

Abstracts Presented at the 16th National Neonatal Nurses and 19th National Mother Baby Conference

Nashville, Tennessee, September 8-10, 2016

These are the abstracts for the poster and podium presentations from the 16th National Neonatal Nurses and 19th National Mother Baby Conference in Nashville, Tennessee. They represent a broad range of neonatal 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. Some abstracts have been edited for publication.

Reaching for the Stars: Mentoring Team Members to Seek Professional Growth Opportunities

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NOVANT HEALTH THOMASVILLE MEDICAL CENTER
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In September 2014, employee engagement survey results revealed that Women's Center staff felt "somewhat satisfied" with professional growth opportunities. Specifically, the unit results were at a 75th percentile ranking, not meeting our target goal of being at or above the 80th percentile. In reviewing results with our clinical improvement committee, team members felt strongly that our efforts needed to focus on the availability of career ladder opportunities, higher education, and the importance of specialty certifications as a means to achieve professional growth. We identified three objectives for the project 1) to have at least 50 percent of the nursing staff maintain or achieve specialty certification, 2) to increase the number of staff applying for career ladder advancement, and 3) to increase the number of staff pursuing or achieving a higher educational degree. Interventions, just to name a few, that were considered included identifying qualified candidates to sit for certification, providing study materials and allowance for certification review courses, a review of the career ladder application process including integration of a buddy-system by previous recipients, promoting professional organizational memberships through meeting invites and membership drives, and working with the facility's foundation board to promote the RN-BSN scholarship.

Recognition, Respect, and Retention: Organizing a Self-Governance Unit-Based Nursing Council to Improve Work Environment

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Can an organized self-governance council positively impact the work environment and increase staff nurse retention? Engagement and satisfaction among nursing staff was validated in a 2012 article by Jennifer Rheingans. She states, "Most critical is the demonstrated link between the nurses' satisfaction and the quality of patient outcomes." In 2012, Pamela Duncan found that through these unit-based councils, "...consistent, safe, and quality patient outcomes can be realized, communication processes can improve, and satisfaction, empowerment, and engagement of the nursing staff can increase." The mission of this self-governance nursing council is to make all NICU staff feel appreciated and to improve unit cohesiveness and culture. This mission is fulfilled through empowering staff to take on leadership positions in the council, attend staff retreats, and seek out unique opportunities to recognize all NICU staff. Tangible outcomes of this organized council thus far include: well-received staff appreciation days (Doctors Day, Nurses Week, Preceptors

Day); a 20 percent increase in staff recognized with awards at the unit, hospital, and hospital system levels; and 25 percent of nursing staff attending NICU retreats quarterly. The council monitors nurse turnover rates and plans to see continued improvement over the next year.

Development of Innovative Practice to Improve Patient Bonding

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Skin to skin contact after birth is associated with many benefits, such as increasing parental bonding and interaction with the neonate. Bonding may be difficult to achieve when a newborn is admitted to the Special Care Nursery (SCN). A nurse-led innovation connected parents with their baby through the FaceTime application. With support from transformational leaders, efforts were coordinated by a clinical nurse in order to evolve this program system-wide. These efforts included working with Information Systems to set up technology, developing a liability release form with Health Information and Risk Management, educating staff, and writing policy. Funds were allocated to acquire two i-pads and the support needed for updates.

This innovative program has improved bonding as evidenced by feedback received from parents that have utilized this process. Parents have commented on how they love to see their babies in motion; see them breathing; and hear them crying as compared to 'still' pictures. The healthcare team has included parents in the development of the plan of care by utilizing FaceTime. Ongoing efforts are underway to disseminate this innovation and improve family centered care throughout the organization.

Team Communication and Simulation: Improving a Hospital's Culture of Safety

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Human factors and communication breakdown continue to be two of the top three causes of sentinel events in US hospitals, echoing findings of the IOM and Joint Commission. In 2012 our organization implemented Crew Resource Management (CRM) to address this issue and improve patient outcomes. Adding a Just Culture algorithm contributed to a supportive and safe environment.

Hospital administration supported CRM education and communication tool development to ensure a culture of patient safety was a priority. CRM team communication skills, including situational awareness, call outs, closing the loop, assertive statements, and SBAR, were hardwired into our simulation drills. This innovative approach capitalized on the synergy, value, and need for structured teamwork as well as technical skills. This change in practice led to standardizing performance for high risk incidents including, shoulder dystocia, neonatal megacodes, and total body cooling. Improvement in teamwork and team communication promoted accountability and improved Culture of Safety Survey metrics through this innovative approach to simulation drills.

The session will focus on the concepts and connection between CRM and simulation drills to hardwire communication. A remarkable patient outcome will be shared demonstrating how the use of effective communication and drills led to interdisciplinary teamwork that surpassed our expectations.

Orientation Simulation Class in the Neonatal Intensive Care Unit

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Problem: Orientation can be highly stressful for new graduate nurses (NGNs). Many NGNs report feeling overwhelmed, and struggle with anxiety, frustration, and a lack of self-confidence. Despite a lengthy orientation period, exposure to complex patient situations, neonatal emergencies, and opportunities to develop critical decision-making and clinical skills (required for those situations) are often lacking. Current teaching methodologies are primarily didactic, yet many skills, which are needed to attain confidence and competency, are difficult to learn in a classroom setting. Simulation can be used to augment traditional orientation, as an innovative teaching strategy to help NGNs transition to their new role. Simulation permits the NGN to be exposed to critical neonatal emergencies and complex patient

situations, in a safe environment. This facilitates the development of decision-making skills, clinical skills to handle emergency situations, and better communication and teamwork behaviors; enhancing patient safety.

Program: Following a standardized curriculum, 14 NGNs participated in four case scenarios, simulating critical neonatal emergencies. Participant provided feedback using a pre- and post- survey.

Outcomes: All participants indicated improved self-confidence in their ability to perform during emergency situations, a better understanding of the material presented, and a willingness to participate in more simulation training.

Bereavement in the NICU

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The poster will include educational information for staff nurses on how to deal with a death or withdrawal in the NICU. Additionally, patient teaching and education for families dealing with the loss and examples of activities and memory making strategies that can be done to help the family cope will be included. There will be samples of activities, resources for staff and families, as well as proper documentation that should be included related to bereavement.

Perinatal Bereavement: A Collaborative Approach

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SAVANNAH, GEORGIA

Perinatal bereavement is a progressive course of services that should be offered at every hospital that provides women's services. These services provide for a human connection to the baby no matter the gestation or diagnosis. Hospitals that care for women and newborns, especially those with a NICU, should have an integrated approach for perinatal bereavement services. This can be accomplished by establishing a core group of caregivers that want to provide care for this population. This group should include nurses, doctors, social workers, and child life from both women and neonatal areas. Together, a Life Plan can be created. This maps out a plan of care for a family experiencing a loss either through miscarriage or from a life limiting diagnosis. It should cover immediate postpartum needs as well as address long term desires. Topics to include are pain control, feedings, and family participation. Every effort should be made to keep the baby with the family. Women and neonatal should offer the same bereavement services to all their patients. This will provide consistent care across the boards since care for these patients can often overlap the disciplines. This population deserves consistent compassionate care from a multidisciplinary approach.

Evaluation of the Neonatal Palliative Care Attitude Scale (NiPCAS)

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Objective: The rigor of the NiPCAS was evaluated to provide information about a measurement relative to the understudied area of palliative care in Neonatal Intensive Care Units (NICU).

Background: Infants can live for various periods of time with life-limiting conditions, and focus of hospital care can shift from rescue to palliation. The NiPCAS was developed to measure nurses' attitudes about NICU palliative care.

Evaluation: The conceptual framework of diffusion of innovations was used to create a scale with demographical and attitudinal items. Reliability was established through test-retest, and calculation of Cronbach's alpha (.87). Face and content validity was established by an expert panel.

Results: Exploratory factor analysis classified scales and subscales within the measurement, establishing three factors that promoted or hindered palliative care: organization, resources, and clinical. The change to palliative care affected ability to express feelings, resulting in moral distress. Other projects had similar findings.

Conclusion and Implications: The NiPCAS was vigorously constructed. Additional research projects, such as confirmatory factor analysis, are required. Care guidelines specific to individual NICUs, whose cultures and practices demand systematically unique standards, are desirable, as is development of supportive measures for clinicians.

Educating Indigenous Guatemalan Midwives on Management of Postpartum Hemorrhage and Neonatal Resuscitation Using the “Helping Mothers Survive” and “Helping Babies Breathe” Training Programs, a Pre- and Post-Test Study

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Project Summary: Guatemala has high maternal, infant, and neonatal mortality rates and has performed poorly on Millennium Development Goals Four and Five (reducing child and maternal mortality, respectively). The midwives currently receive low-quality training that is not culturally sensitive and require improved training and continuing education in order to address future Sustainable Development Goals (SDG) Three and Five targets.

Summary of Projected Health Care Outcomes: Evidence exists that the low-dose, high-frequency training of HMS and HBB may result in improved skills retention and improved outcomes for mothers and newborns.

Poster Content: SDG 3 and 5 will be reviewed, along with the HMS and HBB trainings. Use of the MamaNatalie and NeoNatalie mannequins, training booklets, newborn ambu bags and suction devices designed to be used in low-resource areas will be shown, along with cross-cultural education recommendations.

