2023

Development of a Standardized Novice Neonatal Nurse Orientation Program

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Abstract

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Project Submitted in Fulfillment

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Abstract

Neonatal intensive care units (NICUs) are fast-paced units requiring skilled nurses to care for a unique patient population. Orientation of new nurses to the NICU can be challenging for both the orientee and the preceptor. Offering an evidence-based practice orientation program by an accredited organization that is specific to NICU can be a valuable tool for both the preceptor and the orientee as well as enhance nurse, patient, and organizational outcomes. The project question explored if use of the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) 15-module nursing orientation program for RNs in a NICU increased their knowledge and perceived competency in serving as a preceptor for newly hired RNs. This project, conducted as a quality improvement evaluation project, used Patricia Benner's theory along with Knowles adult learning to guide this project. Ten RNs participated accessed the AWHONN program. Four participants completed 100% of the modules; six participants completed at least 50% of the modules and 2 participants completed less than 20%. All participants reported that the modules that were completed increased their knowledge and perceived competency to serve as a preceptor. Recommendations to the organization included requiring completion of the AWHONN orientation program for all new hires, as well as allocating time during the work schedule for participants to complete the modules. This project demonstrated the importance of RN that specific knowledge and skills are critical to caring for babies in. Making this change within the organization supports positive social change for nurses, families, the organization, and above all the neonates in NICU.

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Dedication

I would like to thank my family for their endless support in the pursuit of this degree. My husband Lou always encourages me. My daughter Kaitlin has been in a race to succeed with me, and lastly my son Christopher always told me not to give up. I love you all and would not have made it this far without all of you.

Acknowledgments

Dr. Fisher has spent countless hours assisting me along with Dr. Whitehead and Dr. Losty. The three of you have encouraged me to continue to fulfill my dream. Thank you for your constant support. Denise Menonna-Quinn has been a preceptor, friend, and all-around confidante. Each of you has contributed to the development and implementation of this project.

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Section 1: Nature of the Project

Introduction

New registered nurse (RN) hires are important as part of the foundation for the future health care workforce and organizational structure. The current hiring process in a large magnet teaching hospital is ongoing or rolling hire. However, this approach does not offer the opportunity for formal didactic classes due to small groups of hires or individual hires. Moreover, 12-hour shifts are standard for all nurses within the organization, resulting in staff working only three days a week limiting exposure to all types of patients. Past experiences have shown orientees do not receive the same information from all preceptors, with some preceptors focusing only on the specific patients cared for that day.

In this project, *orientees* are those RNs who are new graduates or new to the neonatal intensive care unit (NICU). *Preceptors* are nurses responsible for overseeing the orientation of new hires. Often, preceptors have varied backgrounds, experience, and nursing education. This lack of a consistent, formal orientation program has resulted in new orientees being ill-prepared to care for all types of patients within the NICU. Thus, these new orientees frequently leave the NICU and for other organizations or different nursing floors within the same organization. Nurses who do not feel comfortable are relegated to less intensive babies resulting in decreased ability for all staff to care for critically ill infant patients. NICUs are fast-paced, stress-inducing requiring immediate interventions by nursing staff. Nurses new to NICUs tend to have difficulty acting with this immediacy (Burch et al., 2009).

The purpose of the project was to develop a preceptor program designed specifically for neonatal nurses. However, due to IRB approval from the organization, changes needed to be altered to accommodate a new program. Literature supports the lack of programs developed for NICUs. Due to the nature of the unit, it is ideal to implement a program in which all staff obtain the same educational opportunities that can be adjusted to each student's learning needs or pace of learning.

Problem Statement

A gap in nursing practice was identified in relation to consistency among preceptors within a Clinical Level III NICU. All professional RNs do not receive the exact same training. In addition, nurses vary in learning styles; some nurses learn best from computerized programs, classroom experience, and or hands-on training. This lack of consistency can lead to different preceptors giving inconsistent information to each orientee.

Nursing is a rewarding profession; however, the profession has its share of challenges including personal and interprofessional conflict (Rux & Williams, 2020). Staff members encounter heavy workloads, increased patient acuities, and a lack of supplies (Rux & Williams, 2020). Compounding this with a shortage in the workforce adds to increased tension among seasoned nurses, resulting in more new graduates or less experienced nurses joining neonatal intensive care (Spence et al., 2016). New nurses lack the critical thinking skills needed to be aware of subtle changes in a patient's condition, which may increase morbidity and mortality (Harriman et al., 2018). Furthermore, new nurses depend on their preceptors to guide them through the orientation process, yet some

of the preceptors have not attended a general preceptor class to help guide them through the process of acting as a preceptor.

Orientees

New nurses who complete orientation may not be prepared and may experience job dissatisfaction (Shellenberger, 2016). Critical thinking is often a concept not inherent in new practitioners. Learning to understand disease processes, planning care, and analyzing outcomes of nursing tasks are skills frequently developed over time as evidence of competency (Veo, 2010). Team support is encouraged. In conjunction with their preceptor, the new orientee should develop educational goals that are specific, measurable, attainable, relevant, and time-based (SMART; Shellenberger, 2016).

