

Abstracts Presented at the National Neonatal, Advanced Practice, and Mother Baby Nurses Conference

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These are the abstracts for the **poster presentations** from the National Neonatal, Advanced Practice, and Mother Baby Nurses Conferences in New Orleans, Louisiana. They represent a broad range of neonatal and perinatal care issues. By sharing this information, we hope to increase awareness of research and innovative programs within the neonatal health care community, and support evidence-based nursing practice. Abstracts have been edited for publication.

[CLABSI Strategies: Decreasing PICC Line Access and Indwelling Days in the NICU](#)

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CLABSI is associated with significant morbidity and mortality. Utilization of an insertion bundle (IB) and a maintenance bundle (MB) decreased rates. However, PICC line days were higher compared to MEDNAX. Adapting new strategies may offer solutions.

Methodology: A new guideline to decrease PICC line access/days by switching IV caffeine to PO at 80 mL/kg/day and catheter removal at 120 mL/kg/day was implemented from 2016 to 2017. Comparative data analysis of pre- (January 2015–July 2016) and post- (August 2016–December 2017) compliance to the new guideline and bundle use was done to determine implications on line days and rates.

Results: N = 896 (499 pre-group/397 post-group). IB compliance was 85% (pre) and 92% (post) and MB compliance was 79% (pre) and 74% (post). IV to PO compliance was only 21% and PICC removal was only 47%. Line days decreased from 17.4 days in the pre-group to 16.6 days in the post-group. No CLABSIs were reported in any of the three NICU centers since December 2016.

Implications: Appropriate use and timely removal of PICC lines are warranted to prevent CLABSI. Standardized practice guidelines helped achieve the desired zero rate.

[Reducing Unplanned Extubations in the NICU: A Quality Improvement Project](#)

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Unplanned extubations (UE) are three to four times more likely to occur in neonates than other populations, making it the fourth most common adverse event in the NICU. Potential consequences include increased ventilator days and length of stay; airway trauma; infection; and cardiopulmonary effects such as hypotension, arrhythmias, and death. Several studies have shown that hospitals achieve rates below the recommended <1 event /100 ventilator days, yet severe secondary adverse events still occur.

This quality improvement (QI) project aims to reduce UE by focusing multidisciplinary interventions on those neonates most at risk by reducing UE by 25 percent over a 4-month period and decreasing cardiopulmonary adverse events from UE by 25% over the same period.

A QI project using the Plan, Do, Study, Act framework will be used to collect retrospective data on UE to identify risk factors that are specific to the unit. Interventions will focus on increasing education for staff, increasing communication between multidisciplinary caretakers, and eliminating independent manipulation of intubated patients by those not staffed in the NICU. Data will be analyzed every two weeks and synthesized at the end of the 12 weeks.

Results from the initial data collection will inform subsequent improvement cycles.

[Implementing Safe Sleep Recommendations for Vulnerable Infants in the NICU](#)

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Background: Sudden unexpected infant death syndrome (SUIDS) is a leading cause of infant death. Premature and low birth weight infants have a 410 times greater risk. Unsafe sleep environments and non-supine positioning are associated with 70% SUIDS. Non-supine therapeutic-positioning (NS-TP) rather than safe sleep (SS) is often medically indicated in NICUs. Transitioning infants from NS-TP to SS is challenging. Parents who observe their infant in NS-TP rather than SS are likely to practice NS-TP once home. The American Academy of Pediatrics stresses NICUs should model SS prior to infant discharge.

Purpose: The aim of this quality improvement (QI) project was to increase use of SS recommendations for SS-eligible NICU infants.

QI Project Steps:

- Development of NS-TP crib card for non-eligible SS infants
- Transition to ABC's SS-crib card once infant is SS-eligible
- Conduct 220 NICU SS crib audits pre- and post- QI-project

Results:

- Transitioning infants using sequential NS-TP/ABC'S-SS crib cards significantly improved SS practices.
- No blankets in crib (p <0.01)
- Crib flat (p <0.01)
- No soft objects in crib (p <0.01)
- Infant in sleep sack/onesie (p <0.01)

Implications: Consistent messaging and role-modeling using sequential NS-TP and ABC's-SS crib cards were highly effective strategies to transition NICU infants from NS-TP to SS.

Transient Neonatal Hypocalcemia in the Infant of a Diabetic Mother

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An LGA female infant born at 36 3/7 weeks to a diabetic mother developed significant hypocalcemia. After consultation with an endocrinologist on DOL #3, the following laboratory tests were obtained: parathyroid hormone (67.4 pg/mL, low); Vitamin D 25-hydroxy (7.4 ng/mL, low); vitamin D 1, 25-dihydroxy (154.0 pg/mL, elevated); urine calcium (<5 mg/dL); urine creatinine (28.7 mg/dL); phosphorus (12.5 mg/dL, elevated); magnesium 2 mg/dL (normal). Based on these laboratory values, the endocrinologist diagnosed the infant with hypoparathyroidism and recommended oral calcium gluconate at 800 mg/kg/day divided every 6 hours along with Vitamin D at 1,000 IU daily.

During the first three days of life, hypocalcemia can occur in up to 50% of infants of diabetic mothers (IDMs) and hypomagnesemia can occur in up to 40% of IDMs. The hallmark findings of hypoparathyroidism are hypocalcemia and hyperphosphatemia with normal renal function. Obtain phosphorus and magnesium levels along with serum calcium values when hypoparathyroidism is suspected.

Implications for practice include obtaining a thorough prenatal history and closely monitoring calcium and phosphorus levels of infants of diabetic mothers. Early detection of hypocalcemia is necessary because it can be severe and lead to tetany and/or cardiac arrhythmias. Appropriate consultation with a pediatric endocrinologist is necessary.

Tin Mesoporphyrin as Adjunctive Treatment to Phototherapy in Neonates with Hyperbilirubinemia and Hemolysis

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Disclosure: *This author receives a salary from Mallinckrodt Pharmaceuticals*

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Objective: To evaluate the efficacy and safety of heme oxygenase inhibitor tin mesoporphyrin (SnMP) with phototherapy (PT) vs PT alone in neonates born at 35–43 weeks' gestation with hemolysis and hyperbilirubinemia (HB).

Design/Methods: This multicenter, randomized, double-blind, placebo (PBO)-controlled trial (NCT01887327) compared 3.0 and 4.5 mg/kg single IM injections of SnMP with PT vs PT alone (+normal saline as PBO). PT was initiated based on total serum bilirubin (TSB) level (AAP guidelines). The primary endpoint was percent change in TSB at 48 (± 6) hours post-injection. Secondary endpoints included treatment failure (readmission for HB; restart of PT; IVIG; or ET); and rebound HB.

Results: Ninety-one patients were randomized (n = 30, 30, and 31 for PBO, 3.0, and 4.5 mg/kg SnMP, respectively). Both doses of SnMP significantly reduced TSB at 48 hours post-administration; however, mean TSB increased with PBO (P <0.0001). Duration of initial PT was shorter with SnMP compared to PBO. Treatment failures occurred in 27%, 10%, and 3% with PBO, 3.0, and 4.5 mg/kg SnMP, respectively; rebound HB in 10%, 0%, and 3%.

Adverse events were mild and similar in all groups.

Conclusion(s): SnMP may be useful as an adjunctive treatment in neonates at risk for significant HB and may reduce the need for interventions.

Sibling Sunday Visitation at a Neonatal Intensive Care Nursery

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When babies are expected, parents, grandparents, and siblings look forward to the birth of the new family member. When the infant is born prematurely or is sick at birth and must receive care in the neonatal intensive care unit (NICU), there is often confusion for the sibling who was expecting to have a baby at home. A local NICU has implemented a program for siblings to visit with their new baby brother or sister and better understand where they are. Once a month, on a Sunday, siblings are invited to come to a classroom near the NICU to discuss what the NICU is at an age appropriate level. Activities include handwashing, making pictures for their sibling, and learning about some of the equipment and professionals in the NICU. After a brief orientation of some of the items in the NICU, the siblings are allowed to visit through a robot that travels to the patient's bedside. Parents may be at the baby's bedside so the children understand this is the expected baby. This presentation discusses the program's creation, the feedback received regarding the program, and future plans for the program.

Pain, Pain Go Away: Perception and Management of Pain in the NICU

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Statement of the Problem: Infants are spending a longer time in the NICU and thus subjected to a higher number of painful procedures. Increased exposure to pain can be detrimental to the rapidly developing neonatal brain.

Literature Review: Optimal pain management is centered on timely and appropriate assessment of pain and utilization of a tool to reassess the efficacy of the intervention. The COVERS pain scale is a validated, multidimensional tool that utilizes physiologic and non-physiologic indicators to manage pain.

Methodology: An anonymous electronic survey was distributed to all nurses and providers in our 102-bed Level IV NICU. Baseline data was obtained on a cohort of patients in the immediate 48-hour period following surgery. Staff members were taught to use the scale, how to document its use, and how to manage pain.

Data Analysis: Initial survey results found that a lack of standardization, high staffing ratios, and a paucity of education specific to pain were barriers to effective pain management. Using the COVERS pain scale, compliance with pain assessment one hour post-operatively rose from a baseline (N = 22) of 38% to 100% (N = 83) over a 9-month period.

Interpretation: Despite improvements following a simple intervention, further research is warranted to evaluate factors impacting perception and the ideal educational intervention.

Mother/Baby Barcoding Designed to Prevent Misidentification when Caring for Newborn Couplets

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Newborns in the Mother/Baby unit are at risk for numerous unsafe occurrences. One of our biggest fears is for an infant to go to the wrong mother. In 2016, that unthinkable event happened. A root cause analysis revealed that our policy of checking the printed baby bracelet failed. Seeking an innovative solution, the staff took this to our Quality and Patient Safety Council who began to research and explore systems already in place that could be customized.

Clinical nurses suggested the idea of scanning babies, as we do medications, with our own electronic documentation system and scanners. This idea was then brought to our Nursing Informatics team for their input on feasibility. The informatics nurse was able to develop this barcode technology to be utilized for identification with the mother/baby couplet.

Currently, barcoded infant bands are now placed on every newborn's ankle, mother's wrist and 2nd parent or designated alternate care provider. The scanner is then utilized to match whomever the nurse is giving the infant to, starting immediately after delivery, and prior to any separation of the family. Visual checks continue to be done as well.

We have had no further incidents of misidentification since initiation.

The CHANGE Model: A Professional Practice Model for Neonatal Nurse Practitioners Who Provide International Medical Relief to Low-to-Middle Income Countries

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Neonates in low- and middle- income countries (LMICs) are dying from preventable and treatable causes. Experts at the United Nations, the World Health Organization (WHO), and the United Nations Children's Fund (UNICEF) have identified interventions to improve outcomes, but the lack of skilled providers hinders progress. A Professional Practice Model (PPM) for neonatal nurse practitioners (NNPs) who desire to travel to LMICs to practice, could aid in providing structure to a role that does not exist. The PPM development process is described and a brief description of the problem, conceptual framework, literature review, data analysis, and interpretation are provided. Qualitative methods will be used for data collection through interviews of experts in global health care. The purpose of this work is to describe the need, value, and process of an evidenced-based PPM for NNPs who have trained in countries where the NNP role is established but wish to contribute their knowledge and skill in LMICs, where nearly all neonatal mortality occurs. A theoretical implementation plan will be described with the hope that NNPs will be able to use the PPM as a tool to help cultivate and foster relationships in health care communities in LMICs.

