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The authors have indicated they have no financial relationships relevant to this article to disclose.

ABSTRACT

OBJECTIVE. Five NICUs that participate in the Vermont Oxford Network’s Neonatal Intensive Care Quality Improvement Collaborative 2002 attempted to identify potentially better practices that would have a directly impact on nurse recruitment and retention. The group identified nurse recruitment and retention as an important initiative for many hospitals that face a nursing shortage.

METHODS. The group analyzed information from hospital demographics, literature reviews, process analysis questionnaires, and site visits.

RESULTS. The literature review, process analysis questionnaire, and benchmarking with magnet hospitals identified 5 drivers for retention and recruitment. The drivers evolved into 5 potentially better practices that cover orientation, recognition and rewards, work environment, nurse/physician collaboration, and nursing autonomy. The magnet hospitals, which are known to have the highest retention rate and the lowest turnover rate, have many of these potentially better practices in place.

CONCLUSION. The 5 practices described herein have the potential to decrease nursing turnover in NICUs.

www.pediatrics.org/cgi/doi/10.1542/peds.2006-0913J
doi:10.1542/peds.2006-0913J

Key Words
potentially better practices, orientation, recognition and rewards, work environment, collaboration, autonomy

Abbreviations
STARS—Staffing Turnover and Retention Strategies
PBP—potentially better practice

Accepted for publication Jul 18, 2006
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PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275). Copyright © 2006 by the American Academy of Pediatrics
THE NURSING PROFESSION has entered a challenging time. There are many more opportunities for nurses than there are nurses to fill them. The cost of recruiting and orienting a registered nurse is estimated to exceed $45,000. Neonatal care has become technically advanced and requires a sufficient supply of specially trained professionals. The rising number of preterm and multiple births adds an additional burden to staffing the NICU. It is critical for facilities to recruit and retain sufficient and appropriate staff to provide quality care. Five NICUs that are members of the Vermont Oxford Network’s Neonatal Intensive Care Quality Improvement Collaborative 2002 formed a focus group called the Staffing Turnover and Retention Strategies (STARS) to address these issues.

METHODS

The overall aim of this group was to decrease nursing turnover by 50%. Decreasing turnover rates leads to a stable workforce, decreased costs, and improved quality of care. The process for developing potentially better practices (PBPs) included collection of data from a demographic survey, review of the literature, and creation of a questionnaire for benchmarking and site visits. Each center prioritized the various topic areas that evolved to determine what they would focus on in their units. Open collaboration allowed the group to pool experiences, leading to eventual consensus on a list of PBPs.

Demographics

Select NICU characteristics, which potentially could have an impact on nursing retention and recruitment, were examined (Table 1). The characteristics included the number of admissions both internal and outborn, the number and variety of health care providers, staffing ratios, and turnover rates. The comparisons provided beneficial information about each center’s unique structure and its potential impact on staffing.

<table>
<thead>
<tr>
<th>NICU</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual deliveries (2001)</td>
<td>2385</td>
<td>2835</td>
<td>3038</td>
<td>4200</td>
<td>8000</td>
<td>3300</td>
<td>3200</td>
</tr>
<tr>
<td>Average daily census</td>
<td>30</td>
<td>29</td>
<td>17</td>
<td>54</td>
<td>62</td>
<td>14</td>
<td>39</td>
</tr>
<tr>
<td>Annual infants (&lt;1501 g)</td>
<td>154</td>
<td>115</td>
<td>91</td>
<td>220</td>
<td>224</td>
<td>65</td>
<td>171</td>
</tr>
<tr>
<td>% Inborn (&lt;1501 g)</td>
<td>89</td>
<td>70</td>
<td>86</td>
<td>97</td>
<td>84</td>
<td>80</td>
<td>85</td>
</tr>
<tr>
<td>% Outborn (&lt;1501 g)</td>
<td>11</td>
<td>30</td>
<td>14</td>
<td>3</td>
<td>16</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Turnover, % of FTEs</td>
<td>9</td>
<td>14</td>
<td>10</td>
<td>12.5</td>
<td>11</td>
<td>12</td>
<td>11</td>
</tr>
<tr>
<td>NNP</td>
<td>6</td>
<td>7</td>
<td>4</td>
<td>35</td>
<td>12</td>
<td>No</td>
<td>12</td>
</tr>
<tr>
<td>Staff nurses (FTEs)</td>
<td>100</td>
<td>62</td>
<td>22</td>
<td>188</td>
<td>120</td>
<td>32</td>
<td>120</td>
</tr>
<tr>
<td>RTs (FTE)</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>22</td>
<td>8</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>Neonatologists</td>
<td>4</td>
<td>6</td>
<td>1</td>
<td>10</td>
<td>9</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Case managers</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>NA</td>
<td>NA</td>
<td>1</td>
<td>NA</td>
</tr>
<tr>
<td>Residents</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

