapted index) was 0.90 ($n = 1150$).

For each administration of the survey, nurses had 3 weeks to complete either a paper or an online form of the survey. All data were kept confidential, analyzed by the project evaluators only, and not traceable to individual identities. Findings from the nurse survey were reported only in aggregate form to the hospital to ensure confidentiality. Mean scores for each NF criterion at a hospital were calculated by averaging responses from all nurses working at the facility at Time 1 (before NF criteria were introduced at a hospital) and at Time 2 (after a hospital had implemented criteria and was applying for NF designation), approximately 6–9 months later, depending on the hospital. The 3 highest ranked criteria and the 3 lowest ranked criteria were reported to hospitals after each administration.

Quarterly nurse staffing data, submitted by each hospital, were used to calculate the *Nursing Care Hours* (per patient days) and *Skill Mix of Nurses* (percent of total staff with direct patient care) for nursing staff. Quarterly data, collected for 8 quarters, included the nurse-sensitive QIs of pressure ulcer prevalence, patient falls prevalence, and prevalence of hospital-acquired pneumonia and UTIs. *Pressure ulcer prevalence* was a 1-day study of all patients in the hospital identifying those patients with stages I–IV pressure ulcers developed since admission. *Patient falls prevalence* was the 3-month total number of patients who experienced an unplanned descent to the floor during the course of the hospital stay, with or without injury, standardized by 1000 patient days. *Pneumonia prevalence* was the number of hospital-acquired pneumonia during the quarter divided by 1000 patient days. UTI *prevalence* was the number of hospital-acquired UTIs per 1000 patient days.

Data analysis

Data analyses consisted of descriptive statistics for the demographics from participating hospitals and nurses, and the 12 NF criteria scores. Univariate statistics were used to assess differences in the quarterly data for all QIs. All analyses were performed using SPSS 12.[16]

RESULTS

Thirty rural or small hospitals, with an average daily census of fewer than 100 patients, were enrolled in the NF Hospital Project. Hospitals ranged in size from 7 to 146 staffed beds with 13 to 251 nurses on staff. The 30 hospitals had an average of 56 full-time RNs and 16 LVNs.

Of the 1150 nurses from the 30 hospitals completing the nurse survey at Time 1, 88% ($n = 1014$) were women and 11% ($n = 123$) men, similar to the national ratio of nurses, with a mean age of 45.8. Ethnicity of this group of nurses was 84.3% ($n = 970$) white, 5% ($n = 58$) Hispanic/Latino, 4% ($n = 46$) Black/African American, and 2.7% ($n = 31$) Asian. Eighty-three percent ($n = 958$) of the nurses were RNs and 17% ($n = 192$) were LVNs. Of the RNs, 44.2% ($n = 520$) reported having an associate degree, 26.5% ($n = 305$) bachelor of science, and 7.3% ($n = 84$) diploma. In terms of nursing position at the hospital, the majority of nurses were staff (63.8%, $n = 734$) and charge nurses (15.7%, $n = 181$). It is interesting to note that the nurses were experienced with 43.7% ($n = 512$) reporting over 15 years of nursing experience and an additional 19.3% ($n = 222$) reporting over 10 years' practice. Yet their length of employment at the current hospital was much less, with 34% ($n = 390$) working less than 3 years at the current hospital and another 17.5% ($n = 201$) working less than

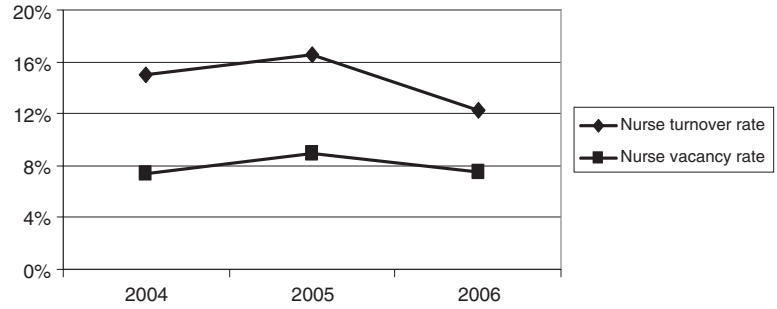

Figure 1. Nurse turnover and vacancy rates.

