Implementing a Program to Improve Compliance with NICU Transfusion Guidelines was Accompanied by a Reduction in Transfusion Rate: A Pre–Post Analysis within a Multi-Hospital Healthcare System

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Background: We previously reported in the year 2006, approximately 35 percent of the transfusions administered in the Intermountain Healthcare Neonatal Intensive Care Units (NICUs) were non-compliant with our transfusion guidelines. In January 2009, we instituted an electronic NICU transfusion ordering and monitoring system to improve compliance with transfusion guidelines.

Study Design and Methods: In the four largest NICUs of Intermountain Healthcare, we performed a pre–post analysis of compliance with transfusion guidelines and transfusion usage.

Results: After beginning the new transfusion compliance program, all four NICUs had an increase in compliance to the guidelines to 90 percent. Accompanying the improved compliance, all four NICUs had a reduction in the number of transfusions administered. Specifically, compared with 2007 and 2008, there were 984 fewer NICU transfusions given in 2009. This included 554 fewer packed red blood cell (PRBC) transfusions, 174 fewer platelet transfusions, and 256 fewer frozen plasma infusions. We calculate that in 2009, 200 NICU patients, who in previous years would have received one or more transfusions, received none. Applying Intermountain Healthcare billing data to the observed transfusion reductions, this new program resulted in an annual decrease of $780,074 in blood component and administrative charges. During the three-year period, January 2007 through December 2009, we detected no change in NICU demographics, length of hospital stay, or mortality rate.

Breaking Down the Silos: Promoting Quality Neonatal Outcomes within the Women's and Children's Service Line

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Purpose: By implementing a lean delivery process and reallocating responsibilities during scheduled cesarean deliveries, the NICU nurse remained available for neonatal emergencies while the mother baby unit (MBU) nurse developed skills in managing initial stabilization as well as recognizing and managing the compromised newborn.
Methods: Admissions related to delayed newborn transitions and neonatal complications after cesarean sections were examined. The management teams and staff from the NICU and the MBU collaborated to identify current gaps in process, specific recurrent issues, and opportunities for improvement.

Results: The collaborative team established new guidelines for attending cesarean section deliveries by defining the roles and responsibilities for both teams. The NICU team developed a training competency for MBU nurses on initial stabilization of the newborn at cesarean section deliveries. The MBU nurses improved their assessment skills while enhancing the professional relationships among staff members. By eliminating unnecessary NICU admissions, there was decreased anxiety and increased bonding between the infants and their families during the inpatient stay and beyond.

Conclusion: By establishing a lean process focus within the service line, the collaborative team ensured quality outcomes for neonates while decreasing unnecessary NICU admissions, improving productivity, increasing MBU nurses’ competence in caring for neonates at scheduled cesarean sections, and enhancing professional relationships.

Analysis of Reliability of the PSS:NICU into Brazilian Portuguese

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Introduction: Parental Stress Scale: Neonatal Intensive Care Unit (PSS:NICU) is an instrument developed by Margaret S. Miles in the United States whose purpose is to assess that kind of stress, and has been used in many countries.

Objective: To translate, make the cultural adaptation, and assure validity of the PSS:NICU in the Brazilian Portuguese language.

Design: The stages of translation and cultural adaptation proposed by Guillemin and associates were used. These included the scale’s translation, re-translation, analysis by a committee of reviewers, and pre-testing. An analysis of reliability, through testing and retesting of the internal consistency, was carried out as well.

Participants: The clinical validation of the PSS:NICU in the Brazilian Portuguese language was conducted with a sample of 163 parents in two hospitals in the State of São Paulo, Brazil.

Results: Values around 70 of the intraclass correlation were obtained, showing good stability between both evaluations. The factorial analysis with Varimax rotation showed an adequate degree of variation of 57.9 percent. Parents high stress scores were in the subscale “alteration of parents’ role.”

Conclusion: PSS:NICU, in the Portuguese language version, is a valid, reliable tool to assess the stress of parents in the neonatal intensive care unit setting.

Reducing Radiation Exposure for Patients in the Neonatal Intensive Care Unit (NICU):
A Collaborative Effort for Quality Improvement in X-Ray Technique

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Depending on the complexity of their neonatal course, patients in the NICU may require multiple x-ray images during their hospitalization. While x-rays are necessary for diagnosis and intervention, they are not without risk. Research has shown that excessive exposure to radiation in patients less than 15 years of age can increase the possibility of cancer and may have long-term effects on the size and function of the gonads.

A twelve-month Performance Improvement Project was designed to evaluate and improve adherence to radiographic standards. Our goal was to ensure that the x-rays met the technical quality standards and minimized radiation exposure risk to the patient. Seven quality indicators were identified which included an assessment of the neonate’s level of radiation exposure and the technical quality of the radiographic films. Baseline assessments were done to measure the current level of practice. The staff then received education on the appropriate procedure for neonate radiography. A reassessment of the quality indicators showed a significant level of improvement.

This poster highlights a collaborative process that was used to evaluate x-ray images, provide education for staff, and evaluate the benefits of a practice change.

Selected Factors Associated with Breastfeeding Promotion Behavior of Staff Nurses

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Thailand

Purpose: The purposes of this research were to study breastfeeding promotion behavior of staff nurses and to investigate the relationships between predisposing, enabling, and reinforcing factors and breastfeeding promotion behavior of staff nurses.

Methods: This study sample consisted of 220 staff nurses who work in the maternity ward and newborn ward in Bangkok, Thailand. The questionnaires were used to investigate. The data were analyzed by using frequency, percentage, mean, standard deviation, and Pearson’s product moment correlation coefficient.

Results: Breastfeeding promotion behavior of staff nurses was at a moderate level.

There were positive significant relationships between the predisposing factors, which included attitudes toward breastfeeding promotion and perceived availability, the enabling factors, which included hospital obtained training, a physical environment that supported breastfeeding, and breastfeeding promotion information support, and the reinforcing factors, which included policy support, head nurse support, and the
breastfeeding promotion behavior of staff nurses (p<.05). However, the enabling factor that was working experience did not significantly correlate with breastfeeding promotion behavior of staff nurses (p<.05).

**Conclusions:** Using results from the study to serve as a guide to improve staff nurse’s efficacy on breastfeeding promoting behavior.

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**Sweet-Ease (24 percent sucrose) Use for Assisting with Breastfeeding Latch**

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**Englewood, New Jersey**

The use of Sweet-Ease (24 percent sucrose) was explored for the initiation of and assistance with latch during breastfeeding. The newborn’s ability to latch-on is an essential component of breastfeeding: the infant appropriately attaching to the mother’s nipple/areola and breast, allows the infant to feed.

The ability to latch a newborn on to the breast is an essential component of breastfeeding, but it is often difficult to accomplish. Poor latch or the inability to latch on to the breast is one of the main causes for maternal frustration and infant failure to breastfeed. There are many techniques used to assist infants with latch on, but few are rooted in clinical research. Often these techniques are unreliable, and may lead to confusion and/or failure to breastfeed. Unnecessary delay in the initiation of successful latch has been shown to be correlated with poor breastfeeding outcome.

Correct latch-on is essential to achieve adequate mammary stimulation. If the infant does not latch correctly it may result in a painful experience and interfere with milk transfer. If the infant is unable to latch, breastfeeding cannot be accomplished. Sweet-Ease has been tremendously helpful to mothers to stimulate infants who are reluctant to latch, or are showing frustration and/or disorganization.

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**A Comparative Study of Breastfeeding Self-Efficacy in Primiparous and Multiparous Mothers**

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**CentraState Medical Center and Monmouth Medical Center**

**Freehold, New Jersey**

**Purpose:** The purpose of this study was to investigate if there is a difference in breastfeeding self-efficacy in primiparous and multiparous mothers who have chosen to breastfeed.

**Research Design:** A descriptive, comparative design was used.

**Sample:** A convenience sample consisted of 93 breastfeeding postpartum women from two area medical centers, who had a singleton birth after 36 weeks gestation without medical complications, were at least 18 years of old, and understood and spoke English.

**Data Collection:** Following informed consent, eligible participants were asked to complete the Breastfeeding Self-Efficacy instrument and a demographic questionnaire. The forms were numbered and returned to drop boxes on the postpartum units.

**Data Analysis:** Data analysis was performed using the Statistics Package for Social Sciences (SPSS) Version 15. Descriptive statistics and frequencies were used to describe demographic data. Reliability was computed using Cronbach’s alpha coefficient which was .97 for the BSES in this study. A comparison was made of the BSES scores of primiparous and multiparous mothers who chose to breastfeed and an independent t-test was used to analyze the difference between the two groups.

**Research Findings:** A significant difference was found between mean BSES scores of primiparous and multiparous breastfeeding mothers supporting the hypothesis that multiparous mothers have higher breastfeeding self-efficacy.

**Implications:** Breastfeeding self-efficacy is a modifiable variable that can improve breastfeeding outcomes. Nursing interventions improving confidence can serve to increase rates and duration of breastfeeding.

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**Clinical Practice Changes Leading to Improved Breast Milk Feeding Rates and Parent Satisfaction**

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**Main Line Health System**

**Bryn Mawr, Pennsylvania**

**Background:** Human breast milk is the healthiest form of milk for human infants. Human milk decreases the risks of many health problems including sepsis, necrotizing enterocolitis, bacterial meningitis, respiratory tract infection, and SIDS. Despite this compelling reason for breastfeeding, review of our data showed a low breastfeeding initiation rate and a low rate of mothers breastfeeding at discharge. Low parent satisfaction scores were also present.