Infant Skin Barrier Damage Inflicted by Fecal Enzymes and Ways to Mitigate: Why Water is Insufficient

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Disclosure: *These authors receive a salary from Kimberly-Clark Corporation*

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Digestive enzymes in stool are potent skin irritants and are a primary cause of diaper rash in infants. Thorough removal of stool is critical as leftover enzymes have the potential to damage skin. The amount of enzymes that induces skin irritation is unknown and the effects of baby wipes on fecal enzyme activity are not fully elucidated. In this in vitro study, three-dimensional skin models derived from neonatal skin cells were exposed to mixtures containing the enzymes trypsin and chymotrypsin, or phosphate-buffered saline as a control. Skin barrier damage was determined via transepithelial electrical resistance and inflammatory response was evaluated by measuring key cytokines. Significant skin barrier damage and increased interleukin 1 (IL-1) and granulocyte-macrophage colony-stimulating factor (GM-CSF) were observed even after low level fecal enzyme exposure. To evaluate effects of baby wipes formulations on fecal enzyme activity, a standard enzymatic assay was used. Baby wipes formulated at a pH range of 4.5–5.5 reduced enzymatic activity significantly, compared to sterile distilled water (pH 7) or baby wipes formulated at neutral pH, which supported enzymatic activity. These results indicate using baby wipes formulated at slightly acidic pH has an added benefit over water alone by inhibiting fecal enzymes potentially left behind, promoting better infant skin health.

Bathing High Risk Neonates: Implementation of a Clinical Practice Guideline

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Background: The frequencies and techniques of neonatal bathing are well established within evidence-based practice. Various organizations have transmitted such evidence into clinical practice guidelines (CPGs) to provide health care providers with best practice recommendations for safe and quality patient care. However, a wide variation of non-evidence based neonatal bathing practices remains.

Purpose/Aims: The purpose is to implement the bathing recommendations within the Association of Women's Health, Obstetric and Neonatal Nurses' (AWHONN) 2013 publication of Neonatal Skin Care: Evidence-Based Clinical Practice Guideline within a Neonatal Intensive Care Unit (NICU). The aims include educating 100 percent of the nursing staff and achieving 50 percent compliance by the end of week two, 75 percent compliance by week four, and 100 percent compliance by week six. The sustainability goal is to have the bathing CPG written into the unit's NICU Routines and Guidelines handbook.

Methods: The Registered Nurses Association of Ontario (RNAO) Knowledge to Action framework will guide the project. After a collection of baseline bathing data, the nursing staff will be educated on the CPG and compliance to the practice change will be measured through direct observation and an Implementation Participation Questionnaire.

Findings: Education was effective & comprehensible, evidenced by post-education questionnaires. If CPG wasn't followed, it was usually due to criticalness/instability or parental preference. Continual direct observation of CPG compliance would be helpful. Support and buy-in from management and project champions were essential to project's success. Effective change in practice is achievable during a time of high census and high acuity. Compliance accountability increases with reminders on charge and admit shift checklists.

Implications: The Bathing CPG was successfully implemented using the education-focused KTA framework. Ongoing availability and follow up was necessary to maintain CPG implementation momentum. Management's acceptance to change was key to the culture and practice change amongst staff. Provision of evidence-based information reshaped staff beliefs on implications of neonatal bathing, and was crucial in obtaining buy-in. Education and stakeholder support allow for effective evidence-based practice changes, regardless of census or acuity. The Bathing CPG was successfully adopted as unit policy.

Comparison of Nasal Continuous Positive Airway Pressure Management in Tertiary and Non-Tertiary Centres (Connect)

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Background: Several Victorian non-tertiary (NT) centres provide nasal continuous positive airway pressure (nCPAP) to mid/late preterm and term neonates. State guidelines provide structure for safe practice and prompt transfer.

Aim: To compare nCPAP management in tertiary (T) and NT centres.

Method: Five-year retrospective study (2010–2014). All NT eligible neonates (32 weeks, 1500 g receiving nCPAP for respiratory distress within their first 24 hours) from four sites were compared with a similar randomised cohort of inborn neonates at two T centres. Non-parametric analysis conducted using SPSSv24.

Results: Total subjects 1085: NT (n=484), T (n=601).

No difference in maternal/neonatal demographics. Non-tertiary centre neonates had poorer condition at birth: 5 minute Apgar <7 (NT 22.5%/T 13.5% $p<.001$); fetal distress (NT 29%/T 18% $p<.001$). No difference in meconium-stained liquor (NT 13.7%/T 13.1%); IPPV & ECC (NT 4%/T 1%; $p<.002$). No difference in admission temperature, first blood glucose, or lactate. Median commencing nCPAP pressure was higher in T than NT; commencing FiO₂ not different. In NT centres the type of nCPAP used was predominantly bubble (99.6%); in T centres it was ventilator (94.2%). Duration of nCPAP, no difference. Pneumothorax more common in NT. No difference in caffeine loading and nasal trauma.

Conclusions: Neonates in non-tertiary centres were born in poorer condition. Although they received different management, they had similar outcomes apart from a higher pneumothorax rate.

Using the “Plan-Do-Study-Act” (PDSA) Cycle to Improve Safe Sleep in the Newborn Inpatient Environment

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In 2015, there were approximately 3,700 sudden unexplained infant deaths in the United States. Currently, Ohio ranks 45th in the country. These deaths are associated with infants less than one year old and comprised of SIDS, unknown causes, accidental suffocation, and strangulation in bed. Cleveland Clinic Hillcrest Hospital is located in Cuyahoga County where, in 2015, sleep-related deaths increased to 150, up from 118 in 2014. This equates to 9.4 deaths per 1,000 live births.

To educate nurses and support our patients and families on what the A-B-Cs of safe sleep should look like, education was provided to the nursing staff, patient care nursing assistants, hearing screeners, and the photographers.

Staff members were selected to monitor the infants in their cribs prior to the education for a baseline and again after PDSA cycle 1, which consisted of staff education regarding airway and barriers to safe sleep. A second PDSA cycle consisted of an inservice from our Cuyahoga County Board of Health death investigator. An increase in demonstrating safe sleep was observed by the monitors after each PDSA cycle.

[Creating a Multicenter Quality Improvement Team to Treat Neonatal Abstinence Syndrome](#)

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Statement: Newborns with neonatal abstinence syndrome (NAS) are suffering from prenatal exposure to narcotics. As many as 27 narcotic-exposed infants are delivered per 1,000 deliveries every year. These infants consume \$1.5 billion healthcare dollars yearly of which 81 percent is paid by Medicaid. To address the issue of NAS, several community hospitals in Maryland and Virginia created a collaborative, continuous quality improvement (CQI) team.

Challenges: The team consists of six community hospitals with differing bed capacities and acuities serving urban, suburban, and rural communities. These hospitals used different medications to treat NAS and length of stay varied widely. Some hospitals treated NAS infants until symptoms disappear while others discharged the infant home on treatment medications, perhaps to an unprepared community healthcare provider.

Interpretation: By establishing selected metrics to track NAS treatment among the hospitals for comparison, the CQI team can determine best practice for NAS babies in this region. A collaborative CQI team can share successful practices ideas, develop efficient processes and systems, create solutions for specific problems, focus on patient safety, develop quality metrics, influence patient outcomes, and decrease healthcare expenditures in a targeted population.

[Neonatal Abstinence Syndrome: Do They Really Need Intensive Care?](#)

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Background of Problem: Narcotic use during pregnancy may result in neonatal abstinence syndrome (NAS). The number of infants with neonatal abstinence syndrome has reached epidemic proportions in the United States with as many as 27 narcotic exposed babies born per 1,000 deliveries. These infants are costly, consuming \$1.5 billion healthcare dollars yearly of which 81 percent is paid by Medicaid.

Purpose of Practice Change: Caring for NAS infants in an open bay designed neonatal intensive care unit (NICU) can be detrimental to these babies.

Supporting Research Evidence: A collaborative multicenter approach to the treatment of NAS babies has been shown to improve outcomes and decrease healthcare costs.

Practice Change Methods: Healthy NAS infants were transferred to the pediatric unit after the mother's discharge.

Results: Results show \$18,574 in savings in the first year of program, while improving overall family care.

Comparison to Research: Neonatal abstinence syndrome infants have traditionally been cared for in the NICU. Transitioning care to the pediatricians allowed for the families to care for their infants in a private and quieter setting.

Recommendations: The results of this collaborative project suggest that lower cost pediatric care is an alternative model for expensive NICU NAS care.

[The Late Preterm Infant: A False Sense of Security](#)

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Statement: Late preterm infants (LPI) are a group of infants from 34 0/7 to 36 6/7 weeks' gestation who may suffer from significant morbidities.

Problem: Although routinely studied as a single entity, for each week of gestational age, varying hospital courses and nursing care requirements can be expected.

Literature Review: Research is limited addressing each LPI week individually.

Methodology: Study subjects were 216 LPIs delivered at a community hospital and admitted to the neonatal intensive care unit. The study was a non-experimental, retrospective chart review. The REDCap program was used for data collection.

Data Analysis: The study was analyzed using SAS 9.3. Chi square, Wilcoxon, log rank, and Cox model tests where appropriate for the co-morbidities of hypoglycemia, respiratory distress, hyperbilirubinemia, sepsis evaluation, nutritional support, and length of stay.

Interpretation: The 34 weeks' gestation LPI had a significantly increased length of stay ($p=0.0013$), took longer to achieve all feedings by mouth ($p=0.0209$), and required longer treatment for hyperbilirubinemia ($p=0.00045$) when compared to the 35–36 weeks' gestation LPIs. Length of NICU stay and days to full feedings were strongly associated ($p<0.0001$), showing nutrition as an important co-morbidity.

The Importance of Non-Pharmacologic Treatment for NAS Infants

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Neonatal abstinence syndrome (NAS) secondary to in utero opioid exposure has increased 5-fold over the past decade, now impacting 20 per 1,000 live births. There is substantial variability in how NAS is diagnosed and managed. Fifty to eighty percent of infants with NAS require pharmacologic treatment with replacement opioids and are typically placed on a prolonged opioid taper which can often lead to a longer hospitalization. Boston Medical Center (BMC) has implemented a new management plan for NAS infants with an added focus on non-pharmacologic treatment methods as compared to pharmacologic treatment with opioids. The hospital has transitioned from using the Finnegan Scale scoring tool to the Eat, Sleep, Console scoring tool (ESC). The ESC tool focuses on three main components: how well the infant can coordinate PO feedings, if the infant is able to sleep for more than one hour between feedings, and if the infant is able to be consoled easily with or without support from a caregiver. Thus far, BMC has found that by using the ESC approach and focusing on non-pharmacologic care strategies, the need for pharmacologic treatment has decreased; it has also resulted in shorter hospitalizations of NAS infants.

The Impact of Simulation on Rural, Perinatal Nursing Competence and Team Cohesion during Newborn Resuscitation

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Numerous rural healthcare challenges exist including limitations in technology, staffing, educational opportunities, and the availability of support services. Specialty care practice is particularly susceptible to risk of liability. Rural perinatal professionals must possess competencies necessary to stabilize newborns during critical emergencies. Like fields that rely heavily on human performance such as aviation, astronautics, and military science, high fidelity simulation supports technical and interdisciplinary growth among healthcare professionals. Few studies describe the impact of simulation training on rural outcomes during newborn resuscitation. This pretest–posttest project was designed with the central purpose of describing the relationship between use of simulation, competence, and team cohesion among rural interdisciplinary professionals providing newborn resuscitation. A convenience sample of 18 rural Texas perinatal nurses and respiratory therapists participated in a newborn resuscitation simulation drill and completed a TeamSTEPPS® questionnaire pre- and post-simulation to provide competence and team cohesion scores. Improvement in self-reported posttest ratings was noted providing further evidence to support the use of simulation training as a mechanism to foster best practice and advance clinical outcomes. Future research should be aimed at exploring the impact of high-fidelity simulation training on rural specialty quality improvement initiatives and competency outcomes.