5 years. Most nurses reported that their usual work day was over 12 hours long (59%, $n = 677$).

Nurse retention

Nursing retention at the hospital was assessed by changes in the nurse turnover rate and vacancy rate during 3 years of the project. Nurse turnover rate for participating hospitals improved over time from baseline/year 1 (15.04%) to year 3 of the project (12.32%). Nurse vacancy rate increased slightly from baseline/year 1 (7.42%) to year 3 (7.47%). Both nurse turnover and vacancy rates increased in year 2 before declining in the third year (Fig 1).

Nurse-friendly criteria

Nurses' responses ($n = 1150$) on Time 1 of the nurse survey were used to assess their perception of the presence of NF criteria at their facility. Each hospital was notified of the 3 highest rated NF criteria, the 3 lowest rated criteria, and the nurse response rate (percentage of nurses completing the survey). NF criteria scores were calculated for all 30 participating hospitals. The highest rated criteria for all hospitals were control of nursing practice ($M = 3.88$), safety of the work environment ($M = 3.86$), and balanced lifestyle ($M = 3.83$). The lowest rated criteria were competitive wages ($M = 3.28$), nurse recognition ($M = 3.53$), and chief nursing officer ($M = 3.56$).

At Time 2 of the nurse survey (after a hospital had implemented the 12 criteria and applied for NF designation), nurses' responses from 22 hospitals ($n = 1136$) were again used to assess the presence of the NF criteria at the hospital. The time interval between Time 1 and Time 2 varied from 6 to 9 months, depending on the hospital. The highest-rated criteria were very similar with control of nursing practice ($M = 3.98$), safety of the work environment ($M = 3.97$), and middle management accountability ($M = 3.94$). There were no changes in the lowest-rated criteria except the mean scores increased: competitive wages ($M = 3.38$), nurse recognition ($M = 3.66$), chief nursing officer ($M = 3.74$). To be designated as NF, a hospital had to have improved scores from Time 1 to Time 2 on 9 of the 12 criteria (75%).

Nurse staffing

Nurse staffing and QI data were reported by fewer hospitals as the project progressed. Complete data were available for 30 hospitals at baseline, 26 hospitals at 6 months, and for only 18 NF designated hospitals at the third time point. Nurse staffing was assessed by nursing care hours per patient day, which increased from baseline to after designation: total nursing care hours from 12.24 to 14.57, RN hours from 6.59 to 8.23, unlicensed staff hours from 3.32 to 3.59, and contracted staff hours from 0.40 to 0.52. Only LVN nursing care hours declined from 4.05 to 2.91. The skill mix of nurses with direct patient care changed slightly overtime. The percentage of RNs increased from 50.36 to 55.77 and that of unlicensed staff increased from 20.07 to

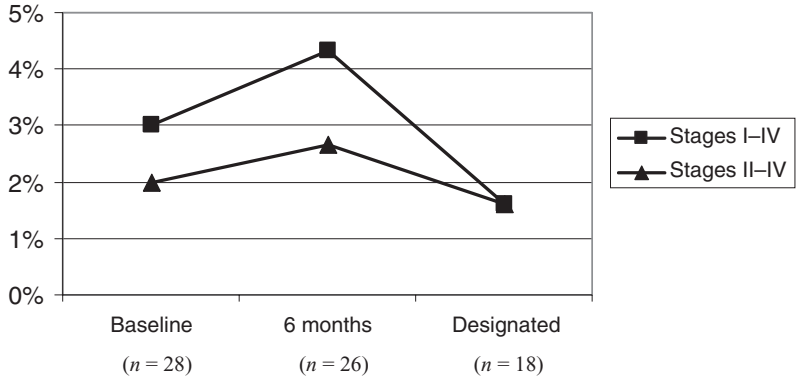

Figure 2. Prevalence of pressure ulcers (per number of patients in hospital on the day of study).