**Objectives:** To improve the breastfeeding rates and parent satisfaction at three NICUs in the same health care system.

**Methods:** A comprehensive program was designed that included staff nurse education and certification as Breastfeeding Counselors and forming a Lactation Committee with representatives from other disciplines. The committee’s tasks included development and implementation of evidence-based tools. The rates of initiation of breastfeeding and breastfeeding at discharge were measured, as well as parent satisfaction scores.

**Results:** The breastfeeding initiation rate improved from 64 percent to 85 percent; the breastfeeding rate at discharge increased from 50 percent to 69 percent, and parent satisfaction improved from 85 percent to 90 percent.

**Conclusion:** A comprehensive, evidence-based, breastfeeding program improves rates of breastfeeding and parent satisfaction.

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**Utilizing an NICU-Specific Parents’ Newsletter as a Therapeutic Communication Intervention**

*Jessica Berg, RNC, BSN*

**Evanston Hospital**

**Evanston, Illinois**

The NICU is a uniquely stressful environment for parents, particularly when their infant is critically-ill and/or extremely premature. Parents’ responses to the NICU experience include disappointment, sadness, guilt/helplessness, fear, hostility/anger, grief, feelings of failure, and diminished self-esteem. They also have higher levels of clinically relevant anxiety and depression, when compared to parents of term, non-NICU infants. Nurses provide therapeutic communication and lessen parental stress; however it is often difficult to meet with
To improve communication between hospitals and NICUs, a standardized tool was utilized, which dissolved the decades of informality and established order in the communication of critical information necessary in the care of critically ill mothers and newborns. The tool improves the efficiency of the hand off process at the referring facility and enhances the care of critically ill mothers and newborns. The tool improves the hand off process at the referring facility and enhances the care of critically ill mothers and newborns.

The NICU Committee Standards template and the NICU Committee Resource Book were created to establish sources of documentation and communication of information specific to each NICU committee. The NICU Committee Standards template is the use of a framework of communication through statements of Situation, Background, Assessment and Recommendation or Response (SBAR). A variety of committee templates (i.e. Intent Form, Agenda, Minutes, Active Projects, Member List, and Attendance) are available. The NICU Committee Resource Book is arranged by hospital committee categories with each unit committee template placed under a category to provide access to NICU committee information. An NICU Organizational Structure graphic has also been created to illustrate the relationships among the committees.

The design style of the NICU Standards template and the NICU Committee Resource Book supports professional standardization and shared governance through the empowerment of individuals to share the knowledge and expertise of clinically-based practice with colleagues, departments, and organizations. The NICU Standards template and the NICU Committee Resource Book dissolve the decades between the Nightingale Generation and the Z-Generation with computer compliance and technologic sophistication.

Infant Nipple Feeding Assessment and Communication Tool (IN-FACT):

**Face Validity and Interrater Reliability Testing**

James Maryman, BSN, RN;
Staci Sullivan, MSN, CNS, PMH-BC;
Suzette Fontenot, BSN, RNC;
Julie Duet, LOTR;
Alston E. Dunbar, MD, MBA;
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Women’s Hospital
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Bottle feeding ability serves as a major factor in assessing a neonate’s progress and readiness for discharge from a neonatal intensive care unit (NICU). Assessment tools currently available do not provide a practical means for evaluating every bottle feeding attempt by an infant in the NICU. A Woman’s Hospital quality improvement team developed an Infant Nipple Feeding Assessment and Communication Tool (IN-FACT) to describe and communicate an infant’s ability to bottle feed. The scale uses a ten-point rating system that scores five factors key to successful bottle feeding: endurance, coordination, participation, and cardiovascular and respiratory stability.

Before the study began, four content experts evaluated the IN-FACT tool for face validity. The overall Content Validity Index (CVI) was 97 percent. The percent agreement for each of the subscales was as follows: Endurance (100 percent), Coordination (100 percent), Participation (95 percent), Cardiovascular (95 percent), and Respiratory (95 percent).

To determine intrarater reliability, a random selection of sixty-five nurses (n=65) (94 percent) and all four occupational therapists (n=4) (6 percent) working in the NICU (total n=69) was used. Participants viewed three videotaped bottle feedings and were then asked to independently rate each feeding attempt using the IN-FACT. Interrater reliability was determined using simple agreement. The overall percentage of agreement was 80.77 percent. The percent agreements for each subscale were as follows: Endurance (96.1 percent), Coordination (62.32 percent), Participation (81.16 percent), Cardiovascular (85.02 percent), and Respiratory (79.23 percent).

**Filling in the Gaps: Using a Standardized Hand-Off Tool to Ensure Safe Patient Transport**

Mindy Spencer, RNC-NIC;
Jennifer Bradley, RNC-OB;
Margaret Funk, RN;
Amanda Roufs, RNC-NIC, BSN;
Mary White, RN, BSN, RRT

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Introduction: Ineffective communication is the leading cause of perinatal sentinel events. A standardized patient handoff is one of the Joint Commission National Patient Safety Goals. As a regional perinatal center (RPC) we identified gaps in communication between referral hospitals’ staff and RPC team members due to the complexity and emergent nature of transporting critically ill mothers and newborns.

Objective: To improve communication between hospitals and obtain information essential to the care of the patient.

Method: A standardized handoff tool was developed for the RPC (which includes NICU transport team and L&D staff) and outlying hospitals to ensure better exchange of critical information. The RPC and two regional hospitals piloted the hand off tool for a month.

Results: Information and feedback were gathered from staff at the RPC and pilot hospitals. As a result the handoff tool was revised and then introduced to the remaining regional hospitals.

Conclusion: When utilized consistently this standardized tool directs caregiver attention to the essential information necessary in the care of critically ill mothers and newborns. The tool improves the efficiency of the hand off process at the referring facility and enhances communication between the transport team and unit staff at the receiving facility.
The Virtual Crib: When Parents Can’t Be There

Lisa Stone, RN, BSN, CCRN
Baylor Health Care System
Dallas, Texas

As an NICU nurse and the mother of a baby born with three serious heart defects, I have a firsthand understanding of what it is like to be separated from your critically ill newborn. We have developed a program that is bridging the gap between the mother and her newborn who must be immediately transferred to another healthcare facility specializing in pediatric cardiothoracic surgery. We are utilizing a webcam that is allowing our mothers to visualize their newborn, once stabilized in the cardiovascular intensive care unit. This helps to decrease the amount of stress felt by the mother, while facilitating her ability to bond with her newborn.

Improving Communication Between Parents and Neonatal Intensive Care Unit (NICU) Nurses about Pain Management

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Miller Children’s Hospital
Long Beach, California

**Purpose:** To develop a class for NICU nurses addressing infant pain management, focusing on ensuring parent understanding of how the healthcare team measures and responds to infant pain and provides optimal infant comfort. Improved nurse understanding of pain management and the parent’s role in managing infant pain may lead to improved patient outcomes and family satisfaction scores.

**Background:** Studies show NICU patients are subject to multiple painful procedures. Chronic or cumulative pain may increase infant morbidities and long-term negative developmental outcomes. Parents expect their infant’s pain to be managed and are competent to participate in its management.

**Methods/Design:** Target population: 147 RNs in large regional NICU. Sample population: non-random convenience sampling about a third of the target population. Instruments to measure learning were developed as identical pre-tests and post-tests.

**Impact/Results:** Increased staff knowledge about infant pain management and ways to communicate with parents about it were demonstrated. Need for increased staff understanding of family-centered care and ways to promote parent participation in care discovered. Improved nurses’ ability to inform parents about pain management increased family satisfaction scores.

**Implications for Nursing:** Parents see nurses as the major source of information about NICU infants. This role provides the opportunity for nurses to foster parent competency as caregivers and patient advocates.

Citrullinemia Induced Coma at Ten Days of Life Following Sepsis in a Preterm Infant

Holly Boyd, RN, MSN, NNP-BC;
Shino Thomas RN, MSN, NNP-BC;
M. Colleen Brand RN, MSN, NNP-BC
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Baby X was a 1.4 kg, 34 week gestational age infant with an uncomplicated hospital course until ten days of age when the infant acutely deteriorated with rapid progression to a comatose state. The infant was transferred to a tertiary facility where she was noted to be in cardiovascular collapse. CBC, CSF, EEG, HUS, CT scan, serum electrolyte levels and LFTs were normal except for progressive metabolic acidosis. An ammonia level was ordered; the result was >2500micromol/L. Therapy with Ammonol (sodium phenylacetate and sodium benzoate) injection began and ammonia levels returned to normal over the next three days. The infant was then extubated and weaned to room air. Subsequently, CONS sepsis was revealed by the initial blood culture and citrullinemia was reported on the state newborn screen.

Citrullinemia type 1 is an autosomal recessive urea-cycle disorder caused by a deficiency of argininosuccinate synthetase. Citrullinemia manifests with acute hyperammonemia, which generally occurs in the first few days of life and is manifested by lethargy, poor feeding, vomiting, seizures, and loss of consciousness. The importance of including urea cycle disorders in the differential diagnosis of metabolic acidosis and steps to follow when citrullinemia is reported on newborn screens of asymptomatic infants are emphasized on this poster.