Standardizing Neonatal Abstinence Syndrome Care and Treatment Collaboratively

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IN COLLABORATION WITH THE MARYLAND PATIENT SAFETY CENTER
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Background: Since 2000, Neonatal abstinence syndrome (NAS) has increased four-fold nationwide. Our rural facility delivers over 2,000 infants annually, with at least 5 percent of these infants being exposed in utero and 1 percent of them needing pharmaceutical treatment lasting approximately 15 days. The average cost per stay was over \$23,000. We joined the Maryland Patient Safety Center (MPSC) NAS Collaborative in 2016 to improve care and outcomes for this population by instituting a standardized protocol for care and treatment.

Aim: To decrease length of pharmaceutical treatment for NAS infants by 20 percent between October 2016 and April 2018.

Interventions: Staff education, inter-observer reliability testing, family and discharge education, non-pharmaceutical/pharmaceutical physician order set, institution of standardized screening tools division-wide, and partnership with the MPSC NAS collaborative.

Results: Length of pharmaceutical treatment decreased from 15.2 days to 11.5 days by April 2018.

Implications for Practice: Enhanced family-centered care, improved parent satisfaction, decreased duration of pharmaceutical therapy and length of hospital stay, increased staff awareness, improved overall clinical outcomes, and fostered interprofessional teamwork and knowledge of evidence-based practice.

Splish Splash Swaddle Bath (Delayed Swaddle Immersion Bath)

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Sponge bathing is a common practice for bathing newborns in hospitals. This form of bathing is stressful for the newborn. Delayed swaddle immersion bathing is an evidence-based practice. It offers solutions for nursing challenges to foster excellence in nursing and optimal outcomes in the population served. This approach involves promoting an environment to decrease stress while facilitating a developmentally supportive care experience for the term newborn and family.

A delayed swaddle immersion bath occurs 24 hours after birth. The baby is loosely swaddled in a blanket and immersed in water up to his/her shoulders. The swaddling of the baby and immersion in water reduces stress. Delaying the bath supports breastfeeding, allows the vernix protection to remain on the skin, reduces hypoglycemia, reduces hypothermia, promotes an opportunity for education and a parent performed swaddle immersion bath.

The target audience is maternal/child caregivers. Evidence shows there is a gap noted in knowledge, skills, and practice of these caregivers that validates the need for this learning activity. The observed benefits of the delayed swaddle immersion bath are motivating for staff to embrace the practice by offering this research based, developmentally supportive care for the term newborn patient population.

Pioneering a High-Fidelity Simulation-Based Educational Program in a Freestanding Children's Hospital: Successes and Challenges

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Approximately 10 percent of newborns require some form of resuscitation at delivery or during a neonatal intensive care unit (NICU) hospital stay. It is essential for infant healthcare providers attending deliveries and charged with care of infants in NICUs to have effective neonatal resuscitations skills and the confidence to perform during critical emergencies. The acquisition of skills and ability to translate skills to practice decreases perinatal mortality and improves neonatal outcomes. Unfortunately, the infrequency of resuscitation events, lack of opportunities for repetition of skills, and inexperience result in caregivers feeling timid and unprepared for emergency situations. This situation emphasizes the need for effective educational strategies to increase comfort level and improve skills, thus ensuring high quality resuscitations. Simulation-based education provides a safe and non-threatening environment to practice skills, improve teamwork, maintain competency, and formally evaluate caregivers' neonatal resuscitation skills. The need for this education led to the pioneering of a high-fidelity, simulation-based, educational program in a newly expanded free-standing children's hospital. Initially, the program was developed specifically for NICU staff, but expanded to include caregivers who could participate in neonatal resuscitation, including obstetrics and postpartum staff. Several strategies were implemented to increase staff commitment, expand interdisciplinary collaboration, enhance the reality of simulation, and improve debriefing education.

Simulation-Based Training and Debriefing, Utilizing Emergency Scenarios Involving Mock Codes, to Improve Neonatal Resuscitation Clinical Competency, Retention of Skills, Confidence, and Comfort Level of NICU Caregivers

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Background: Recertification of neonatal resuscitation skills is completed every 24 months, with research suggesting competency and retention of resuscitation skills diminishes 3 to 4 months following training. Infrequency of resuscitation events, lack of opportunities for repetition of skills, and inexperience leaves caregivers feeling timid and unprepared for emergency situations, emphasizing the need for effective educational strategies to increase comfort levels and improve skills, thus ensuring high quality resuscitations.

Purpose: Evaluate competency, skill retention, and self-reported confidence and comfort levels of NICU caregivers with neonatal resuscitation skills performed during simulated emergency situations.

Methods/Search Strategy: Quality improvement project utilizing an initial survey assessing confidence and comfort levels with neonatal resuscitation. Simulated mock codes were conducted over three months. Study participants' competency and skill retention were assessed with the Creighton Competency Evaluation Instrument (CCEI), with debriefing sessions following each code. After three months, participants' confidence and comfort levels were reassessed.

Findings/Results: Participation in this simulation-based education indicated a statistically significant increase in NICU caregiver confidence and comfort level.

Implications for Practice and Research: Simulation-based education increased confidence and comfort levels of NICU caregivers and should be conducted routinely for NICU staff. Modifications are needed to increase caregiver participation, enhance reality of simulation, and improve debriefing education.

Quality Improvement: Identifying an Area of Need by Examining Data from Prenatal Class Evaluations

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Preparing for the birth of a child, parents may experience a range of emotions. As they prepare, parents seek information from other parents, family members, printed sources, healthcare providers, and the Internet. They may find inaccurate information which could cause negative feelings and unnecessary angst. To alleviate these feelings and provide reliable childbirth preparation, parent education classes are offered in a healthcare setting such as a hospital, health clinic, birthing center, or community-based facility. For prenatal classes offered through a parent education hospital-based program, parents and participants in these classes complete an evaluation form rating the instructor, content and format, and the facility. By reviewing these responses, the aggregate data demonstrated areas needing improvement. For the content and format area, the statement "audiovisual aids were valuable" received the lowest rating. From a review of literature, an evidence-based program was developed. The project focused on the audiovisual aids used and the delivery of the prenatal education content. With the support of the parent education programs' nurse manager, an educational program was presented to the instructors. The prenatal class evaluations were used to measure this quality improvement project.

Pre- and Post-Test Weights in the NICU to Accelerate Discharge: To Supplement or Not to Supplement?

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Premature infants are at risk for multiple morbidities and mortality. Published studies have extensively proven the benefits of a breast milk diet in this population; therefore, providing breast milk in the most important thing a mother can do for her baby in the NICU. These infants may lack the muscle strength and coordination to transfer breast milk like their full-term counterparts. Supplementation following breastfeeding is often not standardized when just observing latch and suck.

Sinai Hospital of Baltimore, Maryland is a Level III NICU with approximately 250 admissions each year; 20 percent of those may have a birth weight of less than 1,500 grams.

A review of the literature has shown that infants are discharged sooner using test weighing when compared to observation alone during breastfeeding. A standardized process was created for all NICU staff to perform test weights. This allows for accurate supplementation calculations for the infant.

Successful zero cost implementation of test weighing in the NICU environment has led to better interdisciplinary communication, improved maternal confidence levels, earlier discharge, and reduced milk waste. In 2017, initial accuracy of test weights was only 34 percent. Post implementation accuracy thus far is 100%. Data collection and education is ongoing.

Nursing Incivility and the Culture of Safety in an Acute Care Facility

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Background: Nursing incivility is a problem for the profession of nursing and interferes with the establishment of a culture of safety, placing patients at risk. Elements associated with incivility, Jean Watson's nursing Theory of Caring, and transformational leadership contributed to the project's theoretical framework. The aim of this Doctor of Nursing Practice (DNP) project was to increase the

knowledge of nurses regarding incivility, improve respectful communication, and provide support to enforce the expectation of a culture of safety.

Methods: A survey of the modified culture of safety survey (MCSS) with intent to stay and the nursing incivility scale (NIS) were administered prior to a one-hour educational intervention with a second, electronic administration within 30 days. An incivility policy was created to address uncivil behavior, outlining procedure if necessary.

Results: Paired samples *t*-tests were conducted on data gathered from 52 participant surveys. Five of twelve subscales showed a statistically significant difference, suggesting an increased awareness of incivility because of the educational intervention.

Conclusion: As organizations strive for a culture of safety for the work environment, the matter of incivility must be addressed. This project increased awareness of the existence of incivility in the project setting.

[NICU Neonatal Noise Awareness Program](#)

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The NICU environment is loud and often exceeds AAP dB level recommendations for premature infants. About 10 percent of the neonates cared for in the Tulane-Lakeside NICU are 28 weeks' gestation or less at birth and are at risk of developing hearing loss. The aim of this quality improvement project was to decrease the mean decibel level in the Tulane-Lakeside NICU by 5 percent in a one-year period. A noise reduction bundle was developed based on staff input, a current literature review, and baseline decibel level measurements recorded using the SoundEar® Pro (Ottobrunn, Germany) decibel meter. Strategies included customized educational sessions for all hospital staff entering into the NICU and a targeted marketing campaign, both aimed at behavioral modification. A noise contract was implemented after two "Plan, Do, Study, Act (PDSA)" cycles. Decibel levels were collected and analyzed post-intervention using the SoundEar® Pro decibel meter. The 25th, 50th, and 75th quartiles were analyzed, as were the peaks and median levels in two separate locations within the NICU. A small, non-significant, decrease in peak decibel levels was observed, but no difference in the mean decibel level was achieved. Staff buy-in is paramount to the success of any education program. However, the physical structure of the environment is an important consideration.

[Newborn Axillary Temperature Parameters Revisited](#)

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Background: All temperatures on newborns are taken by the axillary route. Thermometers have changed over the past couple of decades. Thermometers are now electronic and vary by manufacturer, size, and type. Skin temperatures, forehead temperatures, and axillary temperatures have all been used. There is a significant variation in what is considered normal temperature in term, newborn AGA infants in most newborn nurseries and NICUs.

Purpose: To explore the variations in axillary temperatures, electronic thermometers, and accepted normal levels per policy in three newborn nurseries.

Method: This was a quality improvement project to evaluate the need for further revisions to newborn policies on thermoregulation.

Results: Sixty-three newborn axillary temperatures were compared to present policies. The infant temperatures were taken with electronic thermometers based on each unit's policy. An average normal axillary temperature was ascertained from each of the clinical sites. Policies of the three neonatal units were compared.

Discussion: Newborn axillary temperatures were variable, but were 97.7–98.8° F with a mean of 98.4°. Unit policies suggested that 99–100° F. is normal for an axillary temperature of a newborn. Policies may need to be adjusted for axillary temperatures and research needs to be done to explore this variation.

[Neonatal Abstinence Syndrome: Safely Planning for Discharge Home](#)

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Opioid abuse is a national health epidemic affecting even our smallest and most vulnerable population. More than 22,000 babies are born each year suffering from opioid withdrawal; a condition known as neonatal abstinence syndrome (NAS). In response to this national health crisis, legislative efforts such as the Comprehensive Addiction and Recovery Act (CARA) of 2016 were enacted to protect and care for these newborns. Provisions of the CARA Act mandate critical changes to the Child Abuse Prevention and Treatment Act (CAPTA) which regulates the laws governing each state's response to child abuse and neglect. These changes reflect significant differences in the reporting practices of addicted newborns to Child Protective Services and requires states to develop safe plans of care for infants discharged home with NAS. Using the Harvard Center on the Developing Child's Childhood Health Promotion framework, legislative policymakers and healthcare professionals can evaluate policies and programs that best connect the social, economic, and cultural determinants of health to the appropriate services necessary to meet the needs of these infants. Within the Childhood Health Promotion framework, the essential components for a safe plan of care can be determined.