The Golden Hour in the NICU

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SAINT BARNABAS HEALTH SYSTEM
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This poster aims to show why the golden-hour in the NICU is critical to this specialized patient population. The golden-hour is an attempt to standardize the processes in the delivery room to reduce incidence of Chronic Lung Disease (CLD) and mortality. The golden-hour refers to the first hour of life for the neonate, specifically the pre-term baby born prior to 33 weeks gestational age and the therapies that are needed to help improve the patient's outcomes. This is a collaborative effort of the delivery room team, which consists of a Neonatologist or NNP, an RN, RT, and a resident physician. The pre-term baby requires thermal regulation and often respiratory support. With more collaboration and standardization for delivery room procedures, the hope is that infant CLD, morbidities, and mortalities can be greatly reduced. Specifically, frequent mock codes in the NICU unit are vital to perfecting the golden-hour and ensuring a smooth process in the neonate's most vital time.

At the conclusion of this presentation, the learner will be able to identify the need for mock codes in the Neonatal Intensive Care Unit. The learner will also be able to recognize the need for a fluid, well-rehearsed first hour of life (golden-hour) for the extremely premature neonate.

Golden Hour for Extremely Premature Infants: Improving Time to Normothermia, Administration of IV Fluids or Antibiotics

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Golden Hour QI Workgroup at The Ohio State University

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Aim: We aim to improve the successfully competed rates of golden hour stabilization by 135 minutes of life from 17 percent to 80 percent by 1/31/2016 and sustain indefinitely. We define complete stabilization as achieving and maintaining neutral thermal environment (normothermia), rapid treatment of presumed sepsis, and prevention of hypoglycemia with IV glucose and protein administration.

Methods: We improved communication with a small baby huddle where we plan treatment and role assignment. We created a golden hour timeline and order set checklist to streamline the ordering process. We included task awareness and time-sensitive warmer reminders for maintaining normothermia. We also started using temperature probes for frequent temperature readings.

Outcome Measures:

- Achievement to normothermia: two temperatures ≥ 97.5 , time to antibiotic and IV fluid administration from time of birth.
- Compliance with timeline bundle, order set checklist, and mandated huddles (admission/debriefing)
- Balancing measures: Mortality rates before and after workgroup started

Data: We have decreased our time to achieve normothermia from 215 to 90 minutes. More work is needed to improve time to antibiotic administration and administration of IV glucose. Our timeline bundle compliance has been increasing steadily from 72 percent to 100 percent. We have found no change in our mortality rates.

Midline Catheters: Is There a Need for Them in the NICU?

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KOSAIR CHILDREN'S HOSPITAL
LOUISVILLE, KENTUCKY

PICCs are wonderful in the NICU but are we over-using them? Can a midline catheter be used more often to avoid PICC complications?

Purpose: PICC complications, such as phlebitis, infections, effusions, tamponade and even death, although rare, do occur in the NICU. Patient populations in the NICU that require venous access for a time period shorter than 2 weeks may benefit from a midline catheter placement versus a deep, central PICC placement in order to avoid the possibility of these serious complications.

Background and Description: The use of PICCs has become very common in neonatal intensive care units for nutritional and medicinal support of our tiny patients. Many times, a central PICC is ordered 'out of habit' when a less invasive intravenous line may be sufficient.

Cases requiring short antibiotic courses, short parenteral courses prior to feedings and many others do not always need a deep, central line. A 'midline' catheter can be placed that will usually last for the short parenteral course needed. X-ray verification may or may not be required as compared to PICC recommendations – thus saving our babies radiation exposure.

Reducing CLABSI in the NICU: One Hospital's Experience

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This facility is a level III 83 bed NICU that admits approximately 750 infants per year with 250 of those being low birth weight. In fiscal year 2014, the unit was challenged to reduce the CLABSI rate by half. Through assessment of current maintenance bundle, literature review, and research of professional standards, a few key interventions were added to the maintenance bundle: daily line audits by core team members, sterile tubing assembly, two man line changes and provider accountability for umbilical line days. These interventions coupled with staff education and awareness helped to reduce both the central line days and CLABSI rate in fiscal year 2015 and so far in fiscal year 2016.

Germ Busters: Sustaining a Culture of Change in Fighting Infections

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CHOP AT VIRTUA
VOORHEES, NEW JERSEY

Bloodstream infection is a significant contributor to morbidity and mortality for infants receiving Neonatal Intensive Care. The cost of these infections is estimated at \$34,508-\$56,000/infection with an annual cost of \$296 million-\$2.3 billion to care for these patients. The Neonatal Intensive Care Team joined a national collaborative with the aim of reducing central line infections. A multi-disciplinary, Shared Governance work group called "The Germ Busters" was assembled to address all aspects of safety issues related to infections. This team identified real and potential defects in process and practice and instituted interventions to improve practice outcomes. This has been accomplished through various educational methods including simulation, parent education, utilization of dash boards, safety assessments,

observations, along with the development of checklists and bundles. The team has kept the staff engaged through posters, games and a quarterly newsletter. An empowered nursing approach, reinforced by our ability to be infection free led to a mental model change. Our new paradigm dictates that every baby deserves to be infection free, a priority to the team as we move forward in caring for a unique high risk population of infants and their family.

Drawing Placental Blood for Admission Labs in ELBW Infants: Will This Process Change Reduce Early Transfusions and Incidence of IVH?

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Premature infants born at <1,500g are at risk for multiple morbidities and mortality. Conserving the infant's blood volume by drawing baseline blood work from the placenta after birth may reduce early transfusion in the first 3 days of life. An association of early transfusions and IVH has been noted. Therefore, we hope to decrease the incidence of intraventricular hemorrhage in this high risk population.

Sinai Hospital of Baltimore is a Level III NICU with approximately 250 admissions each year. Approximately 20 percent of those may have a birth weight of <1,500 g.

In 2015, the NICU staff and the L&D staff collaborated to design a new, efficient and effective process to obtain placental blood after delivery and use it to run all the admission labs. We used resource information and YouTube videos posted by the professionals at Intermountain Health Care to bundle supplies and train the staff. The rest of 2015 was spent perfecting techniques and refining the processes involved.

For 2016 to date, we have a success rate of 75 percent for placental blood draws on infants <1,500 g. We have not yet determined whether we have achieved the outcomes as defined.

Improving Neonatal X-Ray Quality While Reducing Exposure: An Interdepartmental Initiative

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The Special Care Nursery (SCN) at Rochester General Hospital identified a lack of standardized practice for positioning infants during chest and abdominal bedside x-rays. Our goal was to protect our infants from unnecessary radiation exposure while maximizing the quality of the image. A multi-unit quality improvement project was developed, beginning with a literature search that included the *Image Gently*® pediatric campaign. Interdepartmental standards were designed for bedside x-rays and education for bedside staff was completed. Baseline chart reviews from January 2014 revealed 27 percent of x-rays taken did not have monitor leads in the film, and only 31 percent of chest x-rays met newly defined SCN standards. New chest x-ray standards established that collimation is to be within 1-2 inches of the skin focusing on specific anatomy ordered and do not show more than 1/3 skull or iliac crest. Bedside x-rays from January 2015 to present were evaluated for adherence to defined standards. Post-education results continue to show improvement above baseline with quarterly results posted in the SCN.

Reducing Unnecessary Antibiotic Exposure in a Level III Intensive Care Nursery

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Megan Gibson, BSN, RN
Zubair Aghai, MD
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In our 40 bed Intensive Care Nursery (ICN), all infants born to mothers with chorioamnionitis are routinely admitted to the ICN for intravenous antibiotics. Over 200 inborn chorioamnionitis admissions received antibiotics from January 2015 – Present. 11 percent of asymptomatic chorioamnionitis admissions received extra doses of antibiotics than their course of treatment required. A model for improvement was created including the areas of medical management, nursing, laboratory and pharmacy. This interdisciplinary team model includes plan communication, an “Antibiotic Time-out,” time of culture and time of birth reported in handoff, a standardization of tracking the antibiotic start time and date, obtaining 2mL sample for blood cultures, following up with Microbiology of reporting process for blood cultures, the possibility of use of an Auto-stop of medication on asymptomatic chorioamnionitis patients and finally the implementation of an algorithm for medical management of the asymptomatic chorioamnionitis patient based on lab values and culture results and the utilization of the Sepsis Calculator. Using our model for improvement, we aim to decrease the number of extra antibiotic doses at the end of treatment from 11 percent of patient exposures to 5 percent of patient exposures in the next six months.

Time to Attain Full Oral Feeds in Preterm Infants Born Between 33 and 35 Weeks Gestation

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Problem: The majority of preterm infants need gavage feeding in NICU while developing their oral feeding skills.

Literature Review: Full oral feeding is essential before hospital discharge.

Methodology: We performed a retrospective observational study to examine the timing to attain full oral feeds in preterm infants born between 33 and 35 weeks gestation age (GA), born from May 2013 to April 2016.

Data Analysis:

Table 1. Cumulative Percent of Infants Reaching Full Oral Feeds

GA weeks	% of Infants Taking Full Oral Feeds						
33 (n=53)	11	45	79	96	100	100	100
34 (n=114)		47	73	93	97	98	99
35 (n=186)			97	100	100	100	100
Post-Menstrual Age (PMA)	33	34	35	36	37	38	39

Table 2. Median Days to Reach Full Oral Feeds

GA (weeks)	Median Days to Full Oral Feeds			
	Total	Male	Female	p
33	11	16	8	0.006
34	3.5	3.5	4	ns
35	0	0	1	ns

Data Interpretation: Greater than 90 percent of infants born between 33-35 weeks GA reach full feeds by 36 weeks PMA. Female preterm infants born at 33 weeks GA reach full feeds 8 days faster than males. This information is helpful in discharge planning and anticipatory guidance for parents.