22.40. The percentage of LVNs declined from 24.60 to 21.83.

Quality indicators

To assess the quality of patient care at hospitals, data on QIs were compared at 3 time points: baseline, 6 months, and after designation as NF. Baseline QI was defined as the first quarterly report submitted after the QI training ($n = 28$). Complete QI data were available for 26 hospitals at 6 months and for 18 hospitals that were designated as NF. Ongoing analysis of the quarterly data for the NF designated hospitals will be conducted for the remaining 2 years of the project to monitor changes over time.

All 4 nurse-sensitive QIs improved over time. After a slight increase from baseline to 6 months ($n = 26$), prevalence of pressure ulcers decreased for all stages of pressure ulcers from baseline (3%) to 1.61% after being designated. Stages II–IV pressure ulcers decreased from 2% at baseline to 1.61% after being designated. The 18 NF designated hospitals showed a decline of 2% for all stages of ulcers, which represents a 50% reduction (Fig 2). Prevalence of patient falls declined over time: 4.67% at baseline, 4.53% at 6 months, and 4% after being designated. Patient falls with injury increased slightly from 1.34% at baseline, to 1.52% at 6 months, followed by a decline to 1.24% after being designated (Fig 3).

Hospital-acquired pneumonia and UTI prevalence have declined over time as shown in Figure 4. Prevalence of pneumonia decreased from 3.61% at baseline, to 1.27% at 6 months, and then increased slightly to

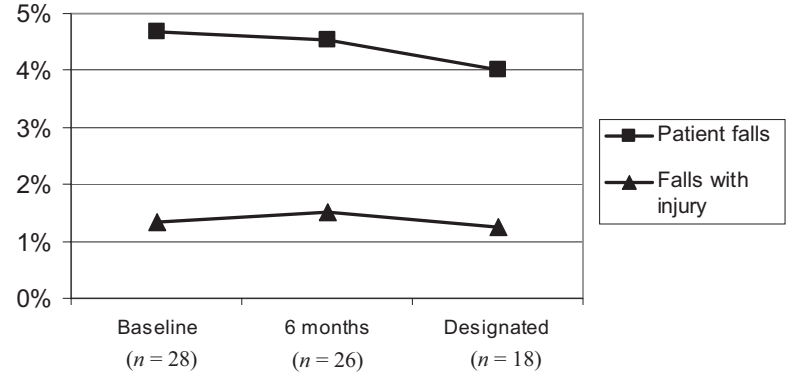

Figure 3. Prevalence of patient falls (per thousand patient days).

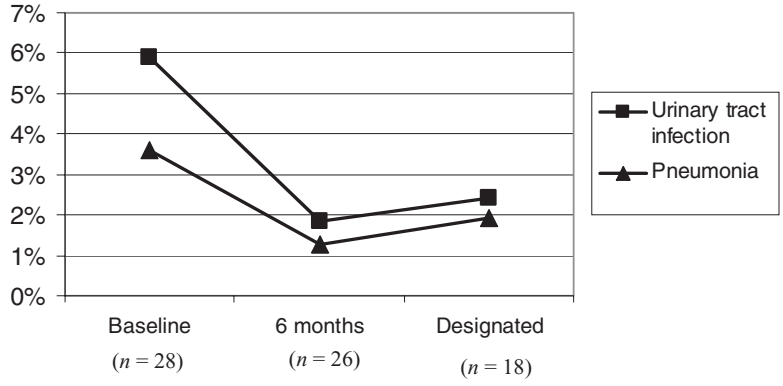

Figure 4. Prevalence of hospital-acquired infections (per thousand patient days).