Preceptors

Preceptors are nurses who assist in the orientation process. All nurses are expected possess attributes to teach new RNs; however, this is not always accurate. Staff members tend to mirror how they were oriented., based on feedback from current preceptors on precepting. If one follows a competency map provided by the education specialist, the RN signing for the orientee may do so without ever caring for a patient with the specific disease or discussing such care. Frequently, staff have signed off on high-impact low-volume procedures due to a lack of direct patient experience.

Preceptors should attend specialized training to equip them in supporting orientees (Hugo-Van Dyk & Both, 2021). Generalized preceptor classes do not engage students to the level of knowing pathophysiology; they concentrate on conflict resolution, adult learning principles, and effective communication skills, and realizing precepting is

not intuitive (Pilcher, 2012). Support from national organizations such as Association of Women's Obstetric Health and Neonatal Nurses (AWOHNN) is available. AWOHNN's computerized orientation program could aid in providing an evidenced-based orientation to produce outcomes based on research and evidence.

Purpose Statement

The purpose of this project was to provide an orientation program specifically for NICU nurses. The goal of this program was to develop preceptors sufficiently to educate orientees. The basic knowledge assessment tool (BKAT5) for NICU was designed specifically for neonatal nursing and was going to be administered to all new nurses to assess and ascertain improvement in knowledge base after orientation. The plan was to have new NICU nurses administered the BKAT5 during the first week of orientation and repeat the tool 6 months after orientation. Due to time constraints, however, the BKAT5 was not administered prior to the completion of this project.

Nature of the Doctoral Project

The intended setting for this project was a NICU in a magnet facility in the northeastern United States. This is an ideal setting because the facility has gone through multiple organizational changes, merging with other hospitals in the state. Developing a standard for practice would assist new neonatal nurses in developing the information needed to provide care for critically ill infant patients. Currently, there are no concrete standards for the orientation of preceptors in the neonatal unit as governed by the Neonatal Academy of Neonatal Nursing (NANN) or the Neonatal Network. Completion of a hospital-based orientation packet is a requirement for completion of orientation,

which includes a head-to-toe assessment and unit-based competencies. This method lacks a scale to identify how the orientee progressed throughout the orientation process; multiple orientees could be in the unit at the same time and have minimal exposure to the critically ill infant.

Significance

Nurses start new jobs at many different entry levels and may change their specialty focus over time. NICUs are high-paced units, typically staffed with a large volume of experienced nurses. However, with the impact of the COVID-19 pandemic, experienced nurses are now leaving the organization resulting, creating a gap in resources and ability to train new nurses effectively. New graduates enter the workforce with minimal knowledge and require specialized training.

To ensure all orientees receive the same information, the AWHONN offers a computerized program that allows staff to navigate through systems at their own pace. Completing all portions of the program involves over 54 hours (about 2 and a half full days) of learning; the program is self-paced so a learner can progress at their own speed. Evaluating current employees using BKAT5 will establish current knowledge base. Educational programs are tailored to meet the needs of all the nurses in the NICU and demonstrate those with the knowledge to precept. The introduction of the AWOHNN program for orientation being offered to preceptors will close the gap in knowledge by providing consistent information. The AWOHNN modules require completion of a standardized test at the conclusion of each module, creating three opportunities for

individuals to pass the training. New staff who have access to the AWHONN Neonatal Orientation and Education Program (NOEP) can navigate the program at their own pace.

Summary

There are many entry levels into the NICU for nursing positions. Some new graduate nurses require extensive training in a specialty area. Some nurses may transfer from a Level 1 or Level 2 NICU and still require education regarding providing patient care to critically ill infants. There is a varied level of critical thinking skills among preceptors who are responsible for providing training to new nurses. A program could be used to identify the needs of a preceptor's knowledge of NICU by administering the BKAT5 along with administering AWOHNN's computerized course for new hires. This program will elevate the level of nursing care provided and demonstrate specific areas of weakness that require interventions at the study site.

Section 2: Background and Context

Introduction

NICUs are an ever-changing environment, requiring staff members to be capable of rapid intervention and to assimilate into high-stress areas within organizations. This requires specially trained individuals to perform properly at any given moment (Burch et al., 2009). Orientating to this type of environment based on specific populations such as the infants cared for that day could limit an RN's exposure to critical events. Nursing organizations such as the National Association of Neonatal Nursing (NANN), American Association of Critical Care Nurses (AACN), and the AWHONN have recognized the need for consistency in education. These organizations have developed computerized programs to address each issue for new novice nurses working in NICUs.

Learning within the workplace can be formal, informal, interpersonal, and interactive (Hunter et al., 2008). Cavanaugh and Huse (2004) also identified that staff traditionally take 8 to 12 weeks to complete orientation to the unit-based roadmap developed over 20 years ago, with some minor updates. This orientation does not cover full exposure and does not provide pathophysiology incorporated into the didactic portion. Well-prepared nurses who emerge from a well-developed orientation program may help reduce the anxiety of parents of NICU patients (Valizadeh et al., 2016). In addition, given the current national nursing shortage, this is a need for all orientees to receive the same information.

All new RNs will not receive the same information as part of their orientation and may not be confident they will be competent nurses (Lindfors & Junttila, 2014). A

standardized orientation programs, however, could result in new employees feeling better suited to deliver the best evidence-based care (Roberts, 2019). Individuals who do not receive the same information may be ill-prepared to care for critically ill infants in NICUs (Raines, 2010). Having a well-prepared preceptor to meet the needs of new hires may increase nurse retention and lead to new nurses feeling competent to care for critically ill infants in NICUs.