Pressure Ulcer Prevention in the Neonatal Intensive Care Unit

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Infants in the Neonatal Intensive Care Units are at high risk for pressure ulcers due to the immature nature of their skin, especially if external respiratory devices are used for respiratory support, such as CPAP and SiPAP. One of our infants suffered a deep tissue injury on their septum in 5/2015 despite following our standard to prevent tissue breakdown in infants on CPAP/SiPAP. In collaboration with the respiratory therapy department, neonatal medicine, quality specialists, wound specialists, nursing management and bedside nurses a new plan was made to prevent pressure ulcers in this vulnerable population. This pressure ulcer prevention bundle consisted of; a two man skin check done every shift with the bedside nurse and a second nurse, or a pressure ulcer prevention partner (respiratory or medicine); mask and prongs would be alternated every three hours in patients with CPAP/SiPAP; mepilex would be used as the cushioning device between the skin and device; and rounding would take place 3X/week to ensure bundle compliance. After one year, we had no reported device related skin breakdown.

What is the Optimum Delivery Method of Oral Sucrose to Prevent Pain in Neonates?

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COLUMBIA, TENNESSEE

Infants experience pain with a number of procedures during their NICU stay. A common method recommended for relief of pain with minor painful procedures, such as needle sticks, is the oral administration of a sucrose solution just prior to the painful procedure. This poster will present the results of randomized controlled trial conducted in a Level II NICU in a regional medical center. The design was a pretest, post-test, double blinded with placebo control. The interventions were oral administration of 24 percent sucrose directly into the oral cavity or with a pacifier dipped into the solution compared to placebo solution before a heel stick procedure. Pain scores increased immediately after the needle stick with the smallest pain increase occurring with the oral syringe sucrose delivery ($.83 \pm 1.2$), next largest pain increase in the sucrose applied to the pacifier (1.30 ± 1.4), and the largest increase with the placebo (1.53 ± 1.6). The method of sucrose delivery (oral syringe, pacifier) was not found to be significantly different from each other ($p > 0.05$) but the pain peak with the oral syringe method was found to be significantly lower than the placebo administration. ($p = 0.0009$). Implications for practice and research are presented.

Improving Inter-rater Reliability Using the Finnegan Neonatal Abstinence Scoring Tool: A System Wide Approach

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WYNNEWOOD, PENNSYLVANIA

Maternal opioid use during pregnancy has increased nearly 5 fold from 2000 to 2012. Infants born with neonatal abstinence syndrome (NAS) have increased hospital costs and lengths of stay. The Finnegan Neonatal Abstinence Scoring Tool (FNAST) is a tool for documenting clinical signs and symptoms of withdrawal. Inconsistent inter-rater reliability scoring among staff was identified by Ruddy et al.

The Developmental Committee of MLHS designed a method of educating staff to improve inter-rater reliability scoring using the FNAST. Education was provided via power point and one-on-one training, focusing on areas where discrepancies had been identified. **Assessing Signs & Symptoms of Neonatal Abstinence Using the Finnegan Scoring Tool DVD** was used for further education. Inter-rater reliability was then assessed using the exams included in the DVD.

Reliability percentage scores for the 21 items in the FNAST were calculated. To be considered reliable, a percentage score of 90 percent or greater is needed. Based on preliminary data analysis, inter-rater reliability scores were still less than 90 percent.

Proper scoring of the FNAST is necessary to ensure proper identification and medical management of infants with NAS. Our results indicate that further education of the FNAST is needed across the MLHS.

Improving Non-Pharmacological Pain Control in the NICU

Aubrey Owens, BSN, RN

LE BONHEUR CHILDREN'S HOSPITAL
MEMPHIS, TENNESSEE

Premature infants admitted to the NICU average more than 100 painful procedures in their first two weeks of life. More than 50 percent of these painful procedures are heel sticks. There is increased evidence that minor repetitive pain exposure such as heel sticks affect structural and functional differences in a baby's brain development which can extend into adulthood. The purpose of this project was to assess if increasing education on the long term effects of uncontrolled pain in neonates and on non-pharmacologic pain interventions would increase compliance with providing appropriate comfort measures to babies requiring heel sticks for am labs. Night shift RNs in a Level IV NICU were given a pre-education survey. The survey results showed that the majority of nurses were aware of evidence-based practices to provide non-pharmacological pain control, however, less than 15 percent of those nurses went in the room with the phlebotomist and none provided comfort measures to their patients during the heel stick procedure. The anticipated outcome (results pending) of this EBP project is increased compliance in providing non-pharmacological pain control with labs drawn by heel sticks after education was provided. This is now an expectation of care in our preemie guidelines.

How an Infant Driven Feeding Program Improved Outcomes in One NICU

Christine Catts, MSN, RN, NNP-BC

Andrea Mottershead, MSN, RNC-NIC

Melissa Bowen, MSN, RNC-NIC, CPN, PPC

Theresa O'Malley, BSN, RN

CHOP AT VIRTUA
VOORHEES, NEW JERSEY

The biggest challenge faced by NICU populations is achieving effective oral feedings. This is one of the last milestones infants must master before discharge. Parent and staff surveys indicated dissatisfaction and varied practices with initiation of oral feedings. This project utilized an evidence based approach to oral feeding to standardize and improve communication among care givers and families. The goal of an individualized infant driven feeding plan ensures healthier feeding behaviors and potentially shorter hospital stays. This project included infants born less than 32 weeks gestation. A multi-disciplinary team reviewed all aspects of our current oral feeding practices. The team developed education, checklists, guidelines and a parent brochure. Staff and parent surveys were conducted both pre and post implementation of the new infant driven feeding program to gauge satisfaction. The time from first oral feeding to full oral feedings and discharge was evaluated by retrospective chart review 3 months prior and 6 and 9 months post implementation. A decrease in the number of days from first oral feeding to full oral feedings by 2 days was achieved. Parent and staff satisfaction surveys following implementation of the infant driven feeding program revealed increased satisfaction with a standardized oral feeding approach.

They're a Lot Tougher Than They Look...NOT!

Heather Wyrick, RN, BSN, C-NPT

MEMORIAL UNIVERSITY MEDICAL CENTER
SAVANNAH, GEORGIA

In the world of neonatal nursing, handling micro-preemies is a common occurrence. So common that new nurses entering the neonatal intensive care are often told not to fear these tiny beings for "they are a lot tougher than they look". The sad reality is that infants born less than 28 weeks gestation are extremely fragile and have a fragile brain that is changing daily and prone to intraventricular hemorrhages. Often the catastrophic presentation of an intraventricular bleed is the image thought of by the neonatal nurse when in fact the silent, asymptomatic presentation is the norm. The caregivers of these tiny patients have an important responsibility to minimize stress endured and to also remain vigilant of the careful handling and care needed to provide the best long-term outcome for these babies. There are numerous, simple measures that the bedside nurse can implement to prevent/minimize these bleeds. Often caregivers become complacent forgetting these measures because of the comfortability experienced through years of caring for these babies. Lastly, discussing complications and long-term outcomes can benefit all neonatal nurses new and experienced as a reminder of the fragility of the micro-preemie.

Shhh...Resting Babies Ahead

Megan Elliott, RNC-NIC, BSN

LEVINE CHILDREN'S HOSPITAL
CHARLOTTE, NORTH CAROLINA

The Neonatal Intensive Care Unit can be a very busy and loud place due to equipment, monitors, alarms, and talking. These excessive and unintended noise levels are known to take a toll on nurses, babies, and their families, effecting the body physically and psychologically. To address our unintentional loud environment, we implemented Quiet Time. This initiative was a result of a nursing journal club discussion focused on reducing stress in the Neonatal Intensive Care Unit. Quiet Time is a dedicated one-hour time frame on both day shift and night shift. Nursing observes a hands-off approach, turns down the lights, decreases noise, and gives babies an hour of quiet time for uninterrupted sleep/rest or kangaroo care. Quiet Time has proven beneficial for both nurses and babies. Nurses report decreased stress, as they have allotted time to catch up with documentation or take a break, and babies have the opportunity for increased parental bonding through skin to skin. This Quiet Time initiative has helped the Neonatal Intensive Care Unit to achieve a more stress free environment for nurses, babies, and families. It has advanced the quality of care with a focus on allowing babies to rest and improving parental attachment.

The Effects of Noise in the NICU

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PENN MEDICINE CHESTER COUNTY
WEST CHESTER, PENNSYLVANIA

Background of Problem: Open unit causes sound to travel. Surveys indicate noise perceptions in our NICU. Decibel readings included alarms, conversations and environmental influences ranging from 51-92.

Purpose of Practice Change: Goal to reduce noise to an average of 55 in the NICU.

Supporting Research Evidence: Research indicates decibel readings are associated with adverse effects in infants. These effects include hearing impairments, sleep disturbance, physical illness, and developmental delays. Sound levels may induce physiological instability, in heart rate, blood pressure, oxygenation, intracranial pressure, corticosteroid levels and long term behavioral effects.

Practice Change Methods: A hand signal to alert staff when increased noise level from voices is used, use of alarms evaluated, overhead lights were turned down and phone volumes were adjusted. A stop light placed for measuring decibels and posters displayed at bedsides to remind ancillary staff and families about noise.

Results: 47 percent of staff recognized noise as a problem in the NICU. Measurements indicated levels above recommended decibels. A parent survey indicated most did not perceive noise as a problem which identified a need to educate parents. Noise has decreased. Measures taken to maintain consistent recommended.

Comparison to Research: Results will be compared to the recommended noise levels of less than 55 decibels.

Recommendations: Improvement process recommendations will be shared for other NICU's to implement.