Does Using Peripheral IVs Instead of Peripherally Inserted Central Catheters (PICCs) Increase the Risk of Bacteremia in Very Low Birth Weight (VLBW) (1000–1500 g) Premature Infants Before Reaching Full Enteral Feeds After Birth

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Nitin Walyat, MD;
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VLBW infants are at risk for prematurity-related morbidities including feeding intolerance, necrotizing enterocolitis, and infection. Feeding protocols can be used to minimize the risk of feeding intolerances. Our feeding protocols are designed to have the infant advance to full enteral feeds by 1–2 weeks of life. A peripheral IV (PIV) is used more often than a peripherally inserted central catheter (PICC) line in this birth weight group. A review of nutrition data for these infants revealed that the actual mean age to full feedings is closer to three weeks.

Although PICC line use is less frequent in VLBW infants, their infection rate is higher than expected in our NICU. We hypothesize that the current practice to avoid umbilical venous catheter or PICC line placement in VLBW infants may be contributing to the high infection rate. These infants often require multiple PIV insertions with multiple attempts, placing them at risk for infection. A review of past,
Pertussis (whooping cough) is a highly contagious airborne bacterial disease that is vaccine preventable. Symptoms are usually mild in adults, but can be severe or even fatal in infants. Pertussis can also lead to pneumonia and hospitalization. In recent years, 90 percent of pertussis deaths occurred in infants younger than four months. For infants, the most common source of infection is the mother who no longer has adequate immunity to the bacterium. Infants receive immunization between 2 and 6 months of age. Prior to completion of the immunizations they are vulnerable to infection, even though they are undergoing recommended immunization. During this time, infants need to be protected; therefore, the CDC recommended that mothers receive Tdap (tetanus, diphtheria, pertussis) at hospital discharge if they have not received it within two years. This presentation discusses the process for setting in place a mother’s Tdap vaccination program at a large urban hospital with 3,200 deliveries per year. The challenges of instituting a procedure which may not be reimbursed are described. However, by providing education and offering the Tdap vaccine to new mothers before they are discharged, we are seeing a reduction of pertussis in our community.

**A Team Approach to Decreasing Bloodstream Infections**

Lori Morris, RNC; Jodi Herron Behr, MSN, RNC; Lynette Boland, RNC
Kosair Children’s Hospital
Louisville, Kentucky

Decreasing bloodstream infections is a major initiative for most hospitals. In 2009, a multidisciplinary committee that oversaw the issues that surrounded central line care for a 97-bed NICU was formed. The multidisciplinary committee met monthly during 2009 to discuss current evidence-based practice for the care of central lines in the NICU. Also in 2009, a peripherally inserted central catheter (PICC) team was also implemented. This model included the requirement that staff nurses be available to insert PICC lines and that two staff nurses complete maintenance audits on all central lines once a week. Through this model, central line dressings that were clean, dry, and intact went from 79.5 percent prior to the initiation of the team to 93.7 percent after the team was in place and maintenance audits were being completed once a week. The Central Line Bundle Insertion Compliance also improved from 86.8 percent in 2008 to 96.8 percent in 2009 and Central Line Maintenance Compliance improved from 75.3 percent in 2008 to 84.9 percent in 2009. The PICC team successfully inserted 289 PICC lines during 2009 and the BSI rate for the NICU decreased to 1.81 per 1000 catheter days. From the 2009 data regarding PICC lines during 2009 and the BSI rate for the NICU decreased to 84.9 percent in 2009. The PICC team successfully inserted 289 PICC lines during 2009 and the BSI rate for the NICU decreased to 1.81 per 1000 catheter days. From the 2009 data regarding PICC lines during 2009 and the BSI rate for the NICU decreased to 84.9 percent in 2009.

**Pertussis in Mothers and their Newborns**

Jodi Herron Behr, MSN, RNC; Lynette Boland, RNC; Lori Morris, RNC
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The purpose of Transitional Care Team “Friends” is to provide consistent, knowledgeable care to the infants and families of infants in the TCN. When they arrive in the transitional care unit, each infant is assigned “Friends,” which are TCN core nurses. “Friends” are identifiers on a card that is hung at the infant’s bedside. The role of the “Friend” is to evaluate, update, and coordinate the nursing care of an infant in collaboration with the multi-disciplinary team throughout the unit. In the TCN, an area for the family to journal the progress their baby makes during their TCN stay. The outcome of implementing this is being measured by monitoring the length of time it takes for parents to feel comfortable with the transition to the TCN.

**Transitional Care Nursery Welcome Book**

April Brooks, BSN; Jenny Lowndes, BSN
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Increased stress is seen in parents as their baby nears the period when he or she can move from an intensive care environment to a transitional care environment. Many families spend weeks or even months in the intensive care nursery (ICN) developing attachments to and confidence in medical and nursing staff and are anxious when they find that is time to transfer to the transitional care nursery (TCN). In an attempt to reduce this anxiousness, the TCN Core Team developed and implemented new initiatives to help prepare families for their transition in care. A golden ticket program was started and encourages families to attend an introduction session which includes meeting the TCN core team members and a tour of the TCN. The program can be individualized to meet the needs of each family. This program has helped parents to be less anxious when their child transfers to the TCN and has improved both parent and staff satisfaction.
the infants stay. There is at least one day shift and one night shift nurse assigned to each infant. This nurse will also collaborate with social workers, communicate with families on a regular basis, and will help organize patient care conferences. The purpose of the “Friend” is to enhance the continuity of patient care, as well as being able to pick up on changes from day to day. Since implementation of the Transitional Care Team “Friends” parents have stated that it makes them feel much more comfortable.

**Umbilical Cord Blood:**  
**Immature to Total Granulocyte Ratio in the Late Preterm Infant:**  
**Can We Spare the Baby an Invasive Test?**  
_Lynn Dahlen, BSN, RNC-NIC_  
_Franciscan Skemp Healthcare_  
_LaCrosse, Wisconsin_

Substituting cord blood when obtaining an immature to total granulocyte ratio (I:T) and blood culture has been found safe to evaluate sepsis in term infants. It has not been studied in the late preterm infant (LPI). The concordance rate for term infants, cord I:T versus infant I:T is 92 percent.

What is the concordance rate in the LPI? How reliable is a cord I:T >0.2 in the LPI?

The cord blood and infant blood I:T were both < or both >0.2 in 78 percent of pairs (concordant) with a Pearson correlation coefficient of –0.11 between the two data sets.

Of 42 LPIs, 52 percent acted ill.

No infant blood culture showed bacterial growth. Ninety percent of cord I:Ts were normal, 0.03 percent clotted. There were no well-appearing infants with an infant I:T >0.2.

Seventy-two percent of infants with a cord I:T >0.2 were born to mothers not receiving antenatal antibiotics and the infants did not act ill.

The late preterm infant is usually not asymptomatic and often needs treatment regardless of blood work. The cord blood I:T is not a reliable marker for both well-appearing or ill acting LPIs. A cord I:T should not be a substitute for an infant CBC and differential.

**Neonatal Pain in Brazil: An Overview**  
_Flavia de Souza Barbosa Dias, RN_  
_Sao Paulo, Brazil_

It is acknowledged today that the neonate is subject to an excessive number of painful and stressful procedures when admitted to a neonatal intensive care unit (NICU). Pain and stress in neonates are intrinsic to diagnostic tests, vital care, and therapeutic procedures. Pain and stress in these neonates has been the object of studies and research in recent years. Despite the numerous articles available on this topic, we still find in Brazil health professionals who cannot properly evaluate and treat pain in the neonate. The objective of this study was to present a literature review, gathering research on this topic published in Brazil in the past 10 years. This investigation was processed in the Lilacs, Medline, and Scielo databases, using the Key Words MESH pain, pain measurement, newborn, neonatal nursing, and intensive care. The results are classified according to the object and methodology of each study, and approached in descriptive language.

**Small at Birth: A Permanent Diagnosis?**  
_MaryBeth Dickinson, RNC, BSN; Brenda Bugbee, RN, BSN; Carol Bogdanowicz, RNC, NNP_  
_St. Peter’s Hospital_  
_Albury, New York_

**Background:** Suboptimal nutrition that results in growth failure in infants born weighing less than 2500 g can have long lasting effects on their neurodevelopment. According to a study by the NICHD, the most significant growth failure occurs in infants weighing less than 1000 g.

**Design:** A retrospective chart review was done on infants admitted to the NICU from January 1 through December 31, 2008. Infants were placed into the following weight categories:

- ELBW—less than 1000 g
- VLBW—1001–1500 g
- LBW—less than 2500 g

Infants were charted on the Fetal-Infant Growth Chart for Preterm Infants at birth and discharge to assess whether they were SGA, below the 10th percentile; AGA, between the 10th and 90th percentile, or LGA, above the 90th percentile.

**Results:** Data results presented on the research poster.

**Future Research:** Will the use of high protein formulas affect the percentile changes of infants born in the same weight categories from June, 2009–June, 2010?

**On the Bubble**  
_Shelley Faber, RNC-NIC_  
_Baylor All Saints Medical Center_  
_Fort Worth, Texas_

**Purpose:** To educate staff on the benefits, research, and application of Bubble CPAP and methods to eliminate/minimize common problems.

**Scope:** A core group of informal leaders were trained as super users at a local pediatric facility who then assisted with the training of all staff members. All NICU staff members were trained prior to implementation.

**Method:** Columbia University Medical Center in NYC developed an application and demonstration video of Bubble CPAP. A videotaped lecture on infants’ lung tolerability to Bubble CPAP was then given by one of our neonatologists which initiated interest.