Modeling Safe Sleep Practices on a Mother Baby Unit

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Despite recommendations from the American Academy of Pediatrics and subsequent public awareness campaigns, sudden infant death syndrome (SIDS) and other sleep-related deaths have not decreased since 2001. At Methodist Dallas Medical Center, a team of staff nurses recognized that safe sleeping practices are not consistently modeled for patients and approached leadership to consider obtaining Safe Sleep Designation through the Cribs for Kids program. The team created a task force and reviewed the data necessary for certification. Using Superusers, all staff, including Patient Care Technicians and Lactation Consultants, were taught safe sleeping practices. In addition, a patient education video was assigned to every patient, and monthly audits by Superusers were used to help track progress and provide immediate feedback to both staff and patients. We began the journey at 36 percent safe sleeping practices and have reached our initial goal of 50 percent. This is an ongoing project with the goal of 100 percent safe sleeping practices. This goal will be achieved through continued task force meetings, continued employee and patient education, and sharing of data collected.

Maternal Opiate Addiction: Care, Collaboration, and Community

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We developed an innovative best practice—Maternal-fetal Opiate Medical Home (MOMH) for opiate addicted mothers and their babies. The opiate dependent pregnant women enter the program with a referral to Medication Assisted Treatment (MAT) therapy. Hospitalization for stabilization with transition to buprenorphine is the next step. Mothers sign a contract for care while caregivers use assessment tools, algorithms, and order sets. Mothers are educated about their baby and how to keep baby in their custody after birth. They are then transferred to outpatient and residential treatment centers for therapy and education. Prenatal care is provided by OB/OBGYN and Addiction Medicine physicians. Centering Pregnancy is offered to mother for prenatal care. Centering Pregnancy is a group prenatal visit which includes prenatal care and treatment with MAT. The goal is for the baby to go home with their mother, if compliance is maintained with their all-inclusive treatment program. The admission of pregnant opiate addicted women in MOMH has increased 492 percent since 2011. MOMH mothers are seen earlier in gestation and prenatal care is initiated sooner; from 28.3 weeks' gestation to 15.4 weeks' gestation. More mothers now deliver full-term, from an average of 36.2 weeks' gestation to 39.9 weeks' gestation with an increase in birth weights.

Keep Moms and Babies Together: Making Best Practice Happen

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At a 221-bed community hospital with a 28-bed obstetric department and a 7 bed Level II nursery, there is an innovative boarder program in place that allows a mother to remain in her room after she is discharged when her baby requires continued hospitalization. This program is extended to foster parents and adoptive parents as well. The program has been in place and successful for over 20 years. Boarding allows for babies requiring longer lengths of stay, especially in the Level II nursery, to be cared for by the loved ones who will continue to care for them after discharge, knowing this is what is best for babies. The program eases the stresses on the family by providing a place close to baby to sleep, shower, and eat with three meals a day provided free of charge. Moms also have access to a breast pump, pumping supplies, lactation consultant support, and breastmilk storage space. This is especially beneficial for rooming in with mom with babies with neonatal abstinence. A boarder agreement is reviewed and signed by the mother (or other boarder). While there is some cost to the organization, the benefits to the family far exceed the costs.

Improving Ophthalmic Procedures in the NICU

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Background/Problem: Ophthalmic procedures are a necessary intervention for many neonatal intensive care unit (NICU) patients. Our data shows that procedures performed in the operating room require increased sedation, paralytics, and intubation for the neonate. Bedside procedures performed in the NICU require less intervention, only requiring conscious sedation. While this is more beneficial to the patient, it does require an increased nursing workload. Utilizing a comprehensive checklist, effective interdisciplinary communication, and specialty nursing, staff can improve NICU ophthalmic bedside procedures.

Objectives:

1. Reduce requirement of paralytics and intubation during NICU ophthalmic procedures.
2. Utilize thorough RN bedside checklist for consistency and efficiency during bedside procedures.
3. Utilize a communication/debriefing tool for continued process improvement.

Implications: Performing ophthalmic procedures in the NICU is a practice that is beneficial to the neonate. The process has potential for improvement with the creation of consistent checklists for the RN and the development of strategies for effective interdisciplinary communication. There is education needed to implement the improvement process, and culture change is required to make it sustainable. Further consideration of the obstacles regarding RN staffing and scheduling should be applied to the continued evaluation of the improvement process.

Improving Management of Transitional Hypoglycemia in Term Infants Using Glucogel: A Nurse-led Initiative

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The American Academy of Pediatrics (AAP) reasserts its recommendation of exclusive breastfeeding for about the first six months of a baby's life. Breastfeeding provides protection against respiratory infections, asthma, allergies and gastrointestinal issues. Sudden infant death syndrome (SIDS) is reduced at 30 percent when newborns are breastfed. The emotional bonding between the mother-baby dyad is significantly enhanced.

Purpose: Decrease the use of formula in term newborns with transitional hypoglycemia using Glucogel.

Methods: This quality improvement project was conducted in a Level III perinatal center in a community-based hospital with 2,600 births annually. A collaborative approach was used involving physicians, pharmacists, and nurses. Development of the treatment protocol was completed and followed by education for the nurses in March of 2016. Tools were created, and an order set developed in the electronic medical records.

Results: The baseline data was collected (pre-gel) in January of 2016, which demonstrated that 87.5 percent of term newborns with transitional hypoglycemia received formula. The Glucogel project was initiated in April of 2016. In April of 2017, collected data revealed a 10 percent decrease in the use of formula.

Implications: Findings indicate the effectiveness of strategies to develop and implement a protocol to improve the outcomes of the newborns.

Improving Identification and Time-to-Treatment of Severe Hypertension in Pregnancy and Post-Partum: An Interprofessional Approach

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Background and Significance: Severe hypertension in pregnancy contributes to 12–22 percent of maternal morbidities and is a leading cause of maternal death in the U.S. Organizational factors contributing to adverse maternal outcomes include delayed diagnosis and treatment.

Purposes: To treat 80 percent of women in less than 60 minutes of identifying those with severe hypertension and to reduce the rate of adverse outcomes associated with severe hypertension in pregnancy by 20 percent by December 2017.

Methods: This quality improvement initiative was conducted in a Level III perinatal center in a community-based hospital. An interprofessional team examined care processes, developed a treatment protocol, and implemented multi-modal educational strategies in March 2016. Data were collected from 2015 through the first quarter of 2018.

Results: Time-to-treatment within 1 hour was 8 percent in 2015 and 2016, and 90 percent in 2017; 100percent of women were treated within 30 minutes in 2018. Rates of adverse maternal outcomes were at 17 percent (2016) and 18 percent (2017) followed by 7 percent in 2018.

Implications and Conclusions: Our initiative improved the quality of care and outcomes for pregnant women with severe hypertension. Use of the protocol was critical for empowering nurses to communicate more effectively with physicians about patient status and initiate timely treatment to improve maternal outcomes.

Improving Family-Centered Care: Teleconferencing Family Rounds in the NICU

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Background: Interdisciplinary family rounds are critical to improving patient outcomes and parent satisfaction in intensive care settings. Medstar Washington Hospital Center NICU offered family rounding once a week. To improve family-centered care, a teleconferencing option was introduced. Telemedicine improves parents' accessibility, engagement in care, and overall satisfaction.

Evidence: Effective communication relieves families' anxiety and improves patient outcomes among NICU families. However, families who travel long distances to their healthcare facility while balancing work-life demands strains parents' ability to participate in family rounds in person. Current practice shows family members are receptive to using telemedicine to communicate about patient care. Most research on this subject emphasizes the adult setting; more research is needed that focuses on the use of telemedicine in the pediatric setting.

Outcome and Evaluation: Fifty-three percent of families participated in teleconferencing rounds and total participation (in-person and telephone) was 71 percent. Parents and nurses noted positive perceptions of teleconferencing family rounds, while physicians expressed negative perceptions. Physicians noted a significant increase to workload and concerns for lack of face-to-face interaction.

Focusing on Sustained Human Milk in the NICU

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Background: In 2011, a group of NICU nurses, practitioners, and neonatologists formed a neonatal intensive care unit (NICU) Breastfeeding Task Force (BTF). We surmised that very low birth weight (VLBW) babies were receiving formula on admission for their first feeding and at the time of discharge. The 2012 AAP guidelines state that **all** preterm infants should receive human milk whether that is the mothers' own milk (MOM) or pasteurized, donor, human milk (DHM).

Objective: To evaluate the effect of a collaborative effort by the BTF for the use of human milk for first feeding and throughout the NICU stay through discharge.

Method: We met monthly, reading the literature and reviewing our statistics. We provided education and learning packets to RNs, practitioners, and neonatologists and provided educational videos for mothers. We revised our NICU pumping guidelines to make them easier to understand. A colostrum policy was put into effect. A pasteurized, donor, human milk policy was initiated.

Results: We increased our provision of any human milk for the first feeding from 42 percent in 2013 to 95 percent in 2017.

Conclusion: The NICU BTF is continuing to provide education to staff members and encouraging mothers to provide their own liquid gold.

Early Pumping of NICU Breastfeeding Dyads

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HARTFORD CONNECTICUT

Purpose: Increase the number of neonatal intensive care unit (NICU) breastfeeding dyads pumping within six hours of birth.

Background: Data in January 2018, revealed that less than 50 percent of breastfeeding mothers with NICU babies were pumping within six hours of birth. Identified barriers included insufficient breast pumps/kits, inconsistent documentation, and lack of knowledge and understanding of the benefits of early pumping. In February, interventions included staff education with pocket cards, posters, use of daily drivers, huddles, increased pumps/supplies available, and standardization of documentation. In March, chart review revealed maternal acuity frequently delayed pumping, but documentation did not identify this, so additional strategies were developed to clarify pumping criteria.

Methods: Lean process including Pareto charts, drivers, daily huddles, and weekly data analysis were utilized to guide our project.

Results: February, March, and April data have demonstrated 50, 62, and 74 percent, respectively, of NICU breastfeeding dyads are pumping within six hours of birth with a goal of 80 percent, allowing for maternal acuity after delivery. We will continue this project until our goal is reached.

Conclusion: Using the Lean process, the number of NICU breastfeeding dyads has steadily increased towards the stated goal.

Decreasing Unplanned Extubations in the Neonatal Intensive Care Unit

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Purpose: To decrease the number of unplanned extubations in the neonatal intensive care units (NICUs) at Main Line Health.

Background: The unplanned extubation rate had been steadily increasing. Tape was being used to secure endotracheal tubes. By 2016, Lankenau Medical Center and Bryn Mawr Hospital NICUs were averaging 6 unplanned extubations per 100 ventilator days.

Method: In the fall of 2016, as a Quality Improvement Project at Lankenau, a standardized bundle was instituted for intubated infants using precut tape initially, and then a device for infants intubated for longer than 24 hours. Barriers to implementation included cost of the device, staff buy in, and a learning curve for the device. Staff were educated individually by peer champions.

Results: By May 31, 2018, the average rate of unplanned extubations decreased to 1.3 per 100 ventilator days at Lankenau and Bryn Mawr decreased their rate of unplanned extubations to 4.7 thus far. The more the bundle is used with the device, the lower the unplanned extubation rate. With further monitoring and reinforcement however, the goal for unplanned extubations throughout Main Line Health is less than 1 per 100 ventilator days.

When Hurricane Maria Hit: Navigating Equipment Interruption

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Healthcare is confronted by barriers beyond its control. Hurricane activity in 2017 is thought not to have impacted patients; however, it did require immediate and creative nursing interventions to ensure safe patient care delivery. Unlike replacement product situations, this completely unplanned interruption of products had a significant impact on nursing.

A product supply interruption caused a disruption in workflow and inability to use our self-designed and manufactured IV tubing system with closed-system medication line and integrated saline flush line product, forcing us to revert to pre-design alternative products. Nurses reverted to assembling seven pieces of IV related equipment, compared to two, for almost 3,000 tubing changes for additional product costs of almost \$5,000. Procedure time was increased by at least five minutes every tubing change, for an estimated cost of over \$9,000.

Moreover, a substantial cost increase was incurred to re-educate over 100 nurses to this temporary procedure. The Unit-based Nurse Educator and Quality Improvement Facilitator provided 1-on-1 review of the former procedure and validation of understanding, taking approximately 30 minutes/nurse; their time alone cost over \$1,800.00. Within two months, nature righted itself and product supply normalized, with a return to the closed IV tubing system.