Neonatal Bathing 101: Creating a Bathing Environment Conducive to Optimal Growth and Development

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During an infant's stay in the newborn intensive care unit, neonatal nurses strive to provide specialized nursing and developmental care. Developmental care seeks to prevent harm from physiologic stressors and promote optimal health outcomes. Bathing should be no exception in the journey to provide excellent developmental care as it can cause skin injury and unnecessary physiologic and psychological stress. Recognizing the seriousness of the issue, the Neonatal Congress formed a pact to create bathing education and evidence based guidelines. The guidelines were drawn from a compilation of scholarly resources and designed to meet the needs of the diverse and ever changing newborn intensive care patient population. The guidelines and education were designed and presented to meet the learning needs of the nursing staff in an organized and informative graphic. The guidelines are outlined by gestation and patient condition, making it easy for the nurse to locate the appropriate bathing technique for their patient quickly. The new guidelines also include a "safety stop" when bathing critical patients. The formation and implementation of premature infant bathing

education and evidence based guidelines serves to reduce the risk for skin injury and promote positive developmental outcomes for the fragile neonatal intensive care population.

The Effects of Recorded Lullabies on Heart Rate, Respiratory Rate, and Oxygen Saturation in Preterm Infants in Incubators: A Randomized Controlled Trial

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COLLEGE STATION, TEXAS

The Neonatal Intensive Care Unit (NICU) is a specialized care unit that combines advanced technology and highly skilled health care professionals. This environment, though, is not without consequences related to stress. The purpose of this study was to examine the effects of music therapy on physiological parameters measure of stress reduction in preterm infants in incubators.

Methods: An experimental design was used. Ninety preterm infants, ranging from 25–36 weeks in incubators were randomly assigned to one of two experimental groups (mother’s voice singing or music therapist’s voice singing) or to a control group. Music was played for 20 minutes, three times per day for three days per week until the infant transitioned to an open crib. Heart rate, respiratory rate, and oxygen saturation were measured prior to, during, and after each intervention.

Results: There was a statistically significant difference in oxygen saturation in the mother’s voice group and the control group ($p=0.028$). Data trends indicated that oxygen saturation improved more for infants listening to mother’s voice recording than that of the music therapist ($p=0.061$). Findings suggest that music can positively affect vital signs and this may in turn be related to a reduction of stress during hospitalization.

Sharing of Changes in Preterm Infants’ Facial Expressions and Body Movements Between Parents in the Early Postnatal Period: A Qualitative Study of Parents’ Perceptions

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Early interventions for parents of preterm infants have recently been attracting attention as a means of enhancing the quality of interactions between preterm infants and their parents and improving preterm infants’ subsequent development. However, little is known about how parents naturally perceive their preterm infant’s behavior. This qualitative study was conducted to elucidate how parents perceive their preterm infant’s changes in facial expressions and body movements in the early postnatal period. Three couples with a child born after 29–30 weeks’ gestation participated.

The couples were interviewed 2–3 times, in view of their child, when their children would have been at 33–35 weeks’ gestation. An additional interview was conducted with each parent outside the hospital room. All parents in this study perceived their child’s facial expressions and body movements as lively and cute, including “grimaces,” “wriggling body movements,” “stretching of limbs,” or other movements. Furthermore, the child’s behavior contributed to parents sharing their feelings and perceptions of their child’s signs. These findings suggest that while neonatal nurses protect preterm infants from stressful situations in the neonatal intensive care unit, they also encourage parents to share each other’s natural perceptions of their child’s behavior.

Delayed Cord Clamping: Do Late Preterm Newborns Benefit?

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Delayed cord clamping (DCC) has long been a controversial and at times, an inconclusive clinical practice topic area. Throughout the literature variances occur surrounding definitions of DCC, optimal time frame for clamping, and populations which benefit versus those which may experience risk. Many institutions do not have DCC clinical practice guidelines and where those exist, compliance is low. Research, initiatives, and some guidelines exist surrounding DCC for the very early preterm newborn (less than 30 weeks gestation), however there is decreased literature surrounding the risks and benefits for specifically the late preterm newborn (34-37 weeks gestation) population.

Late preterm newborns comprise approximately 70 percent of preterm births in the U.S and Canada. These infants have unique needs compared to term newborns (higher incidences of anemia, liver immaturity, respiratory distress,

temperature instability, and hyperbilirubinemia). However, they may not experience the severity of complications associated with very early preterm newborns (intraventricular hemorrhage, severe anemia, polycythemia) where research has proven DCC may mitigate these complications.

Delaying the Initial Newborn Bath

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The newborn bath practice at our institution had not changed in decades. Newborns were bathed in the nursery under the radiant warmer and transferred to an open crib 30-60 minutes post bath when temperature stabilized. A change in the initial newborn bath policy and pilot project was proposed to determine if increasing the timing of the first bath to 8 hours or more will eliminate the use of a radiant warmer, promote infant's warming using skin to skin (STS) contact with mother, maintain normal newborn glucose levels and increase in-hospital breastfeeding rates.

A review of the literature indicated that newborns breastfed better, had increased temperature stability and normal glucose levels if the bath was delayed. Currently, infants are bathed in the mother's room in an open crib any time after 24 hours after birth if the axillary temperature is $\geq 97.5^{\circ}\text{F}$. Radiant warmers are no longer used on admission. Infants are placed STS with the mother if the baby is hypothermic. Data on outcome measures for infant temperature, glucose levels, frequency of skin to skin, and in-hospital breastfeeding rates were collected over a 13 month period. The results in each area analyzed improved significantly compared to baseline data resulting in a positive impact for our practice.

Delayed Immersion Bathing of the Newborn: A Plan for Successful Implementation

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Delaying the first newborn bath for 12-24 hours has been shown to have numerous benefits to newborns of all gestations ages including:

- Reduced incidence of hypothermia and hypoglycemia
- Increased exclusivity rate of breastfeeding
- Improved maternal infant bonding with delayed separation of Mom and baby from skin to skin.

Immersion bathing vs sponge bathing has been shown to also have numerous benefits including:

- Less stress to the newborn and family
- Decreased irritability during the bathing process
- Improved thermoregulation
- Less staff time to give bath
- Increased involvement of parents in 1st bath

The Shared Governance Council reviewed the literature brought forward by the unit educator and as a group, made the decision to implement both delayed and immersion bathing as a bundle evidence based practice change. The practice change was presented to staff at the annual education days along with the written guidelines, the tools needed including room signage and a demonstration video. The change was implemented immediately after the education was completed in November 2015. Staff buy in was positive and immediate. Patient satisfaction is positive related to the change. With active involvement of the clinical bedside nurse, the change process toward evidence based practice is improved.

Improving Newborn Thermoregulation Practices in the Delivery Room: A Multidisciplinary Approach

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The purpose of this quality improvement project was to ensure the prevention of hypothermia in newborn infants through a multidisciplinary approach. In addition to ensuring all delivery rooms and operating room temperatures meet the recommendations and standards of environmental temperatures which is 72°F as defined by the regulatory standards.

This project was rolled out in three phases. Phase I was data collection and analysis, Phase II included implementation of increased operating room temperatures and the use of warm sterile towels, and Phase III evaluated skin to skin and special care nursery transfer practices. The percentage of infants that had temperatures <97.7°F went from 20 percent in Phase I to 10 percent in Phase II. In Phase III there was an increase noted to 17 percent. There were three factors identified as possible causes for the increase including immediate skin to skin, a change in infant thermometers and an unintentional decrease in the operating room temperatures. Overall, this quality improvement had a positive impact on the outcomes of the newborns and the prevention of hypothermia and cold stress. We continue to monitor, analyze and report all newborn first temperatures on a monthly basis.

Targeted Screening for Congenital Cytomegalovirus Infection in Newborns

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Cytomegalovirus is a common virus found worldwide which will infect most people at some point in their life, with minimal to no long term sequelae. Congenital cytomegalovirus (cCMV) on the other hand, is the leading infectious cause of neurodevelopmental disorders in children. More children are adversely affected by cCMV infections than by better known diseases like rubella and HIV. In particular, cCMV is the most common non-genetic cause of sensorineural hearing loss (SNHL) in children.

Early recognition of cCMV and SNHL are vital to child development. As such, several states including Utah, Connecticut and Texas have developed legislation to provide for cCMV education and testing. While New York does not have any such legislation yet, Saint Peter's Hospital has developed its own policy to test the urine of any newborn that doesn't pass their second hearing screening on one or both ears, for the presence of cytomegalovirus. Education is provided to parents of any infant who shows symptoms of cCMV or who meets testing criteria based on hearing screening. Education and early diagnosis are key to prompt intervention by infectious disease specialists and to close monitoring by audiologists for progressive hearing deterioration.

Neuroplasticity and Child Development 0–3 Years and Beyond: A Shift in the Human Capability Paradigm

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Neuroplasticity is the ability of the brain to form new neural connections or pathways throughout a lifespan. Current research has proven the greatest period of neuroplasticity occurs between 0-3 years of age. During the first year of life the human brain doubles in size 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 individual reaches their maximum potential. Ways to maximize a child's early development include massage, language exposure, and play. Research conducted with pre-term babies receiving massage interventions found decreased maternal stress, improved infant weight gain and earlier hospital discharge (Holdtich-Davis, White-Traut, et al., 2014; Vickers, et al., 2004). The number of words a child hears early on in their language development has shown to have a lasting impact on cognitive development (Hart & Risley, 1995). Additionally, research has shown play enhances learning readiness and problem-solving skills. Children learn about the world around them and develop crucial life skills through play activities (Ginsburg, 2007). All three of the discussed interventions; massage, language, and play offer opportunities for parents to engage with their child and promote healthy development.