| NNP indicates neonatal nurse practitioner; FTE, full-time equivalent; RT, respiratory therapist; NA, not applicable. |

Literature Review

The group reviewed a collection of literature summaries that were prepared by the content expert who was assigned to the project. Other resources investigated included books, bibliographies, and Internet Ovid and Medline searches. The reviews were circulated and discussed during conference calls.

Process Analysis Questionnaire

The group developed and executed a process analysis questionnaire to identify similarities and differences in structures, processes, and practice patterns among the centers. The questions were developed using evidence from the literature review and each center’s unique experiences related to recruitment and retention. The questionnaire also incorporated items from the Nursing Work Index, which measures organizational traits such as staff satisfaction related to collaboration and teamwork, adequacy of support services, availability of the nursing care manager, and the adequacy of the orientation program. The remainder of the questionnaire covered reward and recognition programs, nursing autonomy, communication, and staffing structures. The roles and number of staff who completed the questionnaire varied, but there was an effort to sample a variety of nursing staff, respiratory therapists, and neonatologists.

Benchmarking and Site Visits With Magnet Hospitals

A refined version of the process analysis questionnaire also was used to compare practices with those that were found at benchmark magnet hospitals, where turnover is low and retention rates are high.

The questionnaire was completed by 3 magnet hospitals with large NICUs. The group conducted a site visit to 1 of these.
RESULTS

Literature Review
There have been no large, randomized, controlled studies related to nursing retention and recruitment. There has been some research on the relationships among staffing, organization, and patient/staff outcomes but none that is scientifically rigorous. There is little information about the impact of staffing levels and the organization of work on health personnel. A review of the literature that was conducted for the Cochrane database by Zwarenstein and Reeves\(^5\) found none of the >100 identified studies of collaboration in health care settings scientifically rigorous enough to substantiate claims that collaboration improves care. Lacking high-grade evidence, the group relied on uncontrolled trials, case reports, and expert opinion regarding staffing turnover and retention, levels 3, 4, and 5 on the evidence scale proposed by Muir-Gray.\(^6\) The specific literature to support each of the PBPs is detailed in the next section and in Table 2.

Process Analysis Questionnaire
The responses established a baseline description of current practice patterns, processes, and programs related to NICU staff satisfaction and retention. In addition, the tool prompted the sharing of written policies that promote nursing autonomy in patient care decision-making. The survey results assisted each unit in prioritizing specific interventions to promote local recruitment and retention efforts. A summary of key conclusions is provided in Table 3.

Benchmarking and Site Visits
The information from the benchmark sites validated key points from the literature review. The site visit allowed the collaborative members to observe the NICU patient care delivery system in a magnet hospital. Positive nurse–physician relationships were exemplified in this NICU. Nursing autonomy was a priority. Reward and recognition programs were abundant. A healthy work environment was promoted by a chair massage program and close attention to alleviating stressors.