1.94% after being designated. UTI infection prevalence decreased from 5.91% at baseline to 1.85% at 6 months and increased to 2.43% after being designated.

DISCUSSION

The NF Hospital Project recruited 30 rural or small hospitals during the first 2 years with 18 hospitals ultimately obtaining NF designation. During the implementation phase of the project, participating hospitals had consultation visits from NF team members on strategies for adopting NF criteria into their policies and practices. Findings from the project data show positive changes in the nurses' perception of their work environment (for hospital nurses completing the second nurse survey) and slight improvement in nurse retention. NF designation appears to affect the quality of patient care as indicated by improvements in specific nurse-sensitive QIs at the hospitals that were designated as NF. All 30 participating hospitals received annual reports of benchmark data, which enabled them to compare their QIs to the other participating hospitals.

Nurse staffing variables of nursing care hours and skill mix increased over time from baseline to year 3. When comparing year 3 data to nationally reported values, total nursing care hours per patient day of 14.57% were much higher than the national range of 7.6%–11.4%.[1] Percentage of RN hours (8.23%) was higher than the national range of 6.3%–7.2%.[1] Yet the skill mix of RNs with direct patient care (55.77%) was less than the national percentage of 68%.[17]

Nurse turnover and vacancy rates for participating hospitals improved over time, from baseline to year 3. NF designated hospitals reported an average nurse turnover rate of 12.32% in 2006 in comparison with the national average of 13.9%. The average vacancy rate for designated hospitals of 7.47% is much better than the national rate of 16.1%.[18] Hospitals participating in the NF project seem to provide a positive work environment with more nursing care hours per patient day and fewer vacancies in nursing staff.

Overall, most QIs declined at the 6-month time point, but this downward trend might represent an increased awareness and competency to measure the indicators at participating hospitals. Quality Indicator data from hospitals that achieved NF designation had the most improvement from baseline, likely associated with incorporation of the NF criteria in the nursing work environment.

Quality of care improved at participating hospitals, as measured by the nurse-sensitive QIs. For pressure ulcers and patient falls prevalence, there was an increase from baseline to 6 months, followed by a slight decline after being designated. The 18 NF designated hospitals showed a 50% reduction in all stages of pressure ulcers. These QIs are lower than the nationally reported prevalence rate of 5%

for stages I–IV and 4% for stages II–IV.[19] Although hospitals in this project had a decline in the prevalence of patient falls to 4% for falls without injury and 1.24% for falls with injury, their rate of patient falls was higher than the national prevalence of falls without injury (3.73%)[20] and with injury (0.99%).[20]

Hospital-acquired infections, pneumonia and UTI were reduced by half from baseline to 6 months. However, NF-designated hospitals reported a slight increase for both types of infections after being designated. In comparing the project incidence of pneumonia to national prevalence (1.75%),[1] the 6-month prevalence was much lower at 1.27%, and the designated hospitals' prevalence was only slightly higher. The 6-month and designated hospitals' prevalence of UTI were much lower than the nationally reported prevalence of UTI (4.80%).[1]

Buerhaus and associates reported findings from several national surveys of RNs on improving the work environment and patient care and reducing the current nursing shortage. Specifically, the majority of nurses thought the hospital nurse shortage was negatively affecting the quality, effectiveness, and timeliness of patient care. In addition, the RNs recommended that hospitals improve the work environment to solve the shortage of nurses.[21] Adoption of the NF criteria seems to be an effective strategy for relieving the nurse shortage by improving the work environment and retention of nurses.

In summary, the NF Hospital Project with implementation of NF criteria into the policies and practices of the hospital improved nurses' perception of their workplace creating a positive practice setting. Improvement in the work environment enhanced nurse retention, nurse staffing, and quality of patient care, as measured by changes over time in the nurse turnover rate, nursing care hours, skill mix, and nurse-sensitive QIs.

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