Human Donor Breast Milk for in the Newborn Nursery: A Pilot Protocol

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The benefits of using human donor breast milk for high risk infants in the Neonatal Intensive Care Unit has been widely researched and is practiced in many hospitals around the world. However, it is rare for donor breast milk to be used in the newborn nursery setting. As a Baby-Friendly designated hospital, NYU Langone Medical Center continually strives to improve patient care with evidenced based protocols and practice change. In support of our Baby-Friendly redesignation efforts, we are developing a protocol that allows the use of human donor breast milk for "healthy" infants when supplementation with formula is medically indicated (e.g. hypoglycemia, a greater than 10 percent weight loss, and phototherapy). While infants in the newborn nursery not considered high risk they are in a transitional period where potential complications may still develop. The acute and long-term complications of cow's milk formula supplementation such as necrotizing enterocolitis, constipation, asthma, and diabetes remain serious risks that can be easily avoided with the use of donor breast milk. The goal of this pilot protocol is to decrease the use of formula in the hospital and improve short-term and long-term infant outcomes after discharge from the newborn nursery.

Reimbursement for Banked Donor Breast Milk

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Indisputable evidence shows that the nutrition of the premature infant must be designed to support the metabolic and gastrointestinal immaturity, immunologic insufficiency, as well as other related medical conditions. The early introduction of human milk, not only benefits the premature population, but also extends itself into adulthood. Therefore, if a mother's own milk is unavailable, banked donor milk should be considered the optimal nutritional choice for the NICU patient. Banked pasteurized donor breast milk provides many of the components of human milk. The stringent guidelines and processes used to screen potential donors increases the safety and efficacy of using banked milk in the NICU. The issue is Medicaid and insurance coverage for donor breast milk. Some states pay for donor breast milk from a regulated breast milk bank, but many do not. Every dollar spent on banked donor milk, can save a state \$11 in medical costs. Many state do not reimburse for banked donor milk. Exercise advocacy concerning the lack of access to donated human breast milk as a consequence of cost and inability to pay.

Use of Donor Human Milk to Provide Premature Neonates an Exclusive Human Milk Diet

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The American Academy of Pediatrics (AAP) recommends human milk for high risk infants by direct breast feeding and/or using the mother's own expressed breast milk. They strongly support the use of banked human milk as an alternative. Human milk immune factors and nutrients boost the infant's immature body systems. Our goal was to utilize donor human milk (DHM) from a Human Milk Banking Association of North America (HMBANA) milk bank, as an alternative to maternal milk. DHM is used to decrease time to initiation of feedings and provide an exclusive human milk diet until maternal milk supply has been established or the infant reaches an age of gut maturity.

A multidisciplinary work group developed guidelines for use of DHM based on national standards to identify infants eligible. The initiative required extensive education. A pilot began on January 3, 2016. Metrics include eligible infants for DHM, time to initiation of feeding, and percentage of infants receiving 100 percent exclusive human milk until 34 weeks corrected gestation age. Pilot results showed 97 percent percent of the infants eligible received DHM. Ongoing assessments will include exclusive human milk diets, infection rates, and growth and development monitored through our neonatal follow-up program.

Breastfeeding Promotion for Opioid-Dependent Mother-Neonatal Abstinence Syndrome Infant Dyads: A Quality Improvement Initiative

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Objective: To promote breastfeeding (BF) for the opioid-dependent-mother (ODM)-neonatal abstinence syndrome (NAS) infant dyad with intent to improve BF rates.

Methodology: Retrospective/prospective BF rate data and a pretest/post test design to evaluate nurses' evidence-based BF knowledge.

Setting: A mid-western state healthcare system encompassing two perinatal assessment centers (PACs), a level one newborn nursery, and a level three neonatal intensive care unit (NICU).

Participants: 21 NICU nurses, one PAC nurse

Intervention/Measurements: Three of the 10 Baby-Friendly USA Steps to Successful Breastfeeding were implemented to update the BF policy, provide NICU and PAC nursing staff with evidence-based BF education, and develop a prenatal BF information sheet for ODMs. Metrics included evaluating nurses' BF knowledge using a pretest/post test format and monitoring BF rates for ODM-NAS infant dyads for six months pre-post intervention.

Results: Participants demonstrated a significant improvement in evidence-based BF knowledge related to NAS based on post-test scores. The exclusive BF rate including exclusive use of expressed breast milk increased from 13 percent to 40 percent post-intervention signifying a 68 percent increase in the BF rate.

Conclusion: Initiatives involving education and resource provision are capable of enhancing nurses' BF knowledge and improving ODM-NAS infant dyad BF rates.

Standardizing Care for Neonatal Abstinence Syndrome in an Open Pod Nursery to Decrease Duration of Treatment

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Background: Neonatal Abstinence Syndrome (NAS) is associated with central nervous system hyperirritability and autonomic nervous system dysfunction, which often requires medical treatment during an extended hospital stay.

Aim: The aim of this quality improvement project (QI) project is to decrease length of treatment (LOT) duration in full term infants diagnosed with NAS by 10 percent via standardization of nursing practices within the next year using the Model for Improvement.

Methods: A fishbone diagram identified environmental and structural factors that may influence NAS. This guided the organization of a key driver diagram to outline the practice changes of this nursing bundle: staff education, nutrition practices, skin care, comfort measures, multidisciplinary care, scoring, parent education, developmental appropriate environment. A checklist tool was created to guide bedside practices and track compliance with the bundle. The challenges of implementation lead to multiple Plan-Do-Study-Act (PDSA) cycles, which allow for rapid learning under various special situations.

Data/Results: The annotated run chart shows the outcome measure of LOT for each infant discharged during the year 2015.

Conclusion: We anticipate that standardization of bedside nursing care will lead to decreased LOT.

Examination of an Outpatient Approach to the Treatment of Neonatal Abstinence Syndrome

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ROANOKE, VIRGINIA

Neonatal Abstinence Syndrome (NAS) is a pattern of symptoms and behaviors exhibited by neonates who have been exposed to licit and illicit substances *in utero* (Jones et al., 2010). NAS has become an epidemic within the last several decades. According to Patrick et al. (2012) an infant is born addicted to opiates every 25 minutes. The number of drug-affected infants has increased 300 percent since the 1980s (Backes et al., 2012). Furthermore, healthcare costs

associated with NAS are estimated to be \$112.6 million annually (Jones et al., 2010). Much of this cost is due to the substantial length of stay required to wean infants from pharmacological treatment so they can be discharged home to their families. This is accomplished in the traditional inpatient setting. However, a more innovative and cost-effective approach to the treatment of NAS may be to establish outpatient treatment clinics. This poster examines the outpatient approach to treatment of NAS by highlighting two clinics, one in Ohio and the other in southwestern Virginia, and provides a model for other communities to follow.

Heroin Epidemic: Improving Outcomes for the Most Vulnerable Victims

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CINCINNATI CHILDREN'S HOSPITAL
CINCINNATI, OHIO

Maternal opiate use in this country is increasing at an alarming rate. Along with this comes hardships to the families, addicts, and the most vulnerable, being the children and infants born to these addicted moms. As neonatal nurses, we see these infants daily and experience the struggles they go through as they withdraw making it hard to be nonjudgmental towards the mother.

Our NICU follow up clinic started noticing the challenges in not only caring for these infants in the NICU, but also the hurdles the families face at home, and noticed some similarities in sequelae. We have set up a dedicated NAS clinic, with doctors, nurse practitioners, nurses, with social work, occupational therapy and nutrition to help support the birth or foster families in the first 2 years of life. We will discuss the epidemiology of the problem, the process of developing the clinic, preliminary outcomes we have seen and outreach opportunities we have developed at a maternal addiction center.

A Petition for Change in the Care of Incarcerated Addicted Pregnant Women in Order to Facilitate a Change in the Course of Neonatal Abstinence Syndrome

Ellen Schauerman, BSN, RNC-NIC

MAGEE-WOMEN'S-UPMC HAMOT
ERIE, PENNSYLVANIA

Methadone has been the standard of care for management of opioid-dependent pregnant women in the past, but more recently, buprenorphine has shown to offer many benefits. Research shows that with buprenorphine there is decreased severity of NAS, less medication required to treat NAS, and a significant decrease in their length of stay in the hospital. Research also shows better in-utero growth and development of infants exposed to buprenorphine. Other research demonstrates better neurobehavioral scores, and these have been used as a predictor of long term behavioral outcomes. Private clinics changed to include buprenorphine as a treatment, but methadone continued to be the only treatment for incarcerated opiate addicted pregnant women in Pennsylvania. I discovered an outdated state policy that mandated the use of methadone. I was able to reach the Secretary of the PA Department of Drug and Alcohol Programs. He formed a task force to investigate the issue. Currently, there is not a new policy in place, but I'm hopeful that will change soon. He said, "We are plugging away on this. I think you'll feel that you've had an impact here." If successful, this could affect the course of NAS infants across Pennsylvania and potentially their futures.

Improving the Approach in the Care of Infants with NAS: One Unit's Continued Journey

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Along with the rest of the nation, our NICU has seen an increase in the number of infants born addicted to licit and illicit drugs. NICU nurses typically receive no formal education in using the Finnegan Neonatal Abstinence Scoring Tool (FNAST) to assess these infants. Research shows that formal education increases RN inter-observer reliability which can decrease the infant's length of stay.