### TABLE 3

<table>
<thead>
<tr>
<th>PBP</th>
<th>Key Conclusions From Internal Process Analysis Among STARS NICUs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Nursing participation in patient decision-making is important.</td>
</tr>
<tr>
<td>2.</td>
<td>Staff nurse participation in policy decision-making is important.</td>
</tr>
<tr>
<td>3.</td>
<td>Collaboration between nurses and physicians is an important staff satisfier.</td>
</tr>
<tr>
<td>4.</td>
<td>Mistakes need to be treated as learning opportunities.</td>
</tr>
<tr>
<td>5.</td>
<td>Professional growth and development are important to nursing retention.</td>
</tr>
<tr>
<td></td>
<td>Recognition and reward programs are important to staff recruitment and retention.</td>
</tr>
<tr>
<td></td>
<td>Incentive programs must be available for long-term employees.</td>
</tr>
</tbody>
</table>

### Table 2

<table>
<thead>
<tr>
<th>PBP</th>
<th>Level of Evidence</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Facilitate professional development and expertise through orientation</td>
<td>3</td>
<td>Refs 7–10</td>
</tr>
<tr>
<td>2. Provide appropriate rewards and recognition for professional staff to improve satisfaction and retention</td>
<td>4</td>
<td>Refs 11–13</td>
</tr>
<tr>
<td>3. Promote a healthy work environment</td>
<td>4</td>
<td>Refs 14–20</td>
</tr>
<tr>
<td>4. Improve nurse–physician collaboration in the NICU</td>
<td>5</td>
<td>Refs 21–27</td>
</tr>
<tr>
<td>5. Promote nursing autonomy</td>
<td>3</td>
<td>Refs 4 and 28–31</td>
</tr>
</tbody>
</table>

\(^*\) Based on Muir-Gray Classification System\(^6\): level 1, strong evidence from at least 1 systematic review of multiple well-designed, randomized, controlled trials; level 2, strong evidence from at least 1 properly randomized, controlled trial of appropriate size; level 3, evidence from well-designed trials without randomization, including single group, pre–post, cohort, time series, or matched case controls; level 4, evidence from well-designed nonexperimental studies, preferably from >1 center or research group; and level 5, opinion of respected authorities, based on clinical evidence, descriptive studies, or reports of expert committees.
learning and socialization. A strategy to initiate socialization includes calling new staff at home before they start to discuss schedules and to welcome them to the unit. Orientation classes work best when responsibility is shared among the interdisciplinary team members. Classes should be clinically focused and skill oriented with a strong connection between material and practice. Self-study modules can be included to support the class material but should not replace the interaction that occurs with experts in the various disciplines. New staff consistently report that being included in rounds and following specialists in other disciplines, such as respiratory therapy, are effective teaching methods and make the experience more positive. In addition, an educator can be more successful in developing a program when he or she is aware of the generational make-up of the class. New graduates often are more comfortable using technology-based educational tools in addition to classroom and clinical experiences.

In the NICU setting, new staff feel more comfortable and supported when they are assigned to a resource person for several weeks after their formal orientation is completed. To provide an opportunity for socialization, a new orientee should start on the shift to which he or she will be assigned. If staff are required to move to an off shift, they should be assigned to a preceptor for a few weeks to learn routines and develop a support system. Allowing staff to provide anonymous feedback about the program will help guide changes for future orientees.

Management can have an impact on the orientation program by supporting the purchase of educational materials and connecting with new staff. Limiting the number of new graduates to the resources that are available on the unit will support a stronger program. Management should meet with educators, preceptors, and new staff at the end of orientation and again in 6 months to evaluate progress. Receiving a welcome letter and having lunch with the director were viewed as positive interactions for new staff. Support also can be provided through a monthly meeting with management in which new staff can ask questions and be with other new staff.

**PBP 2: Provide Appropriate Rewards and Recognition for Professional Staff to Improve Satisfaction and Retention**

Providing a satisfying, rewarding, and stimulating work environment where compensation corresponds adequately with professional education and ability enhances retention of RN staff and contributes to cost containment. Compensation does not always have to be monetary. It can include creative ideas that enhance a nurse’s sense of appreciation and satisfaction. Some of the areas in which nurses would like to be acknowledged include the years of experience or expertise they bring to the job and the time they commit to mentoring new staff. Other ideas taken from experiences at several facilities include a preceptor recognition luncheon, employee of the month recognition, thank you notes sent to staff, “catcher” programs (catch you at your best), scheduling changes, weekend/holiday time off, movie passes, gas cards, cafeteria coupons, pizza days, massages, and birthday recognition gifts. These programs have been viewed as positive by the staff and are of low cost to the unit.