Additionally, it is difficult to quantify the knowledge base of each preceptor compared to their peers. With increased acuities, reduced length of stay, and increased demand for experienced nurses, it is necessary to ensure all staff are functioning at a prominent level (Larrabee, 1999). Administering the BKAT5 specifically for NICU will assist in educating the entire NICU, not just new orientees. Providing the same evaluation tool for basic knowledge to all staff will guide the direction of educational needs for competency preparation as well.

Concepts, Models, and Theories

Patricia Benner's model of novice to expert as well as Knowles's adult learning theory are two models intertwined to develop a foundation for this program. Benner's model recognizes novice nurse characteristics whereas Knowles's theory of adult learning is focused on adult recognition of their self-concept, experience, readiness to learn, orientation to learn, and motivation to learn (Clapper, 2010). Benner examined the level of expertise one has, and Knowles recognized the differences in students; for education to succeed, one must be cognizant of both (Schultz, 2012). Furthermore, adult learners are more problem-centered and interested in learning; adult learners bring life

experiences to the table (Schultz, 2012). Conversely, Benner's model shows how new nurses develop skills and develop keener insights over time (Davis & Maisano, 2016). Both models complement one another and lead to recognition that each learner can be different based on knowledge or learning style.

Merging these two theories complements the program used in this project. Preceptors will learn why they do what they do and can impart that wisdom to new orientees (Bengtsson & Carlson, 2015). While all nurses may be expected to serve as preceptor, not all nurses are naturally inclined or prepared to do so. A program that recognizes their varied levels of expertise and knowledge could lead to greater consistency and education to orientees, which will improve outcomes for the NICU and for patient care.

Relevance to Nursing Practice

Cycles of nurses resigning after their first to second year of practice at the project site. Nurses are expected to do more with fewer resources, to be productive, and to maintain budgetary confinements (Androus, 2021). The Institute of Medicine (IOM) and the Robert Wood Johnson Foundation Initiative on the Future of Nursing (2011) identified the need for new nurses to be able to transition from graduate positions to being fully trained to provide competent care. Kovner and Djukic (2009) stated that 26% of new nurses change careers in the first 2 years. Additionally, the turnover rate for registered nurses is on the rise, increasing to 35% between 2011 and 2015 based on National Healthcare Retention and RN Staffing Report (Kovner & Djukic, 2009). Given the high rate of turnover, preceptors have a challenging time while precepting and do not

always put in 100% due to prior losses. Some preceptors “lack confidence in their knowledge, especially regarding proficiency on the latest clinical advancements” (Valizadeh et al., 2016). Therefore, preceptors feel as if the new graduate nurse knows more than they do. Additionally, some preceptors have difficulty being critical of another nurse’s performance, especially with a widened age gap (Bodine, 2018).

The orientation of new nurses is stressful. The formal and informal learning that occurs in hospitals can be overwhelming. The adage “this is how we do things here” is retired due to evidence-based practice. Preceptors need to know how to educate using best practices, allocate time for learning, and always end the day with a summation of the workday outcomes (Hunter et al., 2008). Furthermore, using gamification has been found to be an effective means of improving knowledge base and engaging others (Garrison et al., 2021). Nursing preceptors are not taught how to engage others in nursing school. Having a class and identifying their current knowledge base by taking the BKAT5 will identify and improve their knowledge base, thereby improving overall outcomes. Likewise, new nurses need to be supported to be able to critically think and provide outstanding care (Wendler et al., 2019). Therefore, orientation toolkits supplied by leading organizations are an ideal method to enrich a learner’s base knowledge at their own pace.

Local Background and Context

Nurses enter at many diverse levels as each nurse attended a different nursing school. Neonatal nursing is typically an observation day and results in nurses seeing what occurs, but not always knowing why it occurs. The World Health Organization has

identified the need to improve and standardize content within neonatal health care across the world (*Roadmap on Human Resource Strategies to Improve Newborn Care in Health Facilities in Low-and Middle-income Countries*, 2020). This paper further describes standards of care, how to increase new nurses employing their preceptors along with strategies, research, and learning networks worldwide (*Roadmap on Human Resource Strategies to Improve Newborn Care in Health Facilities in Low-and Middle-income Countries*, 2020). This leads us to acknowledge this is not just a local issue but a worldwide issue.

Critical thinking is not inherent in most new graduate nurses. It is difficult for educators and preceptors to engage the new graduate in meaningful and appropriate activities that can increase critical thinking skills (Burch et al., 2009). Educating the preceptor in the Neonatal Intensive Care Unit focuses specifically on areas that are unique to this field of nursing. Establishing basic knowledge of all employees should help to elevate the care rendered and fine-tune assessment skills. Furthermore, due to the unique skills needed to perform in the NICU, it is necessary to have a specific unit-based preceptor program. Additionally, only 22% of units have a specific neonatal preceptorship program (Edwards & Connett, 2018).