In order to provide best care to these infants, our NICU brought in an expert speaker and provided formal education to the entire staff of 150+ nurses. We also formed a multidisciplinary team which meets regularly to monitor

and improve the process. As an adjunct to our electronic charting, we created a tool which “blinds” each nurse to the other’s FNAST score, thereby validating the two scores and demonstrating true inter-observer reliability.

We have also recently partnered with a local university’s social work department in hopes of expanding our program to meet the comprehensive needs of the family. With this partnership, we can refer these moms to community resources and provide education during and after pregnancy.

Improving Safe Care for Substance Exposed Infants Experiencing Neonatal Abstinence Syndrome and Their Families through a Multidisciplinary Team Approach

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Melissa Bowen, MSN, RNC-NIC, CPNPPC

Christine Catts, MSN, NNP-BC

Cheryl Alexander, RN

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CHOP AT VIRTUA

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Maternal opioid use is a national public health issue. From 2000 to 2009, the rates of maternal opioid use during pregnancy skyrocketed from 1.2 births per 1000 to 5.6 births per 1000 nationally. 55-95 percent of infants exposed suffer withdrawal symptoms ranging from mild irritability to seizures and death. Between January 1, 2014 and December 31, 2015, we cared for over 100 drug exposed infants experiencing neonatal abstinence syndrome (NAS). Standard of care for these infants include pharmacological and nonpharmacological measures. Historically, our focus has been on the medication management of these patients. The average length of medication days during this time period was 18.57 days. We recognized our limitations in providing nonpharmacological interventions and engagement of families to assist with decreasing medication days. A multidisciplinary task force was formed, focusing on awareness, nonpharmacological interventions, and education of withdrawal symptoms. The goal of the taskforce is to create a standard pathway for medication management and scoring of withdrawal symptoms, promote staff buy-in, increase parental involvement by 50 percent, and decrease length of medication days by 30 percent. Improved parental engagement and use of nonpharmacological interventions in infants with NAS promotes parental-infant bonding and provides parents with strategies for safe care of their infant.

It Takes a Village: Combating Opioid Use in Obstetrics

Kim Price, DNP, MBA, RN, NEA-BC

Shannon Miles, BSN, RN

Jackie Weaver, BSN, RN

Cathy Goad, BSN, RN-BC, NE-BC

CENTRA HEALTH

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The number of infants being admitted to our neonatal unit with Neonatal Abstinence Syndrome (NAS) tripled in the first quarter of 2015 from previous years. Upon identifying this data, a community collation was created to find targeted interventions. The National Institute on Drug Abuse has reported a five-fold increase in infants born with NAS from 2000 to 2012.

The community coalition needed to identify an integrated network of resources to care for and improve clinical and social outcomes for mothers and babies locally. Coalition members include community partners such as mental health and addiction professionals, local law enforcement, nurse navigators, and clinicians in obstetrics, midwifery, neonatology, pain management and pediatrics. The success in treating expectant mothers with an opioid abuse disorder has been found when building a relationship that provides for clinical and sociological care while enhancing education and understanding of opioid misuse.

The steps for creating this program included: (1) Identification of the At-Risk Population; (2) Comprehensive Assessment and Managed Coordination of Resources; and (3) On-Going Community Education. The efforts of this community coalition have resulted in measured improvement through reduced length of stay for neonatal opioid exposure management, positive patient feedback and improved clinical outcomes.

Caring for the Substance Abuse Mother and Infant: A Case Study of the Role of the Nurse During Postpartum Recovery

Susan Culp, MSN, RNC-MNN

Cheryl Scott, MSN, RNC-MNN

CHRISTIANA CARE HEALTH SYSTEM
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Drug dependency during pregnancy has consequences requiring individualized, comprehensive and multidisciplinary treatment. Nearly all opioid exposed infants will display symptoms with some requiring pharmacotherapy and all needing environmental modifications. An essential component of non-pharmacologic care is nursing/caregiving interventions, education, and facilitation of maternal involvement with the infant. This review explored evidence based practices that emphasized treating the mother and infant as an interactional dyad. A thorough literature research performed in nursing and medical databases such as Medline, Embase, CINAHL and Cochran Library provided limited information demonstrating a continued need for research of evidence based practices regarding this approach.

NAS Seminar for Nursing Students

Mandisa Rhodes-Trower, MSN, RNC-MNN

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DOVER, DELAWARE

Neonatal Abstinence Syndrome (NAS) is the primary deleterious effect of maternal opiate use during pregnancy. NAS is a major problem both nationwide and locally in the state of Delaware. In 2004, the state of Delaware recorded a total of 39 babies discharged from the hospital with a diagnosis of NAS. In 2014, 300 Delaware babies had that diagnosis (Fisher, 2015). Specialized nurse training and education is needed to assess and care for these infants. Education should be started in nursing school and preferably prior to a maternity rotation. This poster describes the development and implementation of a nursing education module designed to help prepare nursing students to properly care for NAS infants. The module reviews NAS etiology, incidence, and treatment, as well as its implications for Nursing and Nursing education.

The NAS Seminar was presented to 16 nursing students prior to their hospital maternity clinical rotation. The seminar resulted in significant knowledge gain (95 percent confidence level) as evidenced by pre/post test results. Recommendations include replication of seminar at other Nursing schools to determine result generalizability.

One-on-One Discharge Education Is More Effective than Alternative Education Methods

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Lasbelle Leftberis, MSN, RNC-OB, C-EFM

MORTON PLANT HOSPITAL
CLEARWATER, FLORIDA

Objective: To provide patient-centered discharge education ensuring patients are discharged with necessary knowledge to safely care for herself and her newborn.

Design: Retrospective surveys were conducted to assess patients' preferred teaching method.

Setting: A Baby-Friendly, 23-bed Mother-Baby Care Unit in a 687-bed acute care facility in west Florida, averaging 2,500 births annually.

Participants: 50 postpartum patients completed a three-question survey. The first question addressed the participants' preferred learning style. Next, patients conducted a self-assessment of their readiness for discharge based on the current discharge teaching method, which included a thirty-minute educational DVD. The third question evaluated their preferred teaching method.

Methods: Prior to implementation, the educational DVD was the primary discharge education tool. Upon implementation, the DVD was discontinued and the patient preferred one-on-one educational session was initiated.

Results: Post-implementation data revealed a 56 percent increase in the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores for discharge information. Within one quarter, the unit was at top decile performance in discharge information.

Conclusion: Findings support the delivery of patient-centered discharge education to improve patient knowledge to safely care for herself and her newborn. Results suggest one-on-one educational sessions are more effective and result in higher patient satisfaction.

Family Admission Nurse Supports Empowerment of Pregnant Patients with Education and Preparation for Their “Birth Day”

Kaitlin Brennan, RNC-OB

Lasbelle Leftheris, MSN, RNC-OB, C-EFM

MORTON PLANT HOSPITAL
CLEARWATER, FLORIDA

Objective: To provide patient-centered pre-admission education to antepartum patients while setting realistic expectations for labor and completing forms and consents.

Design: Patient admission data was collected retrospectively via responses to a survey regarding preferred admission processes.

Sample: Fifty patients completed a four-question satisfaction survey about their admission process, which evaluated each patient’s preparation for birth, breastfeeding, pain control, and overall satisfaction.

Methods: Patients were scheduled to meet with the Family Admission Nurse prior to the labor in order to complete forms in a comfortable, private setting. Expectations were established. Implementation of a birth preference form allowed patients to determine and discuss desires related to their labor experience.

Implementation Strategies: An experienced labor nurse implemented the intervention for three months, ensuring accurate patient education and establishing appropriate patient expectations.

Results: Analysis revealed a 12 percent increase in Hospital Consumer Assessment of Healthcare Provider and Systems (HCAHPS) scores. All 50 patients surveyed identified a high level of satisfaction regarding their experience with both the admission process and their labor outcome. All multiparous women preferred the new admission process to that of their previous delivery.

Conclusion: Findings support that the delivery of patient-centered pre-admission education to improve patient satisfaction from admission through discharge.

Telephone Follow-Up to Screen and Support to Reduce Depressive Symptoms in Postpartum Mothers

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GALVESTON, TEXAS

The PICO for this Evidence based practice Study was “what is the effect of telephone follow up in comparison to no telephone follow up in screening and supporting to facilitate reduction in depressive symptoms in postpartum mothers”. Women experience depression and anxiety, as well as other mental health conditions, during pregnancy and after the baby is born. These conditions can have significant effects on the health of the mother and her child. Pregnancy and new baby affects the mothers in different way and brings our various emotions some of them like excessive anxiety and depression can stay for longer time like up to 12 months.

Researchers believe that depression is one of the most common problems women experience during and after pregnancy. According to a national survey, about 1 in 8 women experiences postpartum depression after having a baby. Evidence suggested that telephone screening and support postpartum women for depression may reduce depressive symptoms in women with depression and reduce the prevalence of depression in this population in comparison to no telephone support during postpartum period (LOE = 1a). The US Preventive Services Task Force recommendation for screening is grounded on the data that (a) postnatal depression is serious, prevalent, under-recognized, and treatable; (b) a standardized, valid screening tools are available (EPDS).

Delivering Always: Building a Great Patient Experience

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In the world of health care, a patient’s assessment of her childbirth experience is evidenced by patient satisfaction scores from the standardized survey, U.S. Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS). HCAHPS measures the quality of care based on provider communication, responsiveness, pain management, hospital environment, and discharge information. The Mother-Baby Unit improved its patient satisfaction scores by changing clinical practices with the use of standardized communication such as bedside shift report and

huddles, increasing lactation support, and improving discharge education with iPads. Decreasing noise and creating a peaceful environment for patients was accomplished with Quiet Time, noise monitors, aromatherapy and white noise machines for the patient rooms. From May 2015 to May 2016, the Clinical Manger and Shared Governance members implemented changes that improved patient satisfaction scores from 62.87 to 94.00. With environmental and clinical improvements on the unit, nursing staff feel less stress and empowered to make practice changes always striving to provide optimal care as evidenced by teamwork scores from the 50th to the 91-98th percentile (Wagner, 2016). The innovative clinical practice changes increased nurse and patient satisfaction scores, making the transition for mothers and newborns from hospital to home a better experience for all.