The Effect of Patient Satisfaction with Nursing Care on Maternal Role Competence

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Statement of Problem: During the transition to motherhood, women should expect services that are supportive of their health and new mother role. Many mothers however, have experienced health care services that are less desirable. This disparity in care may have detrimental long-term psychosocial and physical impacts on the mother and infant.

Theoretical Framework: Mercer's Becoming a Mother.

Literature Review: Studies have been conducted to explore the transition to motherhood, but the influence of women's satisfaction with nursing care has not been addressed.

Methodology: A correlational research design tested the effect of satisfaction with nursing care on maternal role competence. A convenience sample of postpartum women (N = 142) participated utilizing electronic surveys: a demographic questionnaire, Patient Satisfaction with Nursing Care Quality Questionnaire, and Parenting Sense of Competence scale.

Data Analysis/Interpretation: Pearson correlation showed a significant relationship between patient satisfaction and maternal role competence, $r = .32, p < .001$. Multiple regression analysis revealed four predictors of maternal role: patient satisfaction ($r = .311, p < .001$), infant age ($r = .155, p = .034$), breastfeeding ($r = .201, p = .007$), and depression ($r = -.176, p = .014$). Patient satisfaction with nursing care could influence maternal role competence.

Postpartum Depression: Prenatal Prevention is Key

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Postpartum depression (PPD) is one of the most common non-obstetric complications and affects approximately 20 percent of the maternal population. Recent literature suggests increasing PPD rates are associated with gestational diabetes and advanced maternal age, both of which are increasing perinatal population trends. The literature also suggests that women with a pre-existing depression history are 20 times more likely to experience PPD compared to women without. PPD adversely affects the entire family and may negatively impact short- and long-term infant development. Despite these outcomes, PPD is often misinterpreted; therefore, diagnosis and treatment rates remain low due to under-recognition by healthcare providers. Identifying PPD early can significantly improve maternal, infant, and family outcomes.

PPD screening strategies exist and include the use of two widely known tools: the Edinburgh Postnatal Depression Scale and the Postpartum Depression Predictor Scale. However, many risk factors present during the prenatal period. Therefore, early screening and prevention should begin with risk assessment and education during this period, well before the birth of the infant.

Playing Together with Dolls: Design and Implementation of Team-Based Simulation Training in Labor and Delivery

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In healthcare, different clinical disciplines, though they work together, have traditionally trained separately. An Institute of Medicine report issued several recommendations to enhance patient safety. One recommendation is training in interdisciplinary teams. Simulation training for obstetric emergencies has become an essential, evidence-based modality that improves individual and team performance and impacts patient outcomes. Several reports have shown that simulation training can improve documentation, which is important for patient care and from a medical-legal standpoint.

In 2018, our unit implemented multidisciplinary simulation training as a new component of required annual education for all clinical staff. A team of select staff led by an APRN-MD dyad spent 10 hours training and planning shoulder dystocia simulation and debriefing sessions. Groups were designed to be interdisciplinary; composed of three RNs (assuming RN roles of charge, circulating, or newborn care), one resident physician, and one attending physician. Twenty-eight one-hour sessions were created to accommodate 108 staff, April through November 2018, at an estimated cost of \$10,000 in staff hours.

Planning and implementation of multidisciplinary simulation team training has challenges, but the value in staff confidence, performance, outcomes, and medical-legal risk reduction are worth the investment.

NICU Nurses Experience of Moral Distress in Providing End-of-Life Care

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Background: Critical care nurses often experience moral distress when they provide care for dying patients. Because nurses in neonatal intensive care units (NICUs) frequently experience the death of pediatric patients, their moral distress should be explored and addressed to prevent negative consequences such as burnout and turnover.

Purpose: This study aims to describe South Korean NICU nurses' experience of moral distress when they provide end-of-life care for dying infants and their families.

Methods: This is a secondary analysis study that will employ qualitative data already collected from 20 nurses working in two NICUs in Seoul, which has the highest infant mortality rate in Korea. Conventional content analysis will be performed to develop and finalize a codebook that will encompass the contexts of the NICU nurses experience of moral distress.

Results: By describing the perspectives of the participants, the study will provide a detailed information of NICU nurses' experiences of moral distress, including their emotional reactions to and coping mechanisms for moral distress arising from specific instances of providing care for dying infants and their families.

Innovating Simulation: The Standardized Patient and Breastfeeding Improvement

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Breastfeeding is considered the superior form of nutrition. Several challenges exist that contribute to lack of exclusive breastfeeding, including nurses' discomfort managing maternal perceptions and attitudes that impact continuation of breastfeeding.

This project was to introduce simulation using a standardized patient (SP) in scenarios that would lead mothers to cease breastfeeding.

Five unique scenarios were created. The SP interacted with the nurse to recreate a scenario in vivo. The nurse was tasked to respond appropriately, provide correct clinical information, utilize resources, and develop support strategies through real time spontaneous interaction with the SP. An IBCLC, simulation coordinator and clinical nurse peers created a gallery and observed the scenario. A debriefing with all participants occurred at the end of the scenario. A behavioral self-assessment was completed.

Forty nurses participated in the scenarios. Results uncovered gaps in knowledge and inconsistencies practices. Breastfeeding is difficult to simulate, the SP provided a humanistic, reality-based intervention to be implemented to create an innovative learning experience.

Behavioral self-assessment scores improved after simulation. Specifically, knowledge and confidence in applying skills related to breastfeeding changed from moderate to very substantial in >70 percent of nurses. Additionally, 100 percent of nurses rated the activity as “will foster improvement and encourage excellence.”

[Telestork: Delivering Telemedicine to Labor and Delivery Units](#)

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Telestork was conceived from a collaboration of nurses and physicians who recognized a need for additional observation in Labor and Delivery (L&D) units. Telestork incorporates live streaming of fetal tracings with up-to- date pertinent patient information to the bunker nurse who is located on a separate unit at our tertiary center, Ochsner Baptist Medical Center. The Telestork nurse communicates via phone with bedside nurses to assist with fetal strip interpretation, recommending patient care interventions and calling the physician to the bedside. Success of Telestork prompted its launch into Ochsner’s other four local community hospitals. A year and half after implementation, we have observed a decrease in unexpected NICU admission and a decrease in episodes of uterine tachysystole. Labor and delivery nurses have expressed appreciation of additional nursing support, enhanced communication, and validation of fetal strip interpretation.

Due to the innovative nature of telemedicine into a Labor and Delivery setting, Telestork is trialing video conferencing to help in obstetrical emergencies. We hope to use other features from ICU telemedicine to integrate technology and nursing process to improve patient outcomes.

[“I Don't Know Anything about Birthing Babies”: Educating Freestanding ER Nurses on Caring for the Obstetric Patient](#)

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With the emerging prevalence of freestanding Emergency Rooms (ERs), more obstetric patients are seeking emergent care where no in-house obstetrical support exists. Freestanding ER nurses in our system have expressed a lack of confidence and knowledge in providing specialized care to the obstetric population. The OB Patients in Unexpected Places education program for freestanding ER nurses was created to address the gap in knowledge. The course is comprised of a half day of training consisting of lecture, hands-on skills, and simulation facilitated by an experienced Labor and Delivery (L&D) nurse at their freestanding ER. Content of the lecture includes obstetrical emergencies such as pre-eclampsia, hemorrhage, precipitous delivery, and resuscitation of a pregnant patient. ER nurses practice hands-on skills of palpation of contractions, assessing fetal heart rate, and precipitous delivery. The L&D nurses facilitate a delivery simulation with ER nurses using Noelle, the patient simulator, as well as debriefing on potential complications. ER nurses have expressed appreciation of the new knowledge and increased confidence in caring for the obstetric patient. The OB Patients in Unexpected Places education program enables the ER nurse to help stabilize the obstetric patient prior to transferring her to a facility with in-house obstetrics.

[Decreasing Room Interruptions](#)

Jayne Volz, BSN, RN

Rochelle Nostrant, BSN, RN

VIRTUA HOSPITAL

VOORHEES, NEW JERSEY

The Mother Baby unit was noticing a decline in our patient satisfaction scores as evidenced by the Press Ganey survey results. Upon review of comments and follow up discharge phone calls, the main factor in patients' dissatisfaction was that too many people entered and left their room (room interruptions) during their stay. The Shared Governance team decided to observe and record all staff that entered a patient's room during their short stay on the Mother Baby unit. From these results, it was determined who was essential and who was non-essential staff. We reviewed the purpose and timing in which non-essential staff were entering a patient's room, collaborated with the non-essential departments, and either eliminated or altered their actions to decrease the number of room interruptions a patient would experience during her stay. These innovative actions resulted in an immediate increase in our Press Ganey scores for patient satisfaction. We concluded that decreased room interruptions permitted healthy moms and babies the time desired to rest and bond, therefore resulting in increased patient satisfaction scores.

A Content Analysis of Japanese National Nursing Licensure Examination (JNNLE): Do Our New Graduates Know about Neonatal Nursing?

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DOKKYO MEDICAL UNIVERSITY SCHOOL OF NURSING
TOCHIGI, JAPAN

Background: "Nursing for high risk infants and families," and "Care of newborn with health problems," are found in the published examination content which outlines the knowledge areas to test the new graduates. A recent increase in the high-risk birth rate urges the nation to prepare graduates with knowledge of the full lifespan, including the newborn period.

Objective: To examine the exam content to identify the neonatal knowledge that new graduates were tested on by the JNNLE.

Method: The past five years JNNLE items were analyzed against the published content categories. Items within the domains of pediatric and maternal nursing underwent additional close review and those related to neonatal nursing were extracted.

Results: Out of a total of 1,200 questions, one question was identified, which tested the knowledge of low-birth-weight infants. No questions were found regarding high risk infants in NICU since 2013.

Conclusion: Contrary to the published examination content categories, neonatal questions were rarely found in the past five years. The findings suggest the need for renewed discussions among the stakeholders to increase awareness of the heightened neonatal knowledge needs for new graduates.

Increasing the Utilization of Chaplain Services in a Level IV NICU by Identifying Nursing Barriers and Educating Nursing Staff

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Purpose: Chaplains are uniquely trained to provide spiritual and emotional support to patients and their families, thereby playing an important role in the neonatal intensive care unit (NICU). Although nurses help facilitate communication between chaplains and families, barriers may exist. This project sought to determine these barriers and increase nursing utilization of chaplaincy services in a Level IV NICU.

Methods: Quantitative and qualitative data were collected using a survey to assess the current utilization of chaplaincy services in the NICU. The pediatric chaplain provided further insight to the unit-specific needs and areas that need improvement.

Results: Of the 75 surveyed nurses, 71 felt they would benefit from additional education, and 32 felt unprepared to meet families' spiritual needs. In every surveyed scenario, nurses contacted the chaplain less often than they felt they should. Barriers to effective nursing communication included: 1) not knowing families' spiritual needs, 2) not wanting to make families uncomfortable, and 3) not having enough time. These findings indicate the need for increased chaplain utilization, with multiple barriers and areas of improvement identified.

Interventions: Nursing staff members received the survey results, informational flyers, and conversation starters. The pediatric chaplain provided staff education. A post-survey will measure the effectiveness of these interventions.