Role of the DNP Student

This is an ideal role for the Doctoral of Nursing Practice (DNP) degree. As DNP-prepared nurses, we are leaders in the field of nursing. Through the DNP program, we learn to integrate nursing science along with the use of technology and can communicate more efficiently with newer staff. Cuddy, (2015) describes how orientation programs

should be evaluated to help identify areas in need of improvement. Utilizing the American Association of Colleges of Nursing (AACN) essentials assists in helping address the ever-changing demands of healthcare today. This is supported by over four years of research to support this change (American Association of Colleges of Nursing (AACN, n.d.)

Summary

Overall, neonatal intensive care units hire people at all junctures of their careers. It is necessary to standardize orientation and cover all areas even if the nurse did not care for a certain type of patient. This is a worldwide issue as the WHO has been involved in standardizing care for the neonatal population. As a DNP nurse, having a comprehensive knowledge base will help enrich others' basic knowledge when leading by example. Providing a valid and reliable scoring tool to assess knowledge is another way to accurately collect data to identify and effect change for the positive. The results of the tool can be shared with the education specialist thereby creating a well-rounded educational offering that is specific to this unit's learning needs and will increase the bedside nurse's opportunity to be supplied with the best evidence-based care.

Section 3: Collection and Analysis of Evidence

Introduction

NICUs remain busy units that regularly require staff to intervene immediately and effectively. Therefore, it is essential NICU staff are educated to the highest level. There is limited information available in the literature specific to NICU (Edwards & Connett, 2018). In general, turnover rates are associated with higher costs and longer hours in addition to the potential for an increase in errors due to lack of knowledge. Administration of the BKAT5 test for assessing knowledge to all new registered professional nurses in the NICU the first week of orientation and then again at 6 months upon completion of orientation will demonstrate if the knowledge base when entering the workforce increases after the orientation process. Additionally, the plan was to include all RNs working in the NICU to complete the BKAT5 at the completion of competency days. The target for this is January 2023.

Practice-Focused Question

Will a preceptor program for RNs in a NICU increase their knowledge and perceived competency in serving as a preceptor for newly hired RNs?

Sources of Evidence

Evidence to support this project was obtained through peer-reviewed journals located through Walden University online databases. Sources were published between January 2004 and May 2021. Databases used were CINAHL Plus with full text, Medline, ProQuest Nursing and Allied Health, PubMed, and Google Scholar. Keywords included

NICU preceptors, preceptors, new nurse graduates and preceptors, preceptor programs, and *new to neonatal nursing*.

Planning

1. Establishing a need for the project.
2. A commitment from the organizational leadership to assess along with a signed site approval form for staff education in the doctoral project.
3. Utilizing Patricia Benner's model of novice to expert along with the Theory of Adult Learning framework to develop course objectives, content, and teaching strategies.
4. Reviewing program with the leadership team and performing PDSA cycle for improvement.

Project Committee

The project committee consists of those experts in the field of nursing such as nursing administrators, clinical managers of the NICU, staff educators, and clinical preceptors. Stakeholders are those people who should be included in the development of programs by illustrating the importance of collaboration in conjunction with learning opportunities for the student. This contribution to positive change allows students to integrate knowledge into practice (Hugo & Botma, 2020). The manager of the NICU is instrumental in being a positive enforcer of the change. Staff nurse educators will be used as content experts. Human resources are another stakeholder involved. The role of the Doctor of Nursing practice (DNP) student was to develop alternative means for orientees to complete the modules in the AWOHNN program. Due to the nature of the audience,

the orientees were offered the AWOHNN program for standardization of information and consistency regardless of assigned preceptor.

Implementation

Approval was obtained through the Walden University Institutional Review Board (IRB). Next, the plan was reviewed with the nurse manager and the education specialist. Input from each member was addressed and the program was updated based on stakeholder input. The NOEP orientation was made available to all new hires in the NICU; initial modules were 1–3 in 2020, and then after the first quarter of 2021, all 15 modules were required to be completed within a year of the date of hire.

Evaluation

The BKAT5 was administered to all new NICU staff hired during the first week of orientation and then would be readministered 6 months after completion of orientation. BKAT5 will be administered to all staff after competency day in January 2023. All staff will be asked to take the BKAT5, and the results will be shared with the education specialist to develop ongoing educational programs for all staff. Continuing education units will be awarded based on number of modules completed from the NOEP program.

Analysis and Synthesis

Descriptive statistics were used to analyze the data collected. Demographic data collected included age, years as a nurse, highest level of education, and race for further analysis at the time of the BKAT5 administration. The target date was November 2022.

Summary

Formal online classes for preceptors focused on neonatal care are necessary. Preceptors often feel inadequate to precept due to a lack of formal training. Offering a course that is in alignment with the organization is pivotal. Having highly trained preceptors will enhance the outcome for new orientees and aid in their transition from novice to expert.

Section 4: Findings and Recommendations

Introduction

For this project, the identified problem was the identified inconsistencies among preceptors within a Clinical Level 3 NICU. Prior to 2020, at the study site, there was no formal nursing evidence-based orientation program for new nurses. When a new nurse started on the unit, they were assigned a preceptor and worked with that preceptor, following the preceptor's schedule. The new nurse's experience was based on a preceptor's patient care assignments. Most of the nurse preceptors worked three 12-hour shifts as well as three days in a row, this resulted in having up to 9 days off in between shifts while still maintaining full-time status at 36 hours per work week.