Know Infant Safety, No Infant Falls

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Statistics indicate that falls are the most common cause of accidental injury in neonates. Nurses on the mother-baby unit have the responsibility to educate and inform parents regarding fall prevention strategies. Parental adherence to recommended infant safety care practices increases when parents receive appropriate information from multiple sources such as nurses and family. While family is very often the source of advice on infant care, the literature demonstrates that more than two-thirds of family advice on infant safety is not consistent with recommendations. It is imperative that parents receive consistent and reliable evidence based recommendations regarding infant safety practices. Our mother-baby unit set out to evaluate contributory factors related to infant falls and to implement strategies partnering with patients and their families to ensure consistent and reliable infant safety information. The provision of a comprehensive, multimodal education plan directed at parents as well as additional specific grandparent strategies resulted in an increased understanding and adoption of recommended infant care practices.

CLIMB: Preventing Falls in Labor and Delivery

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NOVANT HEALTH – THOMASVILLE MEDICAL CENTER
THOMASVILLE, NC

On our labor and delivery unit, we had a couple of incidents where the patient fell with ambulation post-delivery. Upon investigation of the events, it was determined that a more consistent process for assessing the patient prior to getting them up for the first time after delivery was needed. The team developed an assessment acronym with the word CLIMB, which stood for: C-check leg numbness and lift, L-lochia and (T) levels, I- intake and output, M- movement of legs, and B- blood pressure (lying, sitting, and standing). This tool is a means to assess the patients overall hemodynamics prior to ambulating to prevent falls. Labor and delivery staff was educated about the new assessment tool and the correct documentation in the patient's chart. Ten charts were reviewed monthly from September 2014 through September 2015 for the correct documentation and use of the assessment tool being utilized. Data revealed with staff education and the implementation of the CLIMB there were no falls in labor and delivery.

Implementation of Daily Living Care Program for Full-Term Infants to Support Formation of Sleep-Wakefulness Rhythm

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Purpose: In this study, we focus on formation of the sleep-wakefulness rhythm of full-term infants of four to five months old, and parents applied the daily living care program since they were born.

Method: Continuous actigraphy monitoring was used to take sleep-rest-activity data a over three-day period on eleven infants who were four to five months old.

Data and analysis: Night sleep time, longest sleep time, naps, total sleep time (minutes), percent sleep (percent), onset of night sleep, onset of wakeup, 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 enrollment in the study.

Result: As a result, sleep pattern of deep sleep was less than ten minutes which was relatively short on each sleep episode, and shallow sleep was taken in many sleep episodes. Therefore, we need to modify daily living care program to support sleep-wakefulness rhythm for full-term infants at home.

Safe Sleep: It's More than a "Blanket" Statement

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Problem Statement: Infant mortality in Ohio is among the worst in the nation. Since 1992, despite local and national efforts to increase awareness of safe sleep practices, no appreciable progress has been made. All infants are at risk; however, Ohio's black infants are dying twice the rate of white infants. The American Academy of Pediatrics (AAP), recommends that infants sleep alone, on their backs, in their cribs. Yet, every week three babies die here due to unsafe sleep environments.

Action: A safe sleep task force was created to identify opportunities for improvement and define the gap between current and optimal practice. Gaps included knowledge deficit of staff regarding the components of a safe sleep environment, inconsistent modeling of safe sleep practices, and deficiency in supplies needed to create that environment. PDSA cycles were constructed to address issues and barriers that influence modeling of safe sleep practices. Teaching strategies were designed to accommodate all learning styles including visual, written, auditory, and kinesthetic. Learning occurred through reflection, experience, and practice and these elements were infused into each cycle.

Nurses Partner to Improve Outcomes for Late Preterm Infants (LPIS)

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COLUMBIA, TENNESSEE

Infants delivered at 34 to 36.6 weeks gestation, also known as late preterm infants (LPIs), have been declared a population at risk at our community hospital in southern middle Tennessee. Due to their near-term size and initially healthy appearance, late preterm infants are often unrecognized as being physiologically and metabolically immature and have an increased risk of developing respiratory complications, sepsis, temperature instability, hypoglycemia and feeding difficulties, and hyperbilirubinemia. As clinical courses and complications differ with each infant, significant variations in the provision of care for this vulnerable population were noted, prompting the need for the development of a standardized clinical pathway for late preterm infants that concentrated on the special monitoring and interventions that they require.

Nurses, as primary bedside caregivers and in managerial roles, were in the perfect position to coordinate a plan of care for LPIs. Vested mother-baby and neonatal nurses collaborated with neonatologists, pediatricians, and lactation consultants to develop a clinical pathway with goals of improving clinical outcomes, decreasing morbidities and mortalities, and decreasing length of stay and admission rates at our facility.

Improving NICU Parent Perception Through Nurse Leader Rounds

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Stephanie Abbu, MSN, RN

MONROE CARELL JR CHILDREN'S HOSPITAL AT VANDERBILT
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Every year nearly 15 percent of babies born in the United States (about half a million) are admitted to the Neonatal Intensive Care Unit (NICU) for a variety of health conditions. The most common reason is prematurity (born before 37 weeks gestation). NICU admissions also include birth defects, breathing difficulties, and infections, among other factors.

Providing family-centered care and excellent patient care experiences is a priority for many NICUs, yet the challenge remains to create and sustain measurable success. Implementing nurse leader rounds is an evidenced-based practice with proven results. This poster examines a nurse leader rounding initiative in a 100-bed Level IV NICU within an academic medical center. The development of this initiative, as well as, its success and challenges will be explored. Results demonstrate the effective implementation of nurse leader rounds can improve parent perception of care, increase engagement of bedside nurses, and improve the perception of care reported in patient satisfaction survey results.

Nurse-Family Partnership in the NICU

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Deborah Reuss, RN

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THOMAS JEFFERSON UNIVERSITY HOSPITAL
PHILADELPHIA, Pennsylvania

The stress and overwhelming anxiety faced by families in the NICU is well-documented. The partnership between nurses and families of these fragile patients is essential. By refining our focus of care from primary nursing to primary room assignments, we engage families as partners by building relationships with them. We provide continuity of care and establish meaningful relationships. Providing a foundation of trust is essential in building confidence for their success in parenting after discharge.

Neo-BFHI Breastfeeding Pathway Project

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Pre-term and vulnerable infants greatly benefit from breastmilk due to its protective factors against incidences of respiratory tract and gastrointestinal infections and necrotizing enterocolitis (NANN, 2015). It is the priority of nurses to provide adequate education and support for all mothers expressing interest to breastfeed their infants. This project will use “the 10-step model of using human milk” developed by Dr. Diane Spatz, PhD, RN-BAC, FAAN to design a breastfeeding pathway for NICU nurses that will provide mothers and support partners with breastfeeding education, assistance with implementation of breastfeeding, and sustainability of mother’s milk supply. The project will include education on cue-based feedings, recognition of feeding distress signals, and the use of human milk for oral care. Using the Neo BFHI guided principles, staff attitudes toward the mother should focus on the mother and her situation, family-centered care supported by the environment and continuity of care from pregnancy to after infant’s discharge.

Making Great Strides with Tiny Feet: A Baby Friendly Experience

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MEMORIAL HERMANN MEMORIAL CITY MEDICAL CENTER
HOUSTON, TEXAS

Transforming a traditional postpartum unit with separate nursery into a single unit is not an easy task. It meant adopting a new name that focuses care on the mother and her newly delivered baby in a family-centered, more baby-friendly environment. It involved a change from one nurse taking care of the mother and another nurse taking care of the baby to only one nurse taking care of both. It introduced the concept of couplet nursing that required a paradigm shift in attitudes, knowledge and skills not only among the staff but including top administration, management and its rank and file. It challenged the medical and nursing staff as well as patients to shake off old ways and habits of having baby separated from the mother many times and at different hours of the day. It required lots of education, revision of policies and procedures, dissemination of multimedia information and a strong determination and political will to persevere despite opposition from those affected by the change. Now, the journey which started in 2012 is about to end with the hospital expecting a Baby-Friendly designation this year.

LEAN = Increased Couplet Time

Amber Frizzell, AD

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Suzanne Robinson, RN, BSN
MAURY REGIONAL MEDICAL CENTER
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The Baby Friendly Initiative recommends the evidence based practice of 24 hour per day rooming in for the mother and infant (couplet) to promote successful bonding and breastfeeding. To support this practice the Mother Baby Unit working with an interdisciplinary team (administration, nurses, and pediatricians) at Maury Regional Medical Center used LEAN methodology to re-examine couplet care. LEAN methodology improves the process by eliminating waste to create a stable standardized process (McManus, 2012). This was a nurse lead project beginning in the spring of 2016 as a collaboration of all stakeholders to evaluate the time frame associated with pediatrician rounds and length of time separation of mother and infant occurred. The poster will illustrate the use of the LEAN process to demonstrate how the change occurred from identification of the gap in practice to the steps taken to reach the change, and the end results. Outcomes seen as a result of this project are the decrease in the separation time of the couplet from 2-3hours/day to 30 minutes, improved teamwork between providers (nurses and physicians), increase in breast feeding rates (by 10 percent within 2 months post implementation) and increased patient satisfaction with couplet care.