The neonatal leadership team deemed these videos mandatory for all NICU staff members. Each staff member performed a return demonstration to an educator or superuser of the application of the hat, prongs, and tubing using a mannequin.

**Results:** Staff is prepared to use CPAP on all infants with spontaneous respiratory effort. CPAP supplies are available at all deliveries and in all NICU pods. The ultimate goal is to reduce bronchopulmonary dysplasia in infants with respiratory distress syndrome.

**Recommendations:** Due to variations in anatomy between infants, multiple skin preps, prong sizes, and methods of taping should be available. Staff members also feel that they need more hands-on time with the mannequin and these items. Assessment of nasal erosion is essential and could have been more emphasized in the training.

**Conclusions:** Our unit has been using Bubble CPAP for one year and there has been a great reduction in the number of infants placed...
on a ventilator. There has been no significant increase in the number of pneumothoraces. Bubble CPAP has been well tolerated by infants and has increased interaction with the parents.

**Postponing or Eliminating Red Blood Cell (RBC) Transfusions of Very Low Birth Weight (VLBW) Neonates by Obtaining all Baseline Laboratory Tests from Otherwise Discarded Fetal Blood in the Placenta**

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Dianne P. Montgomery, NNP;  
Cindy K. Barney, NNP;  
David M. Coulter, MD;  
Sarah Ilstrup, MD;  
Sterling T. Bennett, MD

**INTERMOUNTAIN HEALTHCARE**

**OGDEN, UTAH**

**Objective:** Safely reducing red blood cell (RBC) transfusions to very low birth weight (VLBW, <1500 g) neonates would constitute an advance in transfusion practice.

**Study Design:** We performed a single-centered case control study among 20 VLBW neonates, to evaluate the feasibility of drawing all baseline NICU admission blood tests from the placenta and not from the neonate. We compared serial blood hemoglobin (Hgb) concentrations, RBC transfusions, and intraventricular hemorrhages (IVH).

**Results:** Ten cases (all baseline blood tests drawn from the placenta) and ten controls (all baseline blood tests drawn from the neonate) were closely matched for birth weight, gestational age, gender, and race. Over the first 18 hours following birth, the Hgb increased in nine of the cases vs. two of the controls \((p = 0.005)\). During the first 72 hours of life, one case vs. five controls qualified for and received a RBC transfusion. In the first week the cases received four transfusions and the controls received 16 \((p = 0.02)\). None of the cases had an IVH but six of the controls did \((p = 0.01)\).

**Conclusions:** We speculate that this phlebotomy method is feasible and that it generally postpones the first packed RBC transfusion until beyond the period of peak vulnerability to IVH.

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**Impact of Potassium in an Extracorporeal Membrane Oxygenation (ECMO) Blood Prime on ECMO Patients Weighing Less than 6 kg**

Debbie Laney, MSN, CRNP, NNP;  
Sharina Person, PhD;  
Jenny Ross, BSN;  
Jeremy Taylor, ADN, CCRN;  
Suzanne Alford, ADN, BA, RNC;  
Sarah Ilstrup, MD;  
Sterling T. Bennett, MD

**CHILDREN’S HEALTH SYSTEM**

**BIRMINGHAM, ALABAMA**

The neonatal extracorporeal membrane oxygenation (ECMO) circuit is prepared with packed red blood cells (PRBC). Potassium levels of donor banked PRBC increases with the age of the blood. A shortage of donors had decreased the availability of fresh PRBC to prime the ECMO circuit. A literature review resulted in one article on hyperkalemia in ECMO blood prime which used a plasma reduction procedure that is not available out our institution. The purpose of this study was to analyze the potassium in the ECMO blood prime circuit and the serum levels of neonates prior to and post initiation of ECMO to develop a safer standard protocol for ECMO blood prime.

A retrospective study of infants weighing less than 6 kg requiring ECMO support for respiratory or cardiac failure in a neonatal ICU from 2004–2008 was conducted. Analysis was conducted for patient’s weight, blood age and type of preparation, and potassium levels in the patient’s blood at baseline, in the prime, and post circuit initiation of ECMO.

There was not a significant difference in baseline vs post circuit potassium levels. While the freshest blood available should be used to prime the ECMO circuit, delaying cannulation by washing blood may not be necessary.

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**Perinatal Hypophosphatasia: Challenging Neonatal Nursing Clinical Practice**

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Patricia Melcer, MSN, CCRN

**A.I. duPont Hospital for Children**

**WILMINGTON, DELAWARE**

Hypophosphatasia is a rare inborn error of metabolism, caused by decreased activity of the tissue-nonspecific isoenzyme of alkaline phosphatase. Clinical presentation varies widely, with at least eight clinical forms reported to date. The perinatal form is considered lethal, with an incidence of 1 case per 100,000 live births. Skeletal manifestations vary significantly, but primary presentation is a severe lack of mineralization of the entire skeleton. Premature craniosynostosis, despite the presence of an open fontanel, is a common finding that leads to increased intracranial pressure. Hypercalcemia is also present and may lead to renal damage. The prognosis is poor, but some infants survive for short periods. The cause of death is usually severe respiratory compromise, as a result of rachitic deformities of the chest.

This poster chronicles one neonatal intensive care unit’s (NICU’s) experience caring for an infant, born at 33 weeks gestational age, with
Extremely Low Birth Weight (ELBW) Infant Outcomes: Nursing Sensitive Indicators
Rebecca Poliquin, RNC-NIC
 Levine Children’s Hospital
 Charlotte, North Carolina

The care of extremely low birth weight (ELBW) infants requires a different approach from other infants in the neonatal intensive care nursery (NICN) environment. Though little formalized research exists on the direct impact of nursing care in this population, the data at Levine Children’s Hospital indicates that there may be a positive correlation between bedside nursing care and outcomes. Using incidence of intraventricular hemorrhage, retinopathy of prematurity, bronchopulmonary dysplasia, and necrotizing enterocolitis, we have begun tracking ELBW outcomes as Nursing Sensitive Indicators. Following changes to our bedside nursing protocol which include limiting “touch times” to every 6 hours, minimal stimulation “hands-off” assessments whenever possible, developmentally appropriate admissions and positions, and bubble CPAP along with a coordinated effort by the nurses to ensure multidisciplinary collaboration and compliance, we have seen a significant improvement in our Vermont Oxford outcomes. After reviewing our data in this light, we have developed a multidisciplinary task force to further evaluate our protocol and determine the best practice for this population. Given the high rate of morbidity for these patients nationally, the significant improvement in short term outcomes for our infants is incredibly exciting and merits further evaluation.

The Efficacy of Oropharyngeal and Nasopharyngeal Suctioning by Using MU-TIP on Premature Infants Receiving Nasal Continuous Positive Airway Pressure Ventilatory Support
Sumoltip Sontimuang, RN, PhD; Sernsri Santati, RN, PhD; Pismai Orathai, RN, PhD; Tipawan Daramas, RN, PhD, NNP
Ramathibodi Hospital
Bangkok, Thailand

Purpose: This study investigates the efficacy of the use of the Mahidol University-TIP (MU-TIP) for oropharyngeal and nasopharyngeal suctioning in premature infants.

Methods: This study was a crossover design. Study subjects were 30 premature infants with gestational ages less than 37 weeks. They all received continuous positive pressure ventilation at the neonatal intensive care unit, Ramathibodi Hospital, Thailand. The study was used to compare the efficacy of the use of MU-TIP and the use of traditional suctioning. The infants were observed for facial expressions of pain; changes in heart rate; changes in oxygen saturation; the amount of mucus present; and swelling and injury of the nasal membranes.

Results: When using MU-TIP for oropharyngeal and nasopharyngeal suctioning, the premature infants had statistically significant lower mean scores for responses to pain through facial expressions and swelling and injury of the nasal membranes when compared to using traditional suctioning (p<.05). Both suctioning methods resulted in similar amounts of mucus.

Conclusions: Compared to traditional suctioning, the oropharyngeal and nasopharyngeal suctioning done using the MU-TIP resulted in similar amounts of mucus, but it was more effective when it came to reducing pain, swelling, and injury of the nasal membranes.

Neonatal Drug Withdrawal Program: Redesigned
Christine Terry, RNC; Robin Courtney, RN, MSN
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Santa Cruz, California

Motivation for the program: Our county’s population of drug-exposed infants was increasing, as was the use of methadone for perinatal drug withdrawal. At the same time, we identified a lack of consistency by physicians and nurses when caring for drug-exposed neonates. It was obvious that the drug-exposed neonate program needed revision.

Approach: Representatives from county agencies, Child Protective Services, home health, physicians, occupational therapy, and nurses met many times to determine best practice. Using the PICO process, a plan was developed, followed by staff education, to identify and treat infants of drug-exposed mothers. A patient identification process was implemented, along with a specialized pathway and specific physician order set.

Results: Pediatricians were required to consult with the neonatologists to minimize variation in the pathway. Social workers and nurses worked with families in a monitored environment to care for infants pre- and post-discharge. Nursing care became standardized and less subjective. Decreased costs and length of stay, in conjunction with better developmental outcomes were a few of the results noted.

Conclusion: When family-centered care is achieved, length of stay is decreased, and infants have better short and long term outcomes, evidenced-based practice is occurring.