New nurses were dependent on their preceptors to guide them through the orientation process. The preceptors were required to sign off new staff on a premade basic orientation map that included specific nursing skills and tasks. Additionally, the Neonatal Resuscitation Program (NRP) was part of the orientation. Marcum and West (2004) concluded that this traditional method is used across most hospital organizations.

During 2019, the study site organization merged with a larger hospital system, and in December 2019, the education specialist position was filled. Based on the recommendations of the education specialist and the level of care provided at the organization, nurses from Level 2 nurseries in other organizations were rotated through this organization's orientation program to enhance the level of care provided for critically ill infants. Thus, nurses in the local organization were precepting not only new nurses, but nurses from other organizations during this time.

Upon the integration of new nurses and nurses new to the unit, the traditional method of an orientation map was noted as not meeting the needs of the orientees. The education level was not equally distributed across orientees. Thus, to enhance the orientation of new nurses to the unit and to provide consistent information to all staff equally, the organization added the NOEP, a resource from the AWHONN. The NOEP is a comprehensive educational program divided into 15 modules that focus on providing evidence-based clinical education to neonatal nurses (AWHONN, 2022). The program covers topics from transition of uterine life to extrauterine life as well as cardiovascular, respiratory, endocrine, metabolic, nutrition, hematology, gastrointestinal, neurological, skin care, issues that affect late preterm infants, genetic disorder pain management, families in crisis, procedures, and lactation support (AWOHNN, 2020). Participants in the program are required to pass each section with a standardized test and are awarded contact hours for successfully completing the program.

Findings

Following the implementation of the NOEP, nurses reported difficulty in balancing actual clinical (face-to-face) time with their preceptor and completing the 15 modules of the NOEP. Ten new nurses (N = 10) were hired in 2021. Two (n = 2) of the 10 nurses had previous experience and eight were new graduates. Four of the nurses (40%) were able to complete all 15 modules; one of the four was an experienced nurse and the remaining three were new graduates (Table 1). The mean completion rate was 78% with a range from 40 to 100%. %. All participants reported that the modules that

were completed increased their knowledge and perceived competency to serve as a preceptor.

Table 1

2021 New Hires and Module Completion

2021 Nurses hired Entry-level experience	Modules completed	% completion
NICU nurse	15	100%
New graduate	6	40%
New graduate	15	100%
New graduate	15	100%
Med surg experience	7	46.7%
New graduate	15	100%
New graduate	12	80%
New graduate	8	53.3%
New graduate	10	66.7%
New graduate	14	93.3%
M	11.7	78.0%

Implications

Based on the project findings, the NOEP educational intervention was completed in its entirety by only 40% of the participants. As noted, nurses reported difficulty in time management for work and completing all 15 modules. Despite this level of less than 50%, consistent knowledge was provided to all orientees regardless of whether they were a new nurse or a nurse new to the unit. This increase is consistent with the current literature that demonstrates that education enhances the clinical skills necessary for positive patient

and organizational outcomes as well as career opportunities among nurses (Abu-Qamar et al., 2020; Aiken et al., 2003; Ridley, 2008). Additionally, this DNP project has implications for nurse managers to promote education among nursing staff to develop and sustain an engaged and empowered workforce (Swearingen et al., 2013). While education is a lifelong journey of self-reflection and learning, providing nurses with ongoing education is key to their professional development (Howard & Gray, 2022).

Recommendations

From the results of this project, a number of recommendations can be made. First, I recommend that the organization continue to offer the NOEP modules to all new nurses coming to the NICU as part of their orientation. Wendler et al. (2019) posited that nurses educated by evidence-based knowledge are more consistent in providing improved care. Second, based on the completion rate of 40% demonstrated by the project, I recommend that leadership develop and implement strategies to increase completion among orientees. For example, orientees should be given opportunities to complete the NOEP as part of their orientation schedule. Last, I recommend that each NICU RN, regardless of start date, complete the NOEP as part of their professional development. Staff educated with the same information have been shown to increase retention and be more proficient in the care they provide (Cavanaugh et al., 2004).

Contribution of the Doctoral Project

The contribution of this quality improvement project is an example of reaching out to new graduates and those with experience by offering them skilled nursing content in a way that is accepted educational practice. This correlates with Essential I created by

the American Association of College of Nursing's eight essentials of the DNP program. The third essential that focuses on competencies was also engaged by improving the practice environment by improving staff knowledge as evidenced by the number of modules completed in the AWHONN program. Competencies around Essential IV focus on informatics, which require new orientees to be engaged in the modules provided to improve quality care. Essential V focuses on correlation between healthcare practice, advocacy, and practice; this was executed by having new staff improve practice at bedside, which will also improve patient care outcomes. This could not have been possible without involving all the stakeholders to gather to formulate and agree on the plan of implementing the AWHONN program to all new staff, which correlates with Essential VI. Last, Essential VIII focuses on the goal of improved patient care, assessment, and outcomes; by implementing this program, the new staff completing the majority of the modules will improve their learned knowledge.

Strengths and Limitations of the Project

The primary strength of this project was the enthusiasm of the ten new employees of the NICU who attempted to complete the NOEP. By engaging in the educational program, the nurses were exposed to evidence-based knowledge that hopefully will be translated into practice. Moving forward with administering the NOEP to all new nurses will only enhance patient and organizations outcomes. Despite this strength, there are limitations. First, the data only reflect one group of 10 new nurses on one unit. Second, given that the group was comprised of both new graduate nurses and current nurses, there

may be differences between these two sub-groups. Last, the completion and final score of the NOEP was not addressed by this project.