The Role of the Neonatal Neurology Nurse Practitioner in the NICU

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BOSTON, MASSACHUSETTS

There is a known shortage of pediatric neurologists, with estimates that this shortage will worsen in the years to come. The gap created by this scarcity may be filled by advanced practice nurses (APNs) in specialty areas, a position that has witnessed unprecedented growth in recent years. The neonatal neurology nurse practitioner (NNNP) is an innovative position that allows an APN to perform neurology consultations on patients in the neonatal intensive care unit. There are currently only a select few institutions that currently have an NNNP on staff; however, there are numerous benefits associated with the creation of such a position. In an ever-changing landscape of neurologists and residents, the NNNP ensures a constant provider that helps to coordinate inpatient and outpatient care. The NNNP can fill a gap between neurologist and patient by facilitating family meetings, providing daily updates, and arranging all necessary outpatient appointments. The role maintains the empathy and caring of a nursing perspective and couples it with the neurology knowledge from a medical perspective, while providing patients an essential and approachable point of contact at the hospital for treatment.

RN Research Coordinator as Leader of an Interdisciplinary and Multicenter NICU Randomized Control Trial

Jennifer Notestine, BSN, RNC-NIC

Jane Lamp, MS, RN-BC

Jeanne Balough, MSN, RN

Brian K. Rivera, MS

Allison Notestine

Megan Moore

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NATIONWIDE CHILDREN'S HOSPITAL
COLUMBUS, OHIO

While RNs actively participate in all aspects of trial design and execution, their role as effective leaders of clinical trials remains poorly characterized. The primary objective of this presentation is to clearly define how to operationalize the RN position as the leader of a multicenter clinical trial, including: 1) Qualifications of an effective Research Coordinator; 2) Sequential steps of site start up and study coordination, from feasibility assessment, IRB approval, staff education, regulatory compliance, and issues and resolutions. Insight into successful recruitment and retention via a case study include how an 87.5 percent consent rate was achieved. We believe the role of a dedicated RN Research Coordinator is critical for successfully managing complex facets of a multicenter study. The RN leader in this position can help NICU staff become actively involved in perinatal research to reduce health disparities with this vulnerable infant population. Further research is needed to guide resource management that supports clinical research administration, determine ways to decrease barriers to multi-institution partnerships, and propagate leadership development for the Research Coordinator.

In Good Hands: Leadership Succession Planning

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MONROE CARELL JR CHILDREN'S HOSPITAL AT VANDERBILT
NASHVILLE, TENNESSEE

Every successful leader desires to leave his/her team in good hands as they move upward to a new role or as they leave an organization. This presentation shares the ten steps that should be in place before the transition occurs. Interviewing and hiring a replacement for the leadership position is a must, but even more important is ensuring that the team to be inherited is ready for the change. This presentation addresses those strategies that are necessary for acceptance at all levels. The foundation you have built within your team and your organization must be solid enough to withstand the onslaught of new patients, new programs, policy changes, and the culture of healthcare, which are all moving like a speeding locomotive. Whether your vision and ambition is to keep moving forward in your career or whether you are looking toward retirement, succession planning is essential in our fast-paced and ever-changing clinical environment. New and upcoming leaders should develop their own marks within the organization, but that will take time. New leaders need to be able to lean into what you have already established while they take the necessary time to adjust.

Development and Psychometric Analysis of the Parent-Centered Safety Culture Tool for the NICU

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Emily Sedlock, MPH, CPPS

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CHILDREN'S MEMORIAL HERMANN HOSPITAL

HOUSTON, TEXAS

Problem: NICU infants are in a unique position to share perspectives about the delivery and type of care their infants receive. There is a dearth of psychometrically sound measures to capture this perspective. We addressed this gap by developing and validating a measure to understand these perspectives. **Conceptual model:** Using ethnographic qualitative interviews and observations, we developed a conceptual model depicting parents as partners in promoting patient safety in the NICU and developed the Parent-Centered Safety Culture Tool (PCSCT) to measure parent attitudes about NICU patient safety.

Background: Neonates are particularly vulnerable to medical errors, with reported rates as high as 74 events per every 100 patients. Studies show patients and families can identify preventable safety events missed by the healthcare team and can contribute to understanding about the causes of these events.

Methodology: We conducted psychometric analysis of the 34-item PCSCT survey with English and Spanish parents from two large neonatal ICUs in Texas.

Analysis: Four unique factors identified as staff adherence to safety practices, infection control, communication, and interactions with infant emerged from 345 English and 180 Spanish-speaking respondents. Cronbach's alpha for each factor ranged from .72 to .91.

Interpretation: Initial testing of the PCSCT indicates its strong reliability as a measure of parent-reported safety in the NICU.

Changing a Culture: Implementing The 10 Steps to Successful Breastfeeding to Enhance Patient Care

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Modification of daily nursing and physician procedures and tasks to better meet the needs of patients and families can be a daunting challenge. Change can be met with resistance, affecting overall patient and employee engagement if not implemented with the correct buy-in and acceptance from those directly impacted. The Mother Infant Unit was able to transform care from the Newborn Nursery to the Mother Infant rooms. Utilizing the 10 Steps to Successful Breastfeeding, all newborn procedures (lab work, hearing screens, and baths) are now done with the family's involvement in the mother's room. Physician assessments moved from the Newborn Nursery to the mother's room, allowing the mother to be part of the exam. These changes were done in steps, utilizing education and accountability. Although the staff and physicians were not comfortable with the change initially, it has become the new culture of the unit with the newborn nursery being empty 99 percent of the time. Staff engagement scores were in the 90th percentile for fiscal year 2018 with communication with nurses at 90.1 percent and communication and physician communication at 90 percent for current fiscal year 2018. Bon Secours St. Mary's Hospital earned the 5 Star Virginia Maternity Center Breastfeeding-Friendly Designation for their successful culture change.

Standardizing Measurement for Placement and Verification of Placement of Enteral Feeding Tubes in Neonates

Janet Bell, RN

Caitlin Betelak, RN

Candice Keating, RN

Lauren Perez, RN

Annie Tam, RN

Carolyn Bleiler, RN, MSN

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MASSACHUSETTS GENERAL HOSPITAL
BOSTON, MASSACHUSETTS

We did not have a standard method for measuring enteral feeding tube placement for neonates or for verifying correct placement. Misplaced enteral tubes pose considerable morbidity for neonates.

PICO questions:

1. What is the best method of measuring length of enteral tube placement in neonates?
2. What is the best indicator(s) for verification of enteral tube placement in neonates?

The Johns Hopkins Nursing Evidence-Based Practice model and tools were used to evaluate the evidence.

Ovid and CINAHL were searched. Key words were: neonate, enteral feeding tube, nasogastric tube, gastric tube insertion, feeding tube measurement.

Results: For placement, the literature suggested increased accuracy with the Nose-Ear-Midumbilicus (NEMU) measurement, with confirmation using a weight-based calculation. The Nose-Ear-Xiphoid measurement should not be used.

The literature indicated the only accurate method of placement verification was x-ray, which is not practical. There was no consensus regarding any other optimal verification method. The recommendation was that two methods be used simultaneously to decrease risk of misplaced tubes.

This project resulted in a new neonatal guideline: Enteral Feeding Tube Placement and Verification.

The Effect of Eye Masks on Reducing Distress Associated with the Retinopathy of Prematurity Exam: A Multi-Center Randomized Study

Jeanne Zielonka, MN, NP

Kathleen Hollamby, R.C

ST. MICHAEL'S HOSPITAL
TORONTO, ONTARIO, CANADA

Retinopathy of prematurity (ROP) is a disorder of retinal development in the low birth-weight preterm infant. Eye screening is routinely performed for infants at risk of developing this disorder. While these examinations help prevent blindness, they can be physiologically stressful for infants, with changes in oxygen saturation, blood pressure, and heart rate during the exam and increased apneic episodes 24-48 hours afterwards. This was a multi-center study that evaluated the effect of decreasing light stimulation during mydriasis on stressful events up to 48 hours post-examination. Infants were randomized to receive either standard of care or a phototherapy mask during pupil dilation in addition to routine care. A total of 51 infants were enrolled at two different institutions and examinations were completed by the same retinal surgeons at each hospital. The study results revealed a decrease in adverse events in the masked group compared to the control group at 12 hours post-examination.

Probiotic Supplementation and Feeding Tolerance in Preterm Infants

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Probiotic bacteria are defined as live, nonpathogenic bacteria species that normally reside in the GI tract of healthy term infants. Antibiotic usage, infection control procedures, type of feedings, and delayed initiation of feedings, may influence the type and number of microorganisms colonizing the GI tract. As there have been multiple studies that have looked at the reduction of NEC with probiotic usage; it follows that the introduction of probiotics may help to improve feeding tolerance as well as reduce the number of aspirates/emesis, bloody stools, and other symptoms of gastroesophageal reflux. At St. Michael's hospital we completed a prospective cohort study that compared infants born at 30-33 weeks' gestation and treated with Biogaia (Stockholm, Sweden), Florababy (Brampton, Ontario, Canada), or no probiotic.

We analyzed whether the start day of a probiotic impacted the presence of symptoms of feeding intolerance and found that infants that presented with symptoms did start probiotics earlier versus those who did not. Of the 17.5 percent of infants with feeding intolerance, 71.4 percent of them started Florababy on day 1. Typical start day for Biogaia was day 2. The data suggest that starting a probiotic earlier may influence symptoms. We compared the delivery mode of the infant by probiotic group and assessed the length of time to full feedings, presence of bloody stools, and symptoms of feeding intolerance and found that infants that delivered vaginally had a shorter time to reach full feedings. The data also suggested that infants that were born by cesarean section and given Florababy took longer to reach full feedings vs the Biogaia and no treatment group

Parent Satisfaction with Feeding Competence in Preterm Infants: Infant Driven Feeding Compared with Standard Scheduled Feeding

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NEW ORLEANS, LOUISIANA

Evidence has shown that premature infants on an infant driven feeding (IDF) schedule improves parent satisfaction and feelings of competence at home. The benefit of IDF is providing correct feeding education while infant and family are in the hospital to prevent long term rehabilitation impacts after discharge. There is limited research on parent satisfaction with feeding education, especially comparing standard scheduled feeding education with IDF.

This is an evaluation of a feeding policy change from standard scheduled feeding to IDF and parent satisfaction with comfort of feeding at discharge.

During this program evaluation, parents were interviewed and surveyed prior to discharge regarding education and feelings of competence with feeding. One week after discharge parents will receive a follow up call in which they were asked about progress feeding the infant after discharge and weight gain.

A retrospective review of discharge surveys compared parent satisfaction and education with infants fed using standard scheduled feeding. Specific measurable outcomes will be 100 percent of parents on IDF receiving education, 50 percent of eligible parents enrolled during the twelve-week implementation phase, and 85 percent of infants will show weight gain between discharge home and the first pediatrician appointment. All parents surveyed who were discharged on IDF feeding were taught how to feed infants by reading cues before and during feeding at discharge with 84 percent stating that they felt either confident or very confident in their ability to feed. More than 95 percent of parents stated an understanding of reading infant's readiness cues before and during feeding for pacing and support at the time of discharge. Ninety-five percent of infants gained weight between discharge from NICU and first pediatrician visit.

Late Preterms: When Timing is Everything

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OCHSNER MEDICAL CENTER- BATON ROUGE
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Late preterm infants (LPIs), born between 34 and 36 weeks' gestational age account for more than 70 percent of preterm deliveries in the United States. Most LPIs are cared for in well newborn and maternity units with their mothers where lactation care guidelines were developed for the healthy term newborn. These guidelines can be detrimental to LPIs because they have a risk of dehydration, hypoglycemia, hyperbilirubinemia, hospital readmission, and failure to thrive. The literature states the importance of early expression of colostrum within the first hour after delivery and the role of hand expression in the initial postpartum hours and days. Baton Rouge Ochsner Medical Center Lactation Department created an evidence-based project to improve LPIs' care through development of new nursing processes with use of a Plan, Do, Study, Act (PDSA) cycle. The lactation specialists describe the cycles of PDSA in implementing processes for nursing staff caring for LPIs to help anticipate, identify promptly, and manage breastfeeding problems that the LPIs mothers may experience in the inpatient setting and to prevent problems once being discharged home.