Creating and Implementing an Evidence-Based Vascular Access Bundle in the Neonatal Intensive Care Unit (NICU)
Janice Hale Denham, BSN, RNC-NIC
Baylor All Saints Medical Center
Dallas, Texas

By using evidence-based best practices to improve bedside care provided to neonatal intensive care unit (NICU) patients with any IV access, we proposed to reduce our rates of catheter related bloodstream infection (CRBSI) in the NICU to zero within a running 12 month period. A multidisciplinary team was assembled to examine our current practices.

With strong bedside nursing representation on this team, identification of practice variations resulting in an inconsistency of care provided to patients became evident. Proposed changes were in nursing practice, documentation, and evaluation of techniques used by practitioners...
during line insertions. In addition to nursing interventions, a critical behavior checklist and standardized central line nursing progress note were adopted to effectively track compliance.

Major practice changes take time to hard-wire. Constant reinforcement and strong administrative and medical staff support are vital to the success of evidence-based changes and improved patient outcomes.

**Bedside Nursing Care of the Infant with a Peripherally Inserted Central Catheter (PICC) Line**

**Cheryl Froning, BSN, RNC; Jeannette Myers, BSN, RNC**

**Kettering Medical Center/Kettering Health Network**

Kettering, Ohio

The poster presenters’ hospital is transitioning from a 12-bed Level II special care nursery (SCN) to a 20-bed Level III neonatal intensive care unit (NICU). The resulting increase in patient census and acuity has led to an increased use of peripherally inserted central catheters (PICC). The bedside nurses expressed concerns related to best evidence-based care of infants with a PICC in place. Concerns included proper PICC line maintenance and preventing catheter related infections. This led the authors to a literature search to obtain the most current evidence-based practice guidelines to care for this population of NICU patients. Recognizing the importance of providing consistent valid information for the nurses, a PowerPoint presentation was developed on PICC line care. This was presented as an inservice to the NICU nursing staff and a copy was emailed to all staff for future reference. A unit policy was developed to promote consistent practice into the future. This poster outlines the assimilated information which was presented to the NICU nursing staff. This information will be helpful to both new and experienced NICU nurses to promote effective, current, evidence-based PICC line care and to minimize PICC line infections and other complications.

**Best Practice Nursing Care of the Neonatal Intensive Care Unit (NICU) Epidermolysis Bullosa Patient**

**Tanya Kamka, RN**

**Children’s Hospital of Orange County**

Orange, California

Epidermolysis bullosa (EB) is a chronic, genetically-inherited disorder characterized by extreme skin fragility and blistering caused by any amount of friction, trauma, or heat. An estimated 1 out of every 50,000 live births is affected with some type of EB (debra.org, 2009). Systemic involvement of EB includes the skin, mucous membranes, and internal organs. Specific care guidelines for the neonate with EB have not been established by any national organizations or evidence-based practice databases. As the primary caregiver, the bedside nurse needs to be well versed in the specific care needs of the neonate with EB, and be able to identify complications early and provide effective teaching to the family. Collaboration with a multidisciplinary healthcare team is required to provide effective and comprehensive care of the neonate with EB.

This poster is the compilation and summarization of the best practices that could be identified from the literature for care of the child with EB. The findings of this evidence-based inquiry will serve as the plan of care for the NICU multidisciplinary team to provide optimum care for the infant with EB.

**The Neonatal Intensive Care Unit (NICU) Experience: Going Home**

**Jean Schlittenhart, BSN, RNC-NIC**

**Deaconess Medical Center**

Spokane, Washington

The neonatal intensive care unit (NICU) can be a stressful and frightening experience for parents. Transition from the hospital to home requires discharge planning to assist parents in learning to care for their fragile infants. From admission of the neonate to discharge, the NICU nurses teach the necessary skills to parents. Prior to discharge, a comprehensive NICU discharge class is offered, ensuring consistent dissemination of information. However, the class has only a 50 percent attendance rate. A 35-minute evidence-based practice NICU discharge DVD was developed to meet the needs of parents who can, at their convenience, view the DVD. Following the DVD review and prior to discharge of the infant, the NICU nurse assesses each parent’s ability to identify and recognize essential discharge information. This includes infant safety, wellness, growth and development, signs and symptoms of illness, and parent care, including identifying “Baby Blues.” Parents are encouraged to report to their health care provider any concerns regarding changes in their infant’s condition and/or feelings of personal wellbeing following discharge. The poster features the expected learning objectives for the parents which are embedded into the DVD.

**Implementing an Evidence-Based Clinical Nursing Practice Guideline for Bathing Premature Infants**

**Vimonwan Varolarn; Siriporn Chantavoralak; Nattaporn Chantavoralak**

**Ramathibodi Hospital**

**Bangkok, Thailand**

**Purpose:** To implement a clinical nursing practice guideline (CNPG) for bathing premature infants.

**Methods:** The development process of the CNPG included comprehensively systematic searching, analyzing, and synthesizing evidence-based research and literature related to bathing premature infants. The established guideline was examined by a panel of Associate Professor Dr. Pracha Nuntnarumit and Assistant Professor Dr. Renu Pookboonmee experts on the field, for validation, suggestions, and revision appropriate for practice. A pilot testing of the guideline was conducted on 10 premature infants born between 32 and 37 weeks gestational age who were admitted to the neonatal intensive-care unit (NICU) at Ramathibodi Hospital in Thailand from May 15–30, 2010. The mean gestational age was 34 weeks. After bathing, the results showed that the vital signs, including body temperature, heart rate, respiration rate, and oxygen saturation (SO2) were stable. No incident was reported of accidental extubation or catheter displacement.

**Conclusion:** The results of this study support an implementation of the proposed guideline for bathing premature infants.
Patient Safety: Notification of Medication Errors in a Teaching Hospital in Brazil

Sandra Regina de Souza, MS; N.C. Calazans; L.S. Prado; L. Beraldo; L.M. Torranoc; A.K.K. Shimo

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Sao Paulo, Brazil

Introduction: Studies show that errors in NICUs are more frequent than it is imagined, especially those related to drugs. The administration of medication is a most serious activity and one of most responsibility to carry it out. Application of a number of scientific principles that are part of the foundation of team work is required in every care unit, mainly in ICUs, to provide for the patient’s safety. If the hospital improves the safety, it will also improve the quality of care.

Objective/Aim: To analyze the notifications of “adverse occurrences: medication error,” to identify the types of medication errors and the measures that were adopted.

Methods: An exploratory, descriptive, and retrospective study carried out between January, 2007 and December, 2009 in an NICU of a teaching hospital in Brazil.

Results: The most frequent errors were those related to dose (39.78 percent) and to omission (32.25 percent). In the face of medication errors, the measure most commonly adopted was orientation (71.81 percent).

Conclusion: The under-notification prevents a precise accounting of the occurrences. It was noticed that, health professionals have a fear of punishing actions. Beyond that, the health professional seems not aware of the real importance of reporting such errors.

Neonatal Intensive Care Unit Patient Safety: A Multidisciplinary Team Approach

Phyllis Palla, RNC-NIC, CCRN, NNP-BC
Cardon Children’s Medical Center
Mesa, Arizona

This poster presentation shows conference attendees how, within our 85 bed Level III NICU, a multidisciplinary NICU-specific Patient Safety Committee promotes a “Just Culture” where transparency is key; staff are engaged; and safety of our infants, their parents, and our staff is top priority.

The Institute of Medicine advocates the importance of ensuring that nursing work environments be designed to promote honest communication and collaborative teamwork to create a safety culture. All disciplines that work in the NICU must work together to ensure our infants’ safety—we are their voice.

The poster addresses the formation of a multidisciplinary committee and highlights committee work, some of which includes:

- Development of a NICU-specific Emergency Preparedness Plan;
- Regular drilling for infant abduction, fire, bomb threats, violent persons, loss of air;
- Development of a monthly online NICU “Hot Spot” newsletter addressing safety/security topics;
- Monthly, in-depth Patient Safety Board presentations;
- Sharing unit Patient Safety Reports and medication misadventures with staff;
- Physical safety and security of the unit;
- Initiation of a ‘Great Catch’ program which, through the use of thank-you notes, acknowledges staff members for completing Patient Safety Reports or raising safety concerns.

Developing a Lean Process to Respond to Errors in Patient Care

Mary L. White, RN, BSN, RRT, CLC;
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Phoebe Putney Memorial Hospital
Albany, Georgia

Introduction: The first inclination in addressing medication errors is to blame the nurse rather than examining the process. Factors contributing to errors included line labeling, changing multiple fluids, untimely TPN delivery, overwhelmed new nurses, and unit distractions with everyone rushing to change fluids at once.

Objectives: In an effort to increase patient safety and minimize errors, the concept of an IV preparation room was developed. The leaner process improves patient safety and decreases the risk of infection by establishing a quiet zone and removing distractions. It also provides nurses with the necessary supplies in one location.

Methods: An NICU team worked to identify gaps in process, recurrent mistakes, and opportunities for improving practice. The need for a lean process around common nursing practices was identified.

Results: The implementation of the IV preparation room supported a standardized TPN process, and infection control measures. The new process ensured accurate line labeling and minimized distraction.

Conclusion: Often times it is not the nurses’ competence or lack of education that leads to mistakes but rather the process around the errors made. Implementing an IV preparation room ensures nursing success and is an example of how our team addressed quality issues in the NICU.