Summary

Encouraging preceptors to perform the online course provides the preceptor with a refresher of why neonatal care is so individualized. Encouraging the new orientees to immerse themselves in this program will only benefit the hospital by increasing their knowledge base as evidenced by number of modules completed. Building on the foundation with solid evidence provides both the preceptor and the orientee with a clearer picture as to why certain care and procedures are necessary. Healthcare is rapidly changing with sicker patients being hospitalized that require immediate interventions (Rux & Williams, 2020; Spence et al, 2016), being prepared and able to perform the care needed in a fast-paced NICU along with the evidence behind it emphasizes the need for having staff prepared. Recognizing the barriers is surmountable. In this case, time was the issue. Altering schedules to allow more educational opportunities can alleviate that barrier. Realizing the completion of modules may not be related just to time but to the ability of each orientee and preceptor to be able to pass each module on three attempts.

Overall, the AWHONN program brings an evidence-based practice orientation module to an extremely busy NICU. Opportunities that might not surface during the orientees practicum will have at least been touched on with the AWHONN program. Schedule adaptations made to accommodate the needs of each orientee demonstrated a positive outcome by having more sections of the program completed when provided designated protective time.

Section 5: Dissemination Plan

Introduction

Healthcare has evolved and infants are taken care of in NICUs. The number of NICU patients has been on the rise over the last few years and higher acuity levels have increased as well. This requires all nursing staff to be equipped with the skills necessary to care for infant patients, recognizing changes in conditions faster and improving patient outcomes. The goal of this project was to provide the AWHONN program to all new hires at the local setting and encourage completion all 15 modules. Completion of program modules was paramount for improved outcomes. Sharing this knowledge with all stakeholders and sharing the findings with all staff as well as publishing results may improve outcomes for other organizations struggling with similar situations.

Dissemination

The findings from this project will be shared with the project hospital leadership team in the NICU, the chief nursing officer, and the nursing education department. The project results will be submitted to an educational peer-reviewed journal that specializes in neonatal care. Publication of the findings can help others evaluate their practice of orientation and preceptorship and allow each to foster an individualized plan.

Analysis of Self

As a Practitioner

Obtaining approval from the nurse manager to offer the NOEP program to all orientees as part of the orientation program created an opportunity to have my voice heard. As a practitioner, my experience with nurses prompted this project that would

enhance the skills of those nurses working at the bedside. The project demonstrates that standardized programs can be integrated into individualized programs to promote patient outcomes.

As a Scholar

My growth as a doctoral-prepared nurse was exponentially improved through the DNP program. My commitment to enhance the development of NICU nurses required me to use the best possible literature to identify strategies that would best educate those nurses practicing at the bedside. Each of these steps enhanced my scholarly development and will be critical to my success as I continue to facilitate my personal professional development.

As a Project Manager

The DNP project required significant project management and improved my organizational skills. Each step in the project required both planning and flexibility. Organization, determination, and commitment to the goal were critical attributes throughout the project. A final leadership attribute learned through this project was adaptability. There are always adjustments required, and leading this project enhanced my project management proficiency.

Completion of the Project

This project was completed, and outcomes were shared with the nursing leadership team. Although a small number of nurses were enrolled in the program, these 10 RNs were able to complete a significant number of modules and demonstrate a knowledge of acute changes in a patient's condition. During the orientation process, the

orientees were able to recognize they needed to read more or retake a module to pass. What was not openly discussed was when they had already completed a module three times and failed. That would need to be discussed from the orientee to educator; only once did I hear from one RN who said they tried three times and could not pass the module. Problem solving would have been able to be implemented had that been identified as a common thread for others who did not complete the program. Offering a specific class on the segment that was most often not completed could also have been identified at that time.

Summary

Healthcare is rapidly changing with acutely ill patients being hospitalized that require immediate interventions. In a fast-paced NICU, where the most fragile of patients are being cared for, it is imperative that nurses be educated at the highest level. Implementing the NOEP program among new nurses to the NICU brought evidence-based knowledge to an extremely busy NICU where the opportunity to otherwise educate nurses may not have existed. Recommendations have been provided to maintain and sustain this important program.

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Appendix A: BKAT 5

The Basic Knowledge Assessment Tool For
Neonatal Intensive Care Nursing, Version Five
(NICU-BKAT5r) ©
2016

Introduction

Basic knowledge in critical care nursing is a body of knowledge beyond that required for licensure as an RN that the critical care nurse uses in order to provide safe nursing care to patients. Since safe practice is regarded as a moral and professional responsibility, basic knowledge is information that is necessary for entry into critical care nursing and represents the foundation for job performance.