Clinical ladders have become a popular means of rewarding and retaining professional nurses. Clinical ladders can improve job satisfaction and patient care quality by providing staff with an opportunity for growth in their work areas. These programs require staff to attend meetings, assume the charge nurse or preceptor role, and commit to continuing education offerings.

**PBP 3: Promote a Healthy Work Environment**

Sainfort et al described an abundance of literature showing that health care workers experience many job stressors, which can lead to job dissatisfaction, burnout, intentions to quit, and reduced mental health. The association between job satisfaction and turnover among nurses is well supported in the literature. Verran and Mark identified environment as the most important aspect of organizational context for recruitment and retention of nurses.

Staff well-being is an important component of job retention. Nonfatal occupational injury and illness incidence rates for nurses are among the top 4 in the service industries. Foley et al cited a study of magnet hospitals that showed a relationship between decreased patient mortality and the elements of a healthy work environment, which includes the following characteristics:

- Decentralized decision-making
- Standardization of nursing procedures
- Increased staffing ratios
- Good relationships between nurses and physicians

The magnet hospitals that completed the STARS benchmarking tool as well as a site visit to a hospital with magnet designation demonstrated high scores in the areas of the Nursing Work Index—Revised Survey related to a healthy work environment. These areas were associated with good nursing leadership, staff involvement in decision-making, and adequate support services. Johnson and Buelow also identified positive co-worker relationships as an important organizational factor that affects nurse satisfaction and retention.

Decreasing the stress related to critical incidents in the work environment may be the key to retaining staff in the NICU. The NICU at a magnet-designated benchmark site developed a “time out” period for anyone who is feeling overwhelmed by patient care duties. An informal time out is called, and supportive caregivers will respond to the distressed individual and offer immediate support. This process is viewed very positively by the staff. By creating and sustaining environments that rec-
ognize and value staff, it may be possible to reduce the exodus of clinicians from the hospital setting.

**PBP 4: Improve Nurse–Physician Collaboration in the NICU**

Strong nurse–physician collaboration is associated with higher job satisfaction and retention rates among nurses. The magnet hospitals that completed the STARS benchmarking tool demonstrated a high degree of collaboration and teamwork between nurses and physicians.

Collaborative interaction between nurses and physicians is related to mortality rates and length of stay for patients. Collaboration should be an integral part of every unit’s quality improvement program. Studies show that units with poor communication between nurses and physicians have as much as a 1.8-fold increase in risk-adjusted mortality and significant increases in length of stay. Enhancing the status of nurses is key to improving patient care. Interdisciplinary collaboration affects patient outcomes because trust and respect enhance communication about patient issues, and this subsequently increases staff retention. Organizational factors to focus on when evaluating collaboration include:

- Team behaviors
- Interactions between disciplines
- Communication
- Coordination of decision-making
- Conflict management

Research demonstrates that problematic relationships between nurses and physicians can lead to communication failures, poor coordination, and fragmented care within and across organizations. Collaboration has a major impact on patient safety and the quality of health care. O’Mara suggested that the hierarchical nature of members in a group must be challenged to improve patient care outcomes.

The perception of the quality of interaction among physicians and nurses can vary greatly. Thomas et al. noted in their survey that only 33% of the nurses rated the quality of collaboration and communication with physicians as high or very high. In contrast, 73% of physicians rated collaboration and communication with nurses as high or very high. A companion article describes a tool that was developed by the STARS group to expose these differences in mental models. By gaining an understanding of these discrepant attitudes, concrete interventions can be used.

**PBP 5: Promote Nursing Autonomy**

Although there are other variables that may have an impact on turnover levels, positively affecting nurse satisfaction may lead to increased retention rates in the NICU. Unit structures and cultures that involve staff nurses in decision-making on issues that have an impact on their daily work have been shown to increase job satisfaction, increase accountability, and promote commitment to practice. Nurses who are in an environment where they are active participants in decision-making have a significantly higher level of work satisfaction and greater levels of independence, accountability, and personal power.