Maternal/Infant Interactions, Attachment, and Their Impact on Outcomes in Mother-Infant Dyads Impacted by Opiate Use Disorder

Denise Maguire, PhD, RN, CNL, FAAN

UNIVERSITY OF SOUTH FLORIDA
TAMPA, FLORIDA

This is a review of the most current literature on mother-baby interactions and attachment, focusing on their impact on outcomes for dyads impacted by opiate use disorder. A literature search was conducted to identify studies that served the purpose of the review. The databases used were PubMed, EBSCO, CINAHL, and SCOPUS. Abstracts were collected and reviewed based on inclusion and exclusion criteria. Articles were selected based on the applicability of the abstract and review of the full text, 17 met the inclusion criteria. Mothers of infants with NAS often do not know what behaviors to expect in their infants who are in withdrawal or how to manage them. Nurses and other health care providers at the bedside can coach mothers through difficult feeding situations and help them interpret infant cues so they can respond appropriately. The results of the literature review are contained in the poster.

Feeding Infants with Neonatal Abstinence Syndrome: Finding the Sweet Spot

Denise Maguire, PhD, RN, CNL, FAAN

TAMPA GENERAL HOSPITAL, ALL CHILDREN'S HOSPITAL,
ST. JOSEPH'S HOSPITAL, UNIVERSITY OF SOUTH FLORIDA
TAMPA, FLORIDA

Background: Infants born to drug-addicted mothers are at high risk to develop neonatal abstinence syndrome (NAS). Caregivers who are experts in feeding infants with NAS are an important source of information about how to keep an infant focused on the task of feeding. Using focus groups, we sought to identify that characteristic skill set of NICU experts.

Methods: The design is qualitative using expert focus groups. Nurses and speech therapists (n=12) were recruited from three large regional NICUs who participated in audio-recorded focus groups. A research assistant took detailed notes which were reviewed and verified by the participants prior to leaving the focus group.

Results: Participants reported both commonly used and creative techniques. Being responsive to infant cues to individualize strategies was emphasized across groups. Keeping the infant calm was crucial to being successful, and they used many techniques to that end. Feeding the infant facing away to avoid eye contact was often used. Other techniques used were vertical rocking, continuous butt patting, bundling, and shushing sound.

Discussion/Conclusion: The expert informers discussed the importance of recognizing infant cues, as well as appropriate pharmacologic management. Supporting the infant-mother attachment was acknowledged as a critical factor for promoting long term success.

[Behind Closed Doors: The Impact “Locking” Up Formula Has on Breastfeeding Exclusivity](#)

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Healthy People 2020, Baby Friendly, Centers for Disease Control, Academy of Breastfeeding Medicine, and the Surgeon General all agree that breast milk is the “Gold Standard” for infant nutrition. The goal across the U.S. is to reduce the number of infants receiving formula in the hospital to 14.2 percent. Georgia's rate of 69.2 percent is well below the national average, 81.1 percent, of initiating breastfeeding at all. Only medically-indicated reasons for supplementation should be used in the hospital setting to promote milk establishment and allow breastfeeding practice with assistance from trained staff.

Purpose: To evaluate the effect limiting access to formula would have on exclusive breastfeeding in the hospital.

Method: Formula was moved to a locked central location only accessible by nurses who removed the key from an automated medication dispensing system. Logs were maintained to ensure parents made an informed choice, the reason formula was being used, and the minimal amount of formula was given. Constant feedback was exchanged between staff and leadership teams during Plan, Do, Study, Act (PDSA) cycles.

Results: Our exclusive breastfeeding rate has risen from 29percent to 47 percent, the Hospital Consumer Assessment of Healthcare Providers and Systems score is 92 percent, and staff workload remains unchanged.

[Daily Care Program for Preterm Infants to Support Formation of Sleep-Awaking Rhythm](#)

Tomiko Nakajima, RN, PhD

Yuko Tokita, RN, NMW, PHN, MA

Yoshiko Shimizu, RN, NMW, PHN, PhD

Mari Nakano, RN

SAISEIKAI YOKOHAMATOBU HOSPITAL
KYOTO, JAPAN

Purpose: In this study, we focus on the sleep pattern of preterm infants of four to five months old which is indicative of healthy development in this early stage of infancy.

Method: Continuous actigraphy monitoring was used to take sleep-rest-activity data on seven infants (four to five months of age) over a three days period.

Data and analysis: Night sleep time, longest sleep time, naps, total sleep time (minutes), percent sleep (%), onset of night sleep, onset of wake-up, were calculated and compared using one to three days of data.

Ethical consideration: The human research ethics committee of the university approved this study; informed consent was obtained from all families to be enrolled.

Result: As a result, sleep pattern of deep sleep was less than 10 minutes, which was relatively short, on each sleep episode and shallow sleep was taken in many sleep episodes. Therefore, we considered modifying our family care program to support sleep waking rhythm for preterm infants at home.

Early Words: How NICU Reading Programs Foster Improved Outcomes in Preterm Infants and Their Caregivers

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Preterm infants in the neonatal intensive care unit (NICU) are at increased risk of poor developmental outcomes related to physiological immaturity and environmental stressors. NICU parents experience high levels of stress related to role alteration and feelings of helplessness. NICU reading programs are an evidence-based, cost-effective intervention that promote parent-infant bonding and contribute to long-term improved cognitive and language outcomes. As caregivers, educators, and advocates, NICU nurses are in a key position to implement and champion early language interventions that have a lasting impact on preterm infants and their families.

Early Detection and Early Intervention of Motor Delays as Early as Two, Four, and Six Months of Age and the Importance of Tummy Time

Amy Manion, PhD, RN, CPNP

Felicia Kurkowski, BS

PATHWAYS.ORG
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Research estimates as many as one in six children experience developmental delays, yet many children are not identified before age 10. Early intervention with therapy can help children with early motor delays master basic life skills that might otherwise remain unattainable. Current research shows the greatest period of neuroplasticity occurs at 0–3 years of age. During the first year of life, the human brain doubles in size. This growth is fueled by the development of 700–1,000 neural connections every second. Therefore, taking advantage of this neuroplasticity during the first three years of life is critical to assuring every child reaches his or her maximum potential. Nurses play a key role in detecting early motor delays and managing infants at risk. As advocates for children, it is important nurses learn the techniques that will assist in amplifying the clinical skills needed to detect early signs of motor delays. If a motor irregularity is detected, learners will be able to direct parents to resources to help with treatment. Additionally, they will learn how to talk with parents about encouraging Tummy Time and demonstrate proper techniques. Learners will also walk away with tangible resources to give to parents to help encourage development.

The Feasibility of Kangaroo Care and the Effect on Maternal Attachment for Infants in a Pediatric Cardiac Intensive Care Unit

Mary Jane Broge, RN, MSN, CPNP

ST. LOUIS CHILDREN'S HOSPITAL
ST. LOUIS, MISSOURI

Approximately 35,000 infants are born with congenital heart disease (CHD) in the U.S. annually. As survival rates improve, it is apparent children with CHD are at increased risk for neurodevelopmental disabilities. One area where brain protection and developmentally appropriate care can be improved is the CICU. The increased prevalence of neurodevelopmental delay in infants with CHD has shifted the focus of research to identifying modifiable factors in their care. One intervention that's been shown to have a positive impact on development is kangaroo care (KC). There is limited evidence to support the use of KC in infants with CHD.

Methods: A descriptive, observational study using mixed methods to examine safety and efficacy of implementing KC in a CICU. The qualitative component examines the nurse practitioner's experience with administering KC. The quantitative portion examines demographic data, physiologic parameters, adverse events, and maternal attachment. A convenience sample of neonates and their mothers admitted to the CICU within 72 hours of life were approached.

Results: Twenty-five participants were enrolled with over 60 sessions of KC. These were provided with no line or tube dislodgement. There was no significant difference in maternal attachment pre and post KC. Eighty percent of participants completed at least two sessions of KC. Most participants experienced no negative outcomes across all fields of assessment during kangaroo care sessions.

Conclusions: Kangaroo care can be safely implemented for neonates in a pediatric cardiac care unit without fear of tube dislodgement or hemodynamic instability. Further research can examine the effect of KC on developmental outcomes and maternal attachment in children with CHD.

Abstracts Presented at Sessions During the National Neonatal, Advanced Practice, and Mother Baby Nurses Conferences

New Orleans, Louisiana, September 5–8, 2018

These are the abstracts for the **podium presentations** from the National Neonatal, Advanced Practice, and Mother Baby Nurses Conferences in New Orleans, Louisiana. These abstracts represent a broad range of neonatal and perinatal care issues. By sharing this information, we hope to increase awareness of research and innovative programs within the neonatal health care community, and support evidence-based nursing practice. Abstracts have been edited for publication.

Congenital Heart Disease: Overview of Embryologic Development and Assessment of CHD Through Case-Based Learning

Michele J. Beaulieu, DNP, ARNP, NNP-BC

Sandra Bellini, DNP, APRN, NNP-BC, CNE

Mary Whalen, DNP, NNP-BC, APRN

JOHNS HOPKINS ALL CHILDREN'S HOSPITAL
ST. PETERSBURG, FLORIDA

Stated Purpose of the Session: To provide an overview of congenital heart disease (CHD) from its embryologic origins to the presentation of infants with congenital heart defects.

Background and Significance of the Topic: Congenital heart disease is the most common birth defect and occurs in about 8 out of every 1,000 live births. Some newborns with CHD appear healthy at birth. Despite careful physical examination, critical CHD can be missed in as many as 50 percent of cases not diagnosed prenatally.

Summary: A case-based learning approach assists the learner in identifying the embryologic basis for development of cyanotic and acyanotic heart disease. Alterations in physiology will be discussed as well as the importance of early identification of CHD.

Newborn Skin: Lumps, Bumps and When to Worry

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Rashes are extremely common in the newborn period and can be a significant source of parental concern, prompting frequent visits and questions to the neonatal nurse. Although most skin findings in the newborn are benign and transient, there are some that should raise a red flag and require an additional diagnostic work-up. Identifying these skin conditions requires familiarity with the ever-changing skin of the newborn and can be challenging to the new practitioner, delaying diagnosis or leading to unnecessary treatments. The neonatal nurse should be able to identify benign lesions and rashes as well as those of infectious or systemic etiology to better serve their patients and educate new families. This presentation reviews common newborn skin presentations, treatment, and management as well as touch on when to refer. Several skin presentations that are more than skin deep are discussed, including several neurocutaneous syndromes and infectious lesions. Case studies and images will be used to engage the audience and help with the visual identification and the learning experience.

Improving Neurodevelopmental Outcomes in NICU Patients

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Premature infants experience stressors in the NICU that can negatively affect neurodevelopment, leading to post-discharge referrals for therapy. Developmental positioning in the NICU can be utilized to more closely mirror the intrauterine environment and mitigate the expense of outpatient therapy and prolonged hospital stays. The purpose of this study was to measure the effectiveness of a developmental positioning inservice and intervention on infant length of stay, weight gain, tone, and flexion. The IOWA model was used to guide development of the research. The Infant Position Assessment Tool (IPAT) was used for intervention fidelity. The setting was a Level III NICU in a large acute care hospital in the southern United States. A retrospective chart review of 50 NICU patients that met the inclusion criteria of 34 weeks' gestation or less at birth and no anomalies provided a pre-intervention sample. After the developmental positioning inservice, a convenience sample of 27 babies were enrolled. Post-intervention infants were scored using the IPAT tool weekly until

discharge. Results showed the post-intervention group had clinically significant weight gain and the mean Hammersmith score (3.28) was higher than the pre-intervention group, showing the positioning positively affected tone and flexion scores.

Implementation of Infant-Driven Feedings in a Neonatal intensive Care Unit

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Premature infants must be able to orally feed before they are discharged from the hospital. Traditionally, infants were fed based on a medical model. The physician would order the oral feeding with a volume and specify how many times a day the infant should orally feed. There was no standard that triggered the oral feeding, it was based on the ordering provider.