Journey to Advanced Practice: The Process Neonatal Intensive Care Unit Nurses Use to Decide to Become Neonatal Nurse Practitioners

M. Colleen Brand, MSN, NNP-BC
Texas Children’s Hospital
Houston, Texas

The current neonatal nurse practitioner (NNP) shortage makes it critical to study issues surrounding interest in the role. This qualitative pilot study examines the process neonatal intensive care unit (NICU) nurses use when deciding to become NNPs. Student NNPs (former NICU nurses) were asked to share their decision-making experience. Six themes were revealed, including “role recognition”; knowing the role exists; “seeding,” something that triggers interest in the role; “seeking,” gathering information; “knowing,” finalizing the decision to become an NNP; “location,” situational factors that influence readiness to apply to graduate school; and “action,” taking measures to enter graduate school. This information can be used by educators, nurse managers, and practicing NNPs to provide support and to remove barriers that affect the decision-making process.
How Do I Educate My Colleagues on One More Thing?
Heather Goodall, MSN, BSN, RNC-NIC, IBCLC
Children’s Hospital/Memorial Health System
Colorado Springs, Colorado

Due to the ever-changing nursing world and budgetary constraints, educators have had to develop innovative and engaging techniques to disseminate information to staff. This has always been a factor, but has been highlighted due to state budgetary issues and working in a non-profit environment. As a NICU Educator, I have found various creative means of educating colleagues. These educational endeavors have been successful due to the use of various methods. Didactic content infused with simulation, webinars, web-based training links, and vendor support are a few examples of methods I have used. Classroom content still has value. However, using technology, with its rapid availability and instant accessibility, enables me to educate many different people that work various shifts and have different learning needs. Through the learning activities provided to them, my colleagues have been able to feel confident in the education provided and are knowledgeable about how to access further education as needed. This has enabled them to become an improved bedside practitioner with the education and skills necessary to do their job.

A Student Nurse Education Packet to Enhance Clinical Experiences
Gayle Leary Omansky, RN, MSN
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Newton, Massachusetts

Problem: Preceptors have become default teachers for student nurses as a result of students being placed on specialty units for clinical experiences without clinical instructors.

Background: A shortage of specialty-qualified clinical instructors has lead to students having independent clinical placements, relying on staff nurses as preceptors.

Aim: The aim of the student nurse learning packet is to provide baseline information for the student and to alleviate some of the staff nurse’s workload when functioning as a preceptor.

Key issues: The student nurse experience in an NICU can be highly variable and anxiety-producing. Nurse preceptors are working under an increased amount of stress. The education packet gives an introduction to the NICU and contains clinical thinking exercises for the student and preceptor to consider and discuss.

Conclusions: The education packet can reduce student anxiety. The packet can also reduce the amount of stress for nurse preceptors and may increase the willingness of nurses to take on the role, increase job satisfaction, and may improve nurse retention.

Implications for Nursing: This tool provides support for the student and nurse preceptor while maximizing the educational benefits to the student.

The Effect of Nurse Education on the Prevention of Central Line Infections in the Neonatal Intensive Care Unit: A Retrospective Chart Review
Sharon Hulsey, BSN, RNC;
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Athens, Georgia

The purpose of this study is to examine the relationship between nursing education on cleansing technique of needleless access devices and central line blood stream infections in the neonatal intensive care unit.

Central venous catheter (CVC) blood stream infections (BSIs) are a serious preventable complication related to CVC use in the neonatal population and are associated with significant cost implications, and increased hospitalization, morbidity, and mortality.

A retrospective chart review was conducted comparing central line infection rates in the NICU population pre- and post-implementation of a standardized policy for care of needleless access ports. Six months pre- (n=93) and post-education (n= 62) data were then evaluated side-by-side to compare the number of infections.

CVC BSIs decreased by 56 percent pre-to post-policy change and educational inservice; however, the decrease was not statistically significant. These findings suggest that consistent education and a policy change calling for a standardized cleaning technique of needleless access ports prior to each entry may be an effective method of reducing CVC BSIs in the NICU.

Strategy to Streamline the Mandatory Education Needs of Neonatal/Pediatric Staff
Mindy Spencer, RNC-NIC
Phoebe Putney Memorial Hospital
Albany, Georgia

Introduction: Productivity-based staffing necessitates education time be kept at a minimum. The most effective implementation of this strategic learning plan utilizes fast-track teaching methods. Staff members are required to come to class prepared to test and participate in skills check off without receiving didactic training. Communicating the expectations to the learners and a structured plan were keys to the success of this program.

Objective:
- To streamline education for the NICU/Pediatric staff so NRP/CPR certifications are due the same month of the year.
- To reduce the number of expired certifications resulting in individual education classes.
- To minimize education costs.

Method: Fast track teaching method was utilized for recertification of CPR and NRP to eliminate certification expirations. March was selected as the month in which NRP/CPR certifications are taught with half of the employees alternating every other March for recertification.

Conclusion: Each employee was responsible for coming “learning ready” for the interactive aspect of the recertification. This strategy saved organizational resources and decreased education hours in half. This eliminated the need to keep track of a large number of staff’s expiration dates. Employees and managers no longer had to “worry” when multiple certifications expired and maintained Joint Commission readiness.
Lifesavers for Floats
Michellina Williams, BSN
April Brooks, BSN
Duke University Medical Center
Durham, North Carolina

Leaving the comforts of your own unit to float to another unit can leave you with a sinking feeling. Floating into a unit with small babies is exceptionally stressful for most nurses. The Transitional Care Core team developed “Lifesavers” for floats. “Lifesavers” covers topics like organization, feeding guidelines, frequently used medications, normal neonatal vital signs, reportable conditions, and how to reach providers. “Lifesavers” augments the face-to-face orientation the nurse float gets upon arrival to the unit and is readily available for quick reference throughout the shift. Alleviating the anxiety of floating definitely improves the float’s experience and improves patient safety. Since implementation of “Lifesavers,” float nurses have been happier and some have even offered to come back for another shift!

Infant Developmental Care in the NICUs at Main Line Hospitals
Joanne McTamney, RNC-NIC
Main Line Health System
Bryn Mawr, Pennsylvania

A set of guidelines in developmental care has been designed to reduce infant stress in the neonatal intensive care unit (NICU). The stressors are identified as: light exposure, noise, positioning and infant handling, and interaction by healthcare professionals. The Main Line Health System (MLHS) established a Developmental Care Committee to develop a set of guidelines to reduce these stressors. The multidisciplinary committee is comprised of a neonatologist, a neonatal physical and neurological developmentalist, a speech therapist, and nurse representatives from the three NICUs within the MLHS in suburban Philadelphia.

A formal educational program for the nursing staff to properly use positioning devices and other techniques to support and facilitate the neonate’s development was instituted in the three MLHS NICUs. As a way of monitoring the sustainability of the education, the committee continues to evaluate the effectiveness of staff education and the proper usage of positioning techniques.

The committee is looking at two other initiatives to reduce neonatal stress in the next year: noise reduction and readiness to feed.

The Effect of Music on the Sleep-Wake States of Premature Infants in the Neonatal Intensive Care Unit
Tippawan Srichalerm, RN, MN;
Tippawan Daramas, RN, PhD;
Srisamorn Phumonsakul, RN, DNS
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Bangkok, Thailand

Purpose: This study compared the effects of music on the sleep-wake states of premature infants during music time and during routine nursing care.

Methods: The study sample consisted of 20 premature infants with gestational ages ranging from 28 to 36 months who were hospitalized in the NICU of the medical center in Bangkok, Thailand. The infants were selected using purposive sampling. Every premature infant was randomly selected to receive either the experimental condition—listening to music 30 minutes after vital signs were recorded, or the control condition—receiving routine nursing care conditions. Data were collected using the Anderson Behavioral State Scale (ABSS).

Results: The study findings showed that when premature infants listened to music at 5 and 30 minutes after vital signs were recorded, they slept more deeply than when they did not listen to music with statistical significance at .01 and .001 levels, respectively.

Conclusions: The music can be used as a practice to promote sleep in premature infants in the NICU.

Building a Relationship Between the Neonatal Intensive Care Unit and the Emergency Center (EC) to Improve Outcomes in Critically Ill Infants
Misti Hendrickson, RNC-NIC;
Brandi Holton, RN, BSN;
Christina Thornton, RN
Phoebe Putney Memorial Hospital
Albany, Georgia

Purpose: The EC staff needed support in caring for critically ill infants. Identified opportunities: 1) NICU readmissions were considered if the infants <30 days of age were not exhibiting symptoms of contagious illness. 2) NICU presence in the EC would enhance older infants’ outcomes requiring stabilization and transport.

Method: A NICU educator became the designated EC liaison to provide education, training, and feedback. The goal was to optimize management of infants in the EC. To meet this goal equipment and supplies were evaluated, cases were reviewed to identify knowledge deficits, and trust and collaboration between the two staffs was promoted.

Result: The EC notifies the NICU team upon an infant’s arrival. Infants <30 days old are rapidly stabilized and admitted to the NICU. Supplies are kept in a centralized place to resuscitate infants efficiently. NICU personnel attend older infant resuscitations in the EC and help prepare the infant for transport.

Conclusion: The NICU and EC teams developed a collaborative approach toward the management of critically ill infants that transcends the NICU liaison and the Assistant Nurse Manager roles. We have a neonatal early response team that delivers care in a more timely, effective, and efficient manner to critically ill infants.