A primary aim of ***in-service education*** in critical care nursing is to assure that staff nurses demonstrate an understanding of this basic knowledge. Because of on-going research studies (since 1979), publications, and the use of the BKAT over the past 35 years, it has become accepted as ***one standard*** for measuring basic knowledge in critical care nursing. To date, over 20,975 critical care nurse educators and nurse managers in the USA have requested and have received a copy of the BKAT to photocopy for use in their practice. Critical care nurses in over 24 different foreign countries have also requested and received a copy of one of the BKATs. However, at this time *our research shows that the BKATs are generally useful only in English-speaking countries.*

The *NICU-BKAT5* is a 74 item paper and pencil test that measures basic knowledge in neonatal intensive care nursing. These items measure content related to the following areas of critical care nursing practice: cardiovascular, pulmonary, gastrointestinal/parenteral, neurology, renal, monitoring lines/catheters, family/spiritual care, and other. The category 'other' includes such areas as developmental care, sleep, pain, and blood incompatibilities.

The NICU-BKAT5 takes approximately 45 minutes to complete. The total possible score is 74 points. Items on the test contain multiple choice and a fill-in-the-blank questions that measure both the recall of basic information and the application of basic knowledge in practice situations. Psychosocial aspects of NICU nursing practice are integrated into specific questions in the NICU-BKAT5.

BACKGROUND

Previous Versions: The NICU- BKAT1 - NICU-BKAT4

Content for the initial version of the NICU-BKAT called the NICU-BKAT1 was taken from the PEDS-BKAT. It had 85 items; 47 PEDS-BKAT items were modified for use in the NICU-BKAT1 and 38 new items were added. These were identified through a review of the literature and through the suggestions from a five member Panel of Experts in neonatal intensive care nursing practice and education.

Validity for the NICU-BKAT1 through the NICU-BKAT4 was established through the respective Panel of Experts, research, and through comments by nurses working in NICUs. The NICU-BKAT1 has been revised three times and is now the NICU-BKAT5 (Version Five) (see below).

Reliability was measured using Cronbach's Coefficient Alpha (α) as the measure of internal consistency for all versions 1 - 4. The reliability of the *NICU-BKAT1* was $\alpha = 0.81$, measured on 60 neonatal intensive care nurses from nine different states in the USA. Reliability of the *NICU-BKAT2* was $\alpha = 0.80$, computed on a second sample of 68 NICU RNs from 6 different states. Reliability of the

NICU-BKAT3 was $\alpha = 0.76$, measured on a sample of 53 NICU RNs, again from 6 different states. Reliability of the *NICU-BKAT4* was $\alpha = 0.73$, measured on a sample of 43 NICU RNs, again from 8 different states.

Reliability was also computed on the answers to the NICU-BKAT4 of Australian NICU nurses. The alpha was $\alpha = 0.82$, measured on 39 experienced NICU nurses and four new graduates.

Average per-cent scores over the past, on the *NICU-BKAT1* (85 items) ranged from 34 to 80 points, with a M= 55.6 points (65.4% correct answers) and a standard deviation (SD) of 8.4 points. The *NICU-BKAT2* (80 items) ranged from 34 to 72 with M=58.5 (73.2% correct answers), and a SD = 7.6. The *NICU-BKAT3* (75 items) ranged from 46 to 70 with M=59.3 (79.0% correct answers), and a SD = 6.1 . Scores on the NICU-BKAT4 ranged from 47 (62.7) to 75 (100%), with a mean of 63.1 (84.1% correct answers). It is noted that as the average scores increased, the SD decreased as more of the nurses were doing better on the test.

MOST RECENT: The NICU-BKAT5r (2016)

Demographic Characteristics of the Sample

Sample. All nurses in the USA sample worked in the NICU, with the large majority (81.7%) staff nurses. The remainder were In-service Educators (n=5, 8.3%), clinical specialists (n=2, 3.3%), and one Patient/Family Educator (1.7%).

Fifty (83.3%) were critical care/NICU nurses with 1 to 41 years of experience (Mean [M]=16.8 years, standard deviation (SD) 12.7, and ten (16.7%) were new graduates with <1 years experience in critical care/NICU nursing.

The largest category of the highest level of nursing education completed was the Associate Degree (n=26, 43.3%), followed by the Bachelors Degree (n=22, 36.7%), and the Masters Degree (n=6, 10.0%), and Diploma (n=6, 10.0%). The type of hospital included the following: Community (n=24, 40.7%), community/teaching (n=33, 55.9%), State/Government (n=1, 1.7%), and Other (n=1, 1.7%). In addition, the large majority were not certified in NICU nursing (n=46, 76.7%), and the remainder held certification (n=14, 23.3%). The type of certification of the 11 who responded included, in the following areas: RN Neonatal Intensive Care Nursing Certification [RNC-NIC] (N=7), RN Certification in Low Risk Neonatal Nursing [RNC-LRN] (N=2), and RN Certification in High Risk Neonatal Intensive Care [RNC-HRNIC] (n=2).

Validity and Reliability

Content validity: Panel of Experts. The *NICU-BKAT5*, the fifth and most recent version of the test, was developed from the NICU-BKAT4: ***Changes*** were made to the NICU-BKAT4 in 21 items to remove the use of the word, *except*, in all of these questions. In addition, the wording of an additional 13 stems was modified to improve clarity, and 12 distractors and 1 answer were changed. No items were added, nor deleted. Changes that were made, came from clinical experience and the comments of the three-member Panel of Experts.