Success in developing a participative practice model is highly dependent on the management team. A unit that has a hierarchical model will have significant challenges in supporting this type of decision-making style. Nursing autonomy can be promoted by implementing some key concepts and measures:

- Involve staff in baseline efforts to assess the current decision-making structure and level of satisfaction.
- Perform focus group sessions with all stakeholders to envision what the unit could be like in the future with a participative structure in place.
- Educate staff and leadership on participative models described in the literature, and use this participative approach to design a structure for shared decision-making on the unit, complete with ground rules and expectations.
- Hold elections for the leadership and membership of a formal committee to oversee the effort.
- Empower staff to make decisions, implement them, and be accountable for the outcomes.
- Meet with all employees after they have been on the unit for 6 months to encourage their participation and involvement.
- Celebrate and publicize contributions.
- Periodically monitor the system (e.g., resurvey the staff regarding satisfaction levels and monitor turnover rates).
- Develop nursing protocols.

**DISCUSSION**

It is critical for the leadership team of the NICU and hospital administration to support the changes described and to believe that they can make a difference. The literature and data from the magnet hospitals, where many of the PBPs are already in place, support this theory. A thorough review of current staff turnover data may help provide a way to measure progress that is brought about by implementing these PBPs.

Implementing some of these PBPs may be more difficult than implementing clinical PBPs. Restructuring the orientation program, adding reward and recognition programs, and improving the environment were easier for the exploratory group members to implement than...
changing nurse–physician collaboration and nursing autonomy. The latter requires a change in thinking, whereby all staff are valued for their contributions and efforts. Experience in implementing these PBPs is the subject of a companion article.21

Other challenges are the broader organizational characteristics beyond the NICU that affect turnover, such as pay, benefits, and location of the hospital. It is important to track these variables to determine the impact that they have on staff who leave. Future initiatives that the exploratory group would like to examine are the pay scales of other NICUs with similar acuity and size.

Staff also may be aware of other local issues and are a valuable resource for articulating what affects their decision to stay or leave. Johnson and Buelow19 identified positive co-worker relationships as an important organizational factor that affects nurse satisfaction and retention. It is recommended that exit interviews, both by managers and by peers, be conducted to collect data that will determine how a unit should prioritize the PBPs that they plan to implement and what other initiatives they might need to explore to address specific, local issues.

The goal of the STARS exploratory group was to identify PBPs that would affect nurse satisfaction and improve retention and recruitment. The exploratory group also discussed a second aim, which focused on defining a staffing model for nurses who worked for the NICU. This was a subject that was affected by multiple variables, including nurse/patient ratios, acuity of patients, size of the unit, and different acuity rating tools used by each institution, and was deemed to be beyond the current scope of the group. This topic still is of interest to many of the members and may be an area that will be explored further.

CONCLUSIONS

Recruitment and retention of qualified staff during periods of shortage are important to many NICUs. The work of the STARS group has identified 5 PBPs that the literature and experience suggest can contribute to this goal. Success of these efforts is related directly to management and administration support.

ACKNOWLEDGMENTS

We acknowledge the efforts of colleagues who contributed to the work described in this article: Betsi Anderson, RN, Mary Antecki, RN, BSN, Lori Doyle, RN, BSN, Lorraine Easton, RN, James Hocker, MD, Tammy Hardee, RN, Sherri Hoard, RN, BSN, Julie Hodges, RN, BSN, Leah Holman, Beth Huizinga, RN, BSN, Serena Knoop, RN, Wendy Moore, RN, BSN, Lori Norton, RN, Connie Parcells, RN, Dennis Philpott, RN, MSN, Susan Ramiro, MD, Stalita Jo Rivers, RN, BSN, Ali Smith, RN, MSN, PNP, and Liz Wojciechowski, RN, PhD. We thank colleagues at the benchmark sites who provided data on their staffing practices: Rush University Medical Center, Providence St Vincent’s Medical Center, and Hackensack Medical Center.

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Pediatrics 2006;118;S134
DOI: 10.1542/peds.2006-0913J

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Amy Atwater, Elaine Hartmann, Betty Beverly Brown, Pat Carteaux, Maria Freeman, Pat Hegwood, Laura Michael, Joan Rikli, Joel Secrest, Barbara Bauman and Paul Plsek

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