Early Intervention for Cold Stressed Infants in the Emergency Center (EC)
Misti Hendrickson, RNC-NIC;
Lacey Allen, RNC;
Mary White, RN, BSN
Phoebe Putney Memorial Hospital
Albany, Georgia

Purpose: Infants were admitted to the NICU with symptoms of cold stress after initial stabilization in the Emergency Center (EC). Hypothermia in infants is an important yet preventable complication in an emergency situation.
Methods: A review of recent cases revealed a lack of age appropriate equipment as well as a knowledge deficit regarding the impact of cold stress on infants. The NICU donated a radiant heat warmer to the EC. The EC Assistant Nurse Manager and NICU Educator coordinated education and training for staff members on varying shifts. The NICU Educator provided an interactive, hands-on inservice presentation for the EC staff explaining the new equipment and the importance of preventing cold stress in critically ill infants.

Results: The EC staff demonstrates the understanding of early intervention in maintaining a neutral thermal environment for compromised infants. Infants either being admitted to the NICU from the EC or transported to another facility no longer exhibit symptoms of hypothermia.

Conclusion: The EC staff is competent in the prevention cold stress and demonstrates confidence in using age appropriate equipment and supplies. The EC staff can focus on the management of other complications exhibited by critically ill infants.

Bringing Neonatal Competency to the Emergency Department Setting
Patricia Newell-Helfant, RN, MS, CPNP;
Maureen Cavanaugh, RN,C-EFM, MS, MAHCM
St. Peter’s Hospital
Albany, New York

Ask an emergency department (ED) nurse or provider what scares them the most and undoubtedly neonatal resuscitation or emergencies would probably top the list. While managing these emergencies may be common place to labor and delivery or NICU staff, staff in the ED rarely encounter these clinical scenarios.

This presentation details how a community Magnet facility worked to form a partnership between NICU staff and ED staff to handle the neonate who presents to the emergency department in respiratory distress. Using simulation and teamwork training, essential competencies for both NICU and ED staff were first identified and then practiced in an environment which allowed staff to achieve skill competency and troubleshoot system issues. The collaborative training resulted in standardized documentation and a new protocol outlining specific role related responsibilities. Admission, discharge, and criteria for transfer to the local children’s hospital were significant elements of both the training and the protocol.

Finally, the essential role of debriefing after every neonatal event in the ED are also discussed. Staff grew to understand the contribution debriefing can make toward lessening emotional distress and continuously improving the quality of care.

Pregnancy, Pediatrics, and Pandemics:
Creative Use of Simulation to Prepare for the H1N1 Pandemic
Maureen Cavanaugh, RN, C-EFM, MS, MAHCM;
Patricia Newell-Helfant, RN, MS, CPNP
St. Peter’s Hospital
Albany, New York

In 2009, the healthcare system was confronted with the daunting challenge of dealing with pandemic flu. The clinical manifestations and transmission pattern of this disease made perinatal and pediatric patients among those most at risk for serious morbidity and death.

This presentation details how a large community hospital capitalized on its successful perinatal simulation program to train staff to manage potential flu scenarios involving children and pregnant patients. Nurses from the pediatric, emergency, obstetric, and critical care units; respiratory therapists; and physicians attended trainings in which either a “pregnant” or “toddler” high fidelity mannequin experienced a rapid respiratory decompensation as a consequence of untreated H1N1. The scenario allowed the interdisciplinary groups to practice critical care skills and assessments rarely used in pediatrics or obstetrics. During debriefing, staff had the opportunity to identify gaps in the system which might impact patient care. A protocol for the obstetric patient with pandemic flu was developed and the drills provided an opportunity to reinforce the protocol’s vital aspects. Drill content was under constant revision as new information about H1N1 continually surfaced. Ethical issues related to visitation, vaccination, and quarantine were included in the experience to facilitate staff reflection and critical thinking.

The Effects of Expressed Breast Milk on Pain Responses to Heel Stick in Full Term Neonates
Tipawan Daramas, RN, PhD, NNP;
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Renu Pookboonme, RN, DNS
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Bangkok, Thailand

Purpose: This study compared the pain relieving effects of expressed breast milk and a placebo in full term neonates undergoing heel stick.

Methods: This study was a randomized controlled trial design. Study subjects were 60 full term neonates. They were all healthy and received heel stick at a nursery unit of the medical center in Bangkok, Thailand. The experiment group received 5 ml of expressed breast milk, while the control group received 5 ml of distilled water, as a placebo. Behavioral pain was assessed by facial expressions, base on the Neonatal Facial Coding System (NFCS). Physiologic changes (heart rate and oxygen saturation) were measured by the pulse oximeter.

Results: The NFCS at 1 minute and 3 minutes after heel stick were significantly lower (p <.001) in the expressed breast milk group than in the distilled water group. The heart rate was significantly lower (p <.001) in the breast milk group than the distilled water group. The oxygen saturation was significantly higher (p <.001) in the breast milk group than the distilled water group.

Conclusions: The expressed breast milk is a safe and effective method to use in reducing pain in neonates during heel stick.

Nitrazine Paper Screening vs Amnisure Screening of Amniotic Fluid
Peggy Findley, RNC-OB, MSN
Schneck Medical Center
Seymour, Indiana

Objective: To compare Nitrazine Paper Screening and Amnisure in the diagnosis of ruptured amniotic membranes in the pregnant patient.

Design: Quantitative comparative study using convenience sampling.
Participants: 25 pregnant patients with possible rupture of membranes

Main Outcome Measures: Amnisure more accurate in diagnosis of ruptured membranes.

Results: 24 comparative results were completed from April 2008 to July 2009.

54 percent (13/24) positive results using Amnisure vs 58 percent (14/24) positive results using Nitrazine.

46 percent (11/24) negative results using Amnisure vs 42 percent (10/24) negative results using Nitrazine.

Chi Square used for results.

4 percent difference in the positive result.

4 percent difference in the negative result.

Conclusions: 4 percent is not a significant difference in using either of the products; no trend to use one over the other. Since no significant difference was found, OB to continue to use Nitrazine, at cost of pennies, instead Amnisure at cost of $25 each.

Antepartum Group Therapy: Can We Reduce NICU Admissions?
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The physical medicine department at Baylor University Medical Center has developed group sessions that are conducted several times a week for inpatient antepartum patients. This holistic approach helps to provide emotional support for our patients as well as provide them with skills to refocus retrospective fears to external productivity. The group also provides education for these soon-to-be moms ranging from relaxation techniques to stages of development and the special needs of the preterm population. During group time the patient experiences socialization, emotional support, and channeling of emotions. She also learns to develop coping strategies to aid in management of prolonged hospitalization. The inherent isolation of bed rest transforms their joy of pregnancy to anxiety, fear, and worry. The group setting facilitated by occupational and recreational therapists assists the patient in creating healthy adaptations for this sudden change in their life roles. By enabling these high-risk patients to cope with their hospital stay, the antepartum unit has seen an increase in length of stay, improved patient satisfaction, increased compliance with physician orders, and anecdotally a higher gestation at birth for this patient population.

Discovering Postpartum Depression in Refugee Women
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Purpose: Among postpartum women of refugee status, do current postpartum depression screening tools exhibit the same degree of reliability as in the English speaking, native born population?

Background: Due to the unstable political and social climates that perpetuate in many areas of the world, more people are seeking to enter the United States under refugee or asylum seeking status. As the U.S. demographic changes, we see that change reflected in the diverse cultural backgrounds of the patients entering our hospital systems. Studies have shown that women who are immigrants, refugees, or are seeking asylum are more likely to experience postpartum depression than native born women.

Methods: A literature search was conducted using the following databases: Ovid, Pub Med, CINAHL, and the Cochrane Library. Key words used in the search were “postpartum depression”, “screening tools”, “translations”, “refugee”, “asylum seeker” and “immigrant.” The literature searched encompassed the years 1990—2008.

Findings: A review of the literature revealed few studies that focused specifically on the incidence and identification of postpartum depression in refugee and asylum seeking women. The Edinburgh Postnatal Depression Scale and the Postpartum Depression Screening Scale have been translated and validated for use in many languages when used with women who are living within their home countries, however the translated versions have been shown to be less effective when used with women who are living outside their country of origin.

Implications: The disparity in the ability of translated screening tools to identify postpartum depression in non-native born women may suggest that the questions asked do not accurately capture the experiences of an immigrant population. Further research is necessary to accurately assess the validity of current postpartum depression screening tools when used with immigrant populations.

Don’t Leave Me in the Dark: Implementation of Bedside Postpartum Depression Screening
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Early detection and treatment of postpartum depression is paramount for optimal mental health in mothers, babies and families. In 2006, maternity nurses in a large metropolitan hospital wanted to implement Postpartum Depression (PPD) screening on all perinatal patients. A trial using the Edinburgh Postnatal Depression Scale (EPDS) was completed. It was determined there were limited inpatient and community resources to meet the needs of identified patients. A brochure was developed and patient/family education implemented.

In collaboration with Behavioral Health, a PPD treatment algorithm was developed to help physicians determine mode of therapy. Concurrently the county Perinatal Mood Disorder Task Force developed a comprehensive community resource list. With these resources in place, the committee reintroduced the proposal of administering the EPDS to perinatal patients. In 2009, the proposal was presented to the medical staff and approved. Physician offices are notified when a patient scores 11 or greater on the EPDS. Mandatory education for the perinatal nursing staff was provided. Team leaders made visits to physician offices to educate and offer resources.