Construct validity again supported for the NICU-BKAT. Construct validity was supported by the technique of known group differences, comparing new graduate nurses (n=10) to those with > 1 years experience. ***Average scores***: The ***new graduate's*** scores on the NICU-BKAT5 ranged from 39% to 72% correct answers, with a mean of 62.3% and a standard deviation of 11.5: The ***experienced RN's*** scores ranged from 63% to 99% correct answers, with a mean of 79.5% and a standard deviation of 8.3

A t-test was computed to compare scores. Results showed that the experienced nurses of 1 to 41 years of experience in NICU/critical care nursing) had higher scores than the new graduates: t_{a1} (58)=5.4, p<.0005, significant, lending support to the construct validity or ability of the NICU-BKAT5 to discriminate between new graduates and experienced nurses working in the NICU environment.

Reliability of the Fifth Version of the NICU-BKAT was again measured using the Kuder Richardson20 formula and was $KR_{20} = 0.84$, measured on 60 NICU RNs from the following eight states: Arizona, California, Florida, Iowa, Kentucky, Ohio, and Virginia. The sample included nine (9) new graduates.

In response to the item analyses computed during reliability testing, the NICU-BKAT5, the following minor changes were made: Changes in the wording of five answers, one stem, and 13 distractors. One item was deleted no items were added. As a result, the NICU-BKAT5 became the ***NICU-BKAT5r with the 'r' representing revised.***

Other Important Findings

NICU RNs with Certification had higher NICU-BKAT5 scores. Scores of the 47 experienced NICU/ICU RNs, and held certification (n=14) as described above, were compared to those who did not hold certification (n=33), using a t-test. The results were statistically higher in the certified RNs t_{a1} (20.3)=2.2, p<.04, Significant. The M for the certified RNs was 84.5, (SD) = 9.2 points. The non-certified RNs was M=78.3, SD 7.3 points. This is consistent with previous research on the BKATs.

NICU RNs with more experience had higher NICU-BKAT5 scores. Also consistent with previous research findings using the BKATs, scores of the experienced NICU/ICU RNs, were statistically correlated to scores on the NICU-BKAT5 than those with less experience, r(47)=0.46, p_{a1} <.0005, sign.

Higher scores occurred for non-supervised test-taking than supervised. Unlike previous reports, scores of the 47 experienced NICU/ICU RNs, were compared related to whether or not they were supervised while taking the NICU-BKAT5. The mean score of those who were supervised (n=19) was 76.3% (SD=9.7); those who were not supervised (n=26) was higher at 82.0% (SD=5.7), t_{a1} (27.1)=2.3, p<.03, significant. It is therefore recommended that additional studies be conducted, and supervision vs non-supervision be measured. It is noted that the SD was wider in those RNs who were supervised.

Uses of the NICU-BKAT5r

The BKAT can be used:

1. Prior to orientation classes in critical care nursing to identify needed content for the classes,
2. As a pretest and/or a posttest to measure learning in groups of nurses,
3. As a dependent variable to test different teaching methods for orientation classes,
4. To identify content for in-service education programs for currently employed critical care nurses,
5. In nursing research, and
6. For advanced placement of nurses with prior experience in critical care nursing, so that they do not have to attend classes that present content that they already know.

NOTE: The BKAT is only one measure of basic knowledge in critical care nursing and is ***not to be used in screening, hiring, or firing situations. It is copyrighted © and may not be altered, added to, or used in part. Permission must be obtained by every critical care RN to use the BKAT. No BKAT may be placed on any computer for any reason.***

Passing Score for NICU-BKAT5r

No one is expected to achieve 100%. Rather, it is expected that ***following*** orientation, neonatal intensive care nurses will achieve an ***average score of 80% correct answers*** on the NICU-BKAT5r. Whether or not an average score is considered to be a passing grade depends upon which specific questions are missed; for example, being able to recognize respiratory distress is critical to know in any unit. As BKATs are being used in a wide variety of clinical settings, which questions are essential to know for that setting is decided by the nurse administering the BKAT.

Requests for Copies of the NICU- BKAT5r

The NICU-BKAT5r is being provided at cost to nurses who work in critical care as a service to nursing and to the ministry that nursing represents. A payment of $15.00 is requested to cover the costs of photocopying, postage, handling, continued revisions, and validity and reliability testing. Additional information on what BKATs are offered can be obtained at the BKAT Website www.BKAT-toth.org

Permission to use the NICU-BKAT5r is ***given to individual NICU RNs,*** who have signed an Agreement Form see www.BKAT-toth.org). It is **not** to be distributed to other NICU RNs, who must obtain their own permission. This permission to use the NICU-BKAT5 and to photocopy it can be obtained by writing to Jean C Toth, RN, MSN, PhD, BCCC, Associate Professor of Nursing, The Catholic University of America, at the following address:

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Panel of Experts for the NICU-BKAT5r

The ***Panel of Experts*** for the NICU-BKAT5r included the following critical care nurses:

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Data Collectors for NICU-BKAT5r

Data collectors for the NICU-BKAT5r included the following:

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Other BKATs Available

BKAT-9r for Adult ICU (2015)
BKAT-9S for Telemetry/Progressive Care (2015)
PICU-BKAT6r for Pediatric ICU (2014)
ED-BKAT2 for Emergency Department (2012)
PICU- BKAT6r: for Pediatric Emergency Department (2014)
MED-SURG BKAT2 (2018)

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