Infant-Driven Feeding is a developmental approach to orally feeding infants. Infants are assessed for readiness to feed based on behavioral cues. Evidence shows that infant-driven feedings can decrease days to full oral feedings, decrease length of stay, and provide a consistent approach for caregivers to minimize variations in practice.

A multidisciplinary quality improvement team was developed that reviewed the literature and developed guidelines. All nurses that worked in the NICU attended a three hour education program. Education included a review of literature, developmental care, and concepts of the infant-driven process.

Analysis of the data post-implementation shows that infants that were fed in the Infant-Driven Feeding model achieved full oral feedings 13.6 days earlier, had their first oral feeding 15.9 days earlier, and were discharged 16.1 days earlier.

Engaging Parents as Partners in Unit-based Quality Improvement in the NICU

Madelene Ottosen, PhD, RN

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Reducing harm in neonatal intensive care involves collaborative learning and partnership by all stakeholders, including parents. We will share the challenges and successes of restructuring quality improvement initiatives to engage parents in all aspects of the process. As part of a larger study, we engaged parents as partners in a unit-based quality improvement program. Parent engagement included development and implementation of a parent advisory council (PAC) focused on quality improvement and patient safety; training parent advisors and frontline clinicians with the same quality improvement curriculum, namely the Joint Commission's Robust Process Improvement Yellow Belt curriculum; and integrating parent advisors into the unit-based quality improvement program. Implementing parent engagement in unit-based patient safety initiatives was facilitated through a strong leadership presence and structured processes to support interaction with the PAC advisors. Responding to fears, expectations, and barriers of engaging parents were challenges to implementation. Achieving success occurred through consistent messaging to frontline staff, allowing time for parent advisors to process quality information and give back to the NICU staff, and evaluating the efforts of parent involvement in NICU projects.

NICU Preceptor Program: Innovating Change

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The NICU Education Coordinator, (EC) and Clinical Nurse Specialist (CNS) have worked collaboratively for almost two decades to foster the professional development of NICU preceptors. The goal is to decrease variability in teaching methodologies while onboarding new nurses.

To ensure consistency, a NICU Preceptor workshop was designed to define expectations, convey content, and outline the movement through the 12-week orientation. Periodic preceptor meetings continue to focus on standardizing education by reviewing critical teaching points, current procedures, standards, and methods.

Additionally, forms were designed to standardize tracking of orientee progress and provide a format to convey progression to other preceptors and nursing leadership. This included a daily review sheet to provide immediate constructive feedback and set short term goals for the next shift. The weekly review form was used by management during formal meetings with preceptor and orientee to evaluate overall progression of short- and long-term goals. These forms also provide evidence of competency-based performance.

The NICU Preceptor program laid the foundation for the CNS-lead Nurse Residency program development while the format was used to transform the hospital-based preceptor program. The positive impact has been indirectly validated with the nursing preceptor program being recognized as an exemplar during the organization's ANCC PTAP accreditation.

The Role of the Neonatal Nurse Practitioner in the Level I, II, and III Community Hospital Setting

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Statement of the Problem: There is an emerging trend to utilize the neonatal nurse practitioner (NNP) in Level I, II, and III NICUs. Based on the literature, there are gaps in our understanding of the NNP role in this practice model.

Literature review: According to the National Association of Neonatal Nurse Practitioners (NANNP) 2016 Workforce Survey, 91 percent of NNPs work in Level III or IV units, yet the practice model may be very different between them. A 2010 study of NNPs reported that 54 percent worked in the community hospital setting, yet little is known about this particular practice area.

Methodology: This study is a descriptive, exploratory study utilizing an electronic survey.

Data analysis: Of the respondents (165), 67 percent work in a Level III unit. The majority (72%) work 24-hour shifts, 52 percent being the single daytime NNP and 69 percent are alone at night. Nearly 27 percent have limited or are without ancillary support while 29 percent cannot meet some standards of care due to inadequate resources. Procedural opportunities are limited or a concern for 16 percent.

Interpretation: A better understanding of the scope of NNP practice in the Level I–III centers will assist with developing practice models and guide recruitment and retention of the NNP.

Congenital Tuberculosis: A Difficult Diagnosis

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Background: Tuberculosis (TB) is one of the top ten causes of death worldwide. High risk individuals include foreign born or those who travel to high-prevalence areas, homeless, and health care workers. Congenital TB infection can occur in two ways: transplacental transmission through umbilical veins to the fetal liver and lungs or aspiration and swallowing of infected amniotic fluid in utero or following delivery. Organisms in the lung remain dormant until after birth when oxygenation and circulation increase significantly, leading to growth of organisms and pulmonary TB. The presentation highlights the diagnosis, management, and prognosis of congenital TB.

Case study: Baby VP was a 590-gram twin born at 24 2/7 weeks by emergency C-section due to maternal abruption. Following a difficult respiratory course complicated by a PDA ligation, she became critically ill on day of life 55. She developed profound hypotension, respiratory failure with atelectasis and pleural effusions, and abdominal distention. Post-mortem examination revealed granulomatous inflammation involving lungs, liver, spleen, kidneys, adrenal glands, thyroid, and bone marrow consistent with disseminated *Mycobacterium tuberculosis*.

Conclusion: Although rare, presentation of congenital TB before 4 weeks of age is associated with a 50 percent mortality rate. Prognosis is improved with prompt diagnosis and multi-drug treatment.

High Flow Nasal Cannula Practice Patterns Reported by NNP/Neonatologists in the U.S.

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High-flow nasal cannula (HFNC) is widely used to treat respiratory conditions in neonates. Considerable evidence emerged to guide the practice recently, and reports from overseas provide relatively recent practice patterns; however, no current report of practice and its alignment with the evidence is available in the United States. This study was designed to describe the current HFNC practice patterns and user perceptions in the United States.

Methods: Design: A web-based survey was used to explore the practice patterns related to HFNC. The survey was disseminated using multiple professional organizational platforms.

Sample: Convenience sample of neonatal providers.

Analysis/Results: A total of 947 responses were analyzed (626 MDs, 321 NNPs) with one third of the respondents reporting >10 years of experience using HFNC. Two-thirds of the respondents practiced in Level III/IV NICUs. Clinical guidelines were available for one third of the respondents. Univariate analyses suggest wide variations in practice patterns including the flow rates used to initiate or discontinue the therapy. More than two-thirds of the survey respondents use HFNC as a primary treatment. Significant differences related to HFNC use were observed based on the two primary device types available today.

Sudden Unexpected Postnatal Collapse (SUPC): Nurse Driven Prevention and Preparedness In-Situ Simulation Program

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In a recent survey on sudden, unexpected postnatal collapse (SUPC), 92 percent of nurses requested more practice with neonatal resuscitation skills and drills. The purpose of this program is to implement a SUPC safety program and to prepare nurses for a possible SUPC event.

A SUPC safety program was established which included implementation of a risk assessment tool, patient education, and continuous monitoring for two hours post-delivery. A four-hour simulation-based neonatal resuscitation instructor program was also created with an aim to prepare nurses to conduct in-situ simulations.

June 2017: Ten nurses attended a neonatal resuscitation in-situ simulation instructor course created by the nurse simulation fellow. Safe skin-to-skin posters were mounted in patient rooms. July–September 2017: SUPC in-situ simulations conducted on all shifts, achieving 100 percent staff attendance.

Ninety-six percent of nurses felt the simulation contributed to their confidence with NRP skills, teamwork, and managing the first two minutes of a neonatal code. These simulations also exposed operational weakness that were corrected.

Implementation of a standardized SUPC safety program will help keep our vulnerable newborns safe. In-situ simulations improve skills and confidence to manage a neonatal resuscitation and increase operational readiness in case of a SUPC event.

Helping the Stork Take Flight: Piloting the Discharge RN Role on the Mother/Baby Unit

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On busy Mother/Baby units, the question of how to best facilitate timely discharges that also address all needed learning objectives has often been difficult to answer. While many institutions have looked at staffing grids and Mother/Baby couplet ratios in relation to discharges, this method has not adequately addressed how the RN will be able to ensure that all learning objectives are met prior to discharge. We address the topic of how we were able to utilize a Mother/Baby RN to specifically focus on discharges on our unit, giving special attention to the outcomes we achieved. Specifically, we show that we were able to increase the percentage of discharges by 12 noon, increase our Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) score on discharge satisfaction, and increase staff satisfaction with the discharge process. Our piloting of the discharge RN role demonstrated that having a Mother/Baby RN dedicated to discharge teaching enabled discharges to be more timely and educationally complete while also assisting busy RNs with their workloads. In conclusion, we believe that having a discharge RN on a Mother/Baby unit is an innovative practice that enhances the patient experience, leads to improved outcomes, and increases staff satisfaction and engagement.

Newborn Infant Falls: Minimizing the Risk

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Across the nation, facilities are experiencing newborn infant falls at a rate of approximately 4/10,000 births. Many factors contribute to the risk of an infant fall during the postpartum hospitalization. Medications, cultural practices, sleep interruption, fatigue, and frequent feedings are factors that increase that risk. Studies have monitored the infant's age, time of day, maternal delivery type, medications, substance abuse, environment, and other factors to define and identify at risk newborns.

A program was initiated in response to an increased number of infant falls at a large metropolitan hospital delivering over 10,000 infants a year. At risk infants were identified by evaluating the frequency of near misses that placed the newborn at an increased risk. Increased staff awareness and bedside education provided throughout the hospitalization influenced the rate of newborn falls to decrease from 7/10,000 to 2/10,000 births after the initial intervention with the current rate of 0/10,000 for the last 11 months.

It is important for mother baby staff to recognize the risk of infant falls and identifying strategies to promote a safe hospital environment for the newborn infant. This can be done with practice changes focusing on staff awareness and parent/family education.

Mother/Baby Safety Bundle Designed for High Reliability and Prevention of Harm

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Newborns in the Mother/Baby unit are at risk for numerous safety occurrences. These include infant falls and misidentification. In 2016, both events occurred in our department. Root cause analysis revealed that we did not have the technology in place to prevent these failures. The clinical nurses, with our Shared Governance Council began to research, network, and explore systems already operating that could be customized to ensure greater safety, while falling within cost-effective confines.

Nurses continued on to develop a dialogue, and with the assistance of a professional videographer, created the Baby Safety Video to be shown on our GetWellNetwork interactive patient care learning system. This video highlights the staff, orients patients to the unit, and introduces our safety measures which include our new Mother/Baby barcoding identification system, transporting of infants, and safe sleep education. To complete a comprehensive bundle, a communication tool was developed to inform the mother's alternate care provider of their responsibilities at the bedside, a pop-up question regarding mothers' sleepiness now appears on our learning system, and a falls risk assessment tool was added to the electronic medical record.

We have had no further incidents since initiation of this bundle.

The Childbirth Experiences of Autistic Women During Childbirth in an Acute Care Setting

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Childbirth is a significant event in many women's life. It is a period of tremendous physical and psychological stress. While much has been written about childbirth in neuro-typical women, little is known regarding the childbirth experiences of autistic women. To assist autistic women during childbirth, healthcare providers need to understand the needs of adult autistic women. The purpose of this study was to describe the experiences of autistic women during childbirth in the acute care setting.

This study was designed using Thornes interpretive description. The twenty-four participants were interviewed using a semi-structured interview guide. Data was analyzed using Knafl and Webster's method of data analysis. Three major themes emerged from the data: having difficulty communicating, feeling stressed in an uncertain environment, and being an autistic mother.

Describing the experiences of autistic women during childbirth has significance to nursing science, nursing education, and nursing practice. The findings of this study are consistent with Roy's theory of Adaptation. In addition, data from this study increased knowledge about the childbirth experiences of autistic women. Nurses in clinical practice may use findings from this study to develop strategies to facilitate communication between autistic women and healthcare professionals.

CANCELLED—did not present.