This poster illustrates the process nurses used to develop and implement PPD bedside screening on perinatal patients. Patient resources will be shared. Successes and failures in the nurse education process will be discussed.
Educating Nurses about Postpartum Depression in the Acute Setting
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Background: Postpartum depression (PPD) is a serious mental health illness occurring in 10–20 percent of all new mothers, thus being the most common complication of childbirth. One of the best weapons for fighting PPD is education.

Search Methods: The medical literature including studies and reviews on PPD education was reviewed by searching CINAHL, MEDLINE, PsycINFO, and PubMed.

Search terms included depression, postpartum, education, nurses, and staff development.

Results: According to the literature, nurses have barriers to receiving the necessary information about PPD in order to provide optimal care, and women have barriers to being educated about PPD.

Study Focus: As most births occur in the hospital, the educational focus for this poster presentation will be on how to educate nurses in the acute setting so they can best educate their mothers on PPD.

A Proactive Approach to Quality Care
Alison Gilmour, RN, MN, PNC(c); Susan Guest, RN, MN, IBCLC; Raylene MacLeod, RN, BScN, IBCLC, PNC(c); Greg Harpell, MBA
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Continuous monitoring and improvement in the quality of care provided to patients and their families is a fundamental element of today’s healthcare organizations’ mission, vision and values. Increasingly scrutinized metrics employed by most hospitals to measure performance with respect to patient and family centered care are the patient satisfaction survey results. As a consequence, staff are presented with a multitude of results and priorities for action; and challenged to engage with the data and make meaningful improvements. This paper details the efforts to translate patient satisfaction data into meaningful actions, commitments, and changes in the way the care is delivered to improve staff and patient satisfaction on the postpartum unit. As a tertiary hospital with over 7,000 births a year, the challenge of responding to patients’ spontaneous needs and requests can be overwhelming for nursing staff. This study took the opportunity to design a program that allows nursing staff to do hourly rounding with their patients in an effort to anticipate and address patient needs using checklists and scripted questions based on analysis of patient satisfaction data. Components of the patient satisfaction results were grouped into three key areas for staff focus and labeled as the “Three Cs.” One, Comfort—assessment and management of pain and patient comfort needs. Two, Communication—refers to partnering in the patients’ care with an interdisciplinary approach, answering just-in-time questions posed by patients and educating patients on their care and what to expect. Three, Cuddle—emphasizing skin-to-skin bonding, attachment, and breastfeeding education and assistance.

Results of the study will include pre-, concurrent, and post-data analysis of the hourly rounding program for patient satisfaction survey results, call button frequency and nature of use, and staff satisfaction with the program. Finally, although patient falls are not common on the postpartum unit—this patient safety dimension will also be monitored for improvement following the implementation of hourly rounds.

The Implementation of Developmental Care in a Level II Newborn Nursery
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The use of developmental care principles in neonatal intensive care units has demonstrated that individualized and supportive care can decrease preterm morbidity and mortality (Symington and Pinelli, 2009). However, in a Level II newborn nursery, there is a lack of literature, and best practice protocols are difficult to find. Nursery staff at Roper Saint Francis Healthcare, a community-based hospital system, felt empowered to develop a staff education and skills workshop to implement best practice principles of developmental care to improve the outcomes of their Level II infants. (Level I infants also share the unit’s open area.) Clustering of care, positioning, skin-to-skin holding, adjustments in lighting, and decreasing noise are interventions of developmental care that staff decided to implement after the workshop (Verklan and Walden, 2010). The developmental care in-service classes were taught by nursery staff with NICU experience because staff members were either new or to Level II competencies. The poster presentation reviews challenges and strategies that resulted in improved outcomes for Level II patients and families as well as increased staff satisfaction, professional growth, and nursing quality of care.

Individualized Teaching Needs Leads to Positive Outcomes
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Everyday nurses face the challenge of preparing patients for discharge. With decreasing length of stay for post-partum patients and increasing regulatory requirements for newborn discharge, a redesign of our teaching methods became our focus. A committee of staff nurses explored strategies to meet the expectations of patients and the organization. They reviewed current practices, regulatory requirements, and standards of care. Four themes were identified: streamlining documentation, decreasing the time to discharge, improving the quality of education, and individualizing patient teaching. A patient needs assessment was developed to include postpartum and newborn care. This assessment was formatted as a teaching record and documentation tool for both the patient and nursing staff. The educational packet for the patient was reorganized to correspond with line items on the teaching record. On admission, patients are now given the needs assessment to identify their learning needs. The nurse reviews the tool with the patient to align their needs with the teaching goals. Teaching is then conducted to meet the individual’s needs. Clinical outcomes influenced by the program include: patient satisfaction as measured by
Snuggle Time
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“Snuggle Time” evolved from multiple patient complaints regarding continuous interruptions while in the hospital, in addition to published research highlighting the importance of uninterrupted quiet time for mothers and newborns.

“Snuggle Time” provides the patients and their significant others the opportunity to have two hours of uninterrupted time during the day to bond with their baby. Communication went out to all of the internal stakeholders of the hospital announcing this initiative. Meetings were scheduled with the unit shared governance council and the departments being impacted by this initiative to formulate a plan to modify work flows and successfully implement “Snuggle Time.”

Evidence shows that “experiences with breastfeeding in the first hours and days following birth significantly influence an infant’s later feeding, but interruptions may negatively impact breastfeeding. “Nurses should be creative in discovering methods to allow the breastfeeding experience to evolve uninterrupted.”

Providing patients and their significant others the opportunity to participate in two hours of uninterrupted bonding time with their baby has positively impacted the family-unit’s hospital experience as evident by numerous favorable patient comments on the patient satisfaction survey, during leadership rounding, and discharge charge follow-up phone calls.

Amazing Embrace:
Promoting Skin-to-Skin Contact after Birth

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Molly Cipriani, RNC-MB;
Sharon Borawski, RNC-BC;
Rhonda Lewis, RNC-BC;
Cheryl Moore, RNC-LeD;
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Research has shown that there are benefits for mothers and fathers who practice skin-to-skin contact with their newborns. Specifically, skin to skin contact can strengthen the parent-infant bond, facilitate breastfeeding, and ease transition to extrauterine life. Thermoregulation, stabilization of blood sugar, reduced need for respiratory support, and the ability to cope with painful procedures are also recognized as benefits to the newborn.

Hamot Medical Center is implementing a process change to increase skin-to-skin contact between parent and infant after birth. The plan includes a baseline assessment of nursing knowledge of the benefits of skin-to-skin holding, evidence-based research education for staff, development of a standard of care, and electronic documentation processes. Patient education will include posters and descriptive brochures featuring mothers demonstrating skin-to-skin contact.

Outcomes include measuring the percent of moms who initiate skin-to-skin contact prior to discharge. A reassessment of staff knowledge will be ongoing after implementation to determine their continued level of understanding.

A multifaceted approach to education will ensure that skin-to-skin holding will be valued and accepted as a standard of care that will improve infant outcomes.

Crossing the Nursing Research Finish Line,
One Subject at a Time! Retaining Late Preterm Infants and their Mothers in the AWHONN Late Preterm Infant Research Project

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Purpose: To describe how nurses were supported to enroll and retain research subjects in the AWHONN Late Preterm Infant (LPI) Research-Based Practice Project. Both late preterm infants and their mothers were study participants who needed special strategies to be retained in the study as they transferred from one nursing unit to another.

Description: bedside nurses, nurse practitioners, lactation specialists, and managers working in Labor and Delivery, Mother-Baby, and NICU units implemented AWHONN’s Evidence-Based Practice Guidelines for the LPI. Nurses obtained informed consent from patients, collected patient data, and provided care and maternal education for LPI’s during the 6 month study duration. The site-specific LPI study team designed many tactics to engage nurses and retain study subjects. Strategies included dynamic marketing, varied education and awareness approaches, and daily support by a designated project leader.

Outcomes/Conclusions/Implications: Nurses, in a variety of roles, were key to the success of enrolling and retaining study participants. Maternal subject retention was 156, and neonatal study subjects equaled 155 late preterm infants. Staff participation in evidence-based practice (EBP) implementation and in nursing research is essential to the success of a study. Changing nursing culture so that advanced practice nurses and bedside nurses support and contribute to evidence-based practice is an ongoing commitment.

Development of a Late Preterm Initiative on the Postpartum Unit

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In 2005, The Association of Women’s Health, Obstetrics and Neonatal Nurses (AWHONN) identified an opportunity to improve care to infants born between the ages of 34 and 36 6/7 weeks gestation. AWHONN developed the late preterm infant initiative to establish guidelines for care of late preterm infants (LPI). Late preterm infants were...
found to be at greater risk for hypothermia, hypoglycemia, respiratory
distress, hyperbilirubinemia, sepsis, and feeding difficulties.

Nurses, in collaboration with a multidisciplinary healthcare team, implemented a Late Preterm Infant Initiative. The purpose of the initiative was to enhance the care of late preterm infants admitted with their mothers to the postpartum unit. This initiative included implementation of an LPI policy, LPI admission procedure, staff and physician education, and car seat challenge testing. Improved staff awareness of the special needs of these infants prompted the opening of a Late Preterm Infant Nursery. Providing close observation with frequent nursing assessments decreased admissions to a newborn intensive care nursery. This allowed mother and baby to remain together on the postpartum unit and promoted family centered care while providing excellent care to our special infant population.