So Happy Together: Collaborating to Promote Rooming in and Appropriate Evaluation of Sick Babies

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Evidence supports keeping mothers and newborns together during the hospital stay. Consistent with this evidence, the decision was made to close the traditional “well baby” nursery. However, this nursery also provided observation and care for newborns experiencing respiratory distress, hypoglycemia, and other complications. The question arose: Where would these babies go if there was no longer a nursery? A team of nurses and physicians from the Labor and Delivery, Mother Baby, and Neonatal Intensive Care units collaborated over several months to discuss mutual goals and develop a practice change plan. The plan included moving care to the bedside for stable late preterm infants, babies with low blood glucose not requiring IV therapy, and babies receiving antibiotics or phototherapy. This component of the practice change was initiated prior to the nursery closing. The end result of this group effort was an algorithm that defines resources and placement based on the newborn’s assessment. This collaboration has improved the partnership between units, while allowing babies to stay with their mothers unless medically necessary. This project illustrates a successful, interdisciplinary, multi-unit, effort to implement evidence based rooming-in for newborns and mothers in a community teaching hospital

Why Breast is Best

Anne Saiter, RNC-MNN, BSN
Stephanie Shore, RN, BSN
Christina Dlugos, RN, BSN, IBCLC
MERCY HOSPITAL
ST. LOUIS, MISSOURI

Mercy Hospital St. Louis is an 800 bed facility with approximately 9,000 births annually. Mother Baby Unit nurses are educated to teach our new mothers why breastfeeding the best choice for their newborn for the first year of life. We provide current knowledge, teachings, resources and support to our mothers so they feel confident when they leave our hospital. The American Academy of Pediatrics recommends breastfeeding for the first six months to one year of life. Our main goal is they can continue to exclusively breastfeed their infant during their hospital stay and at home. We want them to leave Mercy with the proper knowledge that will help them continue on with their breastfeeding journey. If our patient has successfully exclusively breastfed her infant during her entire stay at Mercy and leaves feeling excited to continue to nurse her baby, then we have done our job right! Our quality improvement goal is to increase the percent of breast fed babies who are exclusively fed breast milk.

Improving Mother-Baby Patient Experience of Hypoglycemic Newborns Through Use of Glucose Gel

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WAYNESBORO, PENNSYLVANIA

We are committed to evidence based practice and patient experience at our small rural hospital. Realizing that the leading cause of newborn separation from mother, disruption of exclusive breastfeeding, and admission to a higher level of care after birth is related to newborn hypoglycemia led us to explore the use of 40 percent glucose gel. After careful literature review we began implementing the use of glucose gel to hypoglycemic newborns with the goals of resolving the hypoglycemia and still provide a positive mother-baby experience. Administration of the gel allows for prompt stabilization of the newborn glucose level, is non-invasive, and cost effective as compared to intravenous glucose solution. This method increases maternal-child bonding by correcting the hypoglycemia promptly, supports exclusive breastfeeding while decreasing infant supplementation, reduces the risk of infection from intravenous infusion site, decreases maternal separation by having the newborn transferred to higher level of nursery care, and decreases length of stay, all of which contributes to a positive mother-baby experience.

Improvement in Time to First Pump for Breast Feeding Mothers of NICU Infants

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PENN MEDICINE CHESTER COUNTY HOSPITAL
WEST CHESTER, PENNSYLVANIA

Significance: Evidence shows that mothers who initiate pumping within four hours post delivery have increased breastmilk volumes. Increased breastmilk intake decreases length of stay and improves outcomes for NICU infants. Prior to this project, the average time to first pump for NICU mothers was 9 hours 24 minutes.

Purpose/Aim: To improve the average time to first pump for NICU mothers by having 80 percent of NICU mothers pump within four hours of delivery.

Method: The multidisciplinary team analyzed current processes and identified barriers. The Plan, Do, Study, Act framework was utilized. Prior to implementation 55 percent of staff surveyed thought it was important to initiate pumping early. New patient education materials were created. Education was disseminated to all staff.

Results/Interpretation: Since implementation of this project 60 infants were directly admitted to the NICU. The average time to first pump is 4 hours 1 minute and 68 percent of NICU mothers pumped within four hours. Following implementation 94 percent of nurses thought it was important to initiate pumping early.

Conclusion/Implications: This project has decreased the average time to first pump for our NICU mothers. The team will continue to monitor progress to ensure sustainability and increase the percentage of breastmilk our NICU infants receive.

Prevalence and Associated Symptoms of Dysphoric Milk Ejection Reflex: A Descriptive Study

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FT. Bragg, North Carolina

Introduction: Dysphoric Milk Ejection Reflex (D-MER) is an abrupt emotional response to milk let-down involving breastfeeding mothers. D-MER is characterized by an abrupt dysphoria, or negative emotions, that occur just before milk release and continuing not more than a few minutes. Literature on D-MER is limited and there is no published scholarly research.

Purpose: The purpose of this descriptive study is to determine the prevalence of D-MER and gather data regarding the experience of associated symptoms.

Methodology: This study will include a retrospective chart review of a screening question indicative of D-MER answered by breastfeeding mothers at their 6-8 week postpartum visit. Breastfeeding mothers will also be recruited to

complete a confidential 36-item online questionnaire regarding their experience as it relates to the current understanding of D-MER.

Results: Prevalence will be calculated using the number of breastfeeding mothers responding positively to experiencing D-MER over the total number of breastfeeding mothers within a 12-month period. The questionnaire findings will be descriptive.

Implications: Due to limited recognition by lactation professionals, nurses and obstetric providers, patients experiencing D-MER may have little to no support, leading to premature cessation of breastfeeding.

The Effectiveness of Kangaroo Care in the NICU

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Jeremiah Stecki, MSN, RNC-NIC, NNP

Katherine Johnson, MD

METHODIST CHILDREN'S HOSPITAL
SAN ANTONIO, TEXAS

Background: 78-bed neonatal intensive care unit's breastfeeding rates at discharge were falling below benchmark standard of ≥ 80 percent.

Purpose: The specific aim was to increase breastfeeding rates at discharge to a rate of ≥ 80 percent by June of 2016.

Methods: A plan, do, check, act, (PDCA) framework was used to guide this process improvement.

- **P:** Initiated a Kangaroo Care-A-Thon with a 1,000 hour goal to help parents and nurses increase their knowledge of the benefits of kangaroo care on breastfeeding.
- **D:** Baseline breastfeeding data was obtained from the Clinical Data Warehouse. Nurses were surveyed electronically to assess their knowledge of kangaroo care, and identify any barriers that prevent kangaroo care in the NICU.
- **C:** Nurses were not doing their best to encourage kangaroo care for various reasons. This created a barrier for some parents inhibiting them from doing kangaroo with their baby.
- **A:** Educated nurses and parents on the benefits of kangaroo care. Continuing to audit kangaroo care through Meditech charting and breastfeeding rates at discharge through Clinical Data Warehouse.

Results: Breastfeeding at discharge rate increased 9 percent. In March, the breastfeeding at discharge rate rose to 75 percent.

Conclusions: Kangaroo care has many positive benefits for the infant and mother. Improving knowledge and barriers to kangaroo care can make a difference in improving breastfeeding rates.

Initiating Early Skin-to-Skin for the Extremely Low Birth Weight Infant

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Studies investigating the timing of Skin-to-Skin Care (SSC) among Extremely Low Birth Weight Infants (ELBW), who are defined as infants $< 1,000$ g, are limited. The implementation of SSC for infants $< 1,000$ g has enhanced the production of breast milk (Blomqvist, Frolund, Rubertsson, & Nyqvist, 2013). The purpose of this study was to determine if increased promotion of SSC resulted in earlier implementation of SSC while enhancing availability of breast milk at discharge. For this study, early SSC was defined as ≤ 16 days of life (DOL).

Learner Objective: Timely application of SSC in the ELBW infant.

Methods: Retrospective chart reviews initiated in 2013 through the present. Interventions were developed to address barriers associated with early initiation of SSC.

Results: ELBW infants were twice as likely to still be receiving breast milk at discharge when early SSC is initiated ($p=0.002$). After conducting additional team member and parental education a larger percentage of eligible infants received early SSC.

Conclusions: There was prolonged breast milk production when early SSC is initiated for the ELBW infant. Effective interventions can be implemented to promote this activity; improve staff comfort level and reduce unintended extubations.

Skin-to-Skin Care in the Operating Room: Incorporating Evidence-Based Practice to Increase in-Hospital Exclusive Breastfeeding Rates

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UC DAVIS MEDICAL CENTER
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Abstract: Immediate skin-to-skin contact between mothers and newborns has been demonstrated to positively influence breastfeeding exclusivity and duration. It is a standard of care to provide skin-to-skin care to newborns delivered vaginally. Data showed newborns delivered via cesarean section had significantly lower in-hospital exclusive breastfeeding rates than those born vaginally. A nurse led quality improvement project using DMAIC model was developed to initiate skin-to-skin contact in the operating room. Staff voiced concerns about safety, temperature instability, and the availability of a nursery nurse who would remain in the operating room to specifically care for the newborn. These challenges were addressed with collaboration and teamwork.

A baseline was established with a sample size of 33 term neonates; 33 percent were exclusively breastfeeding at discharge. Subsequent chart reviews following implementation showed a two-fold increase in exclusive breastfeeding rates at discharge.

Improving the rates of exclusive breastfeeding has become a national health priority. Through an interdisciplinary collaborative model, the best practice of early skin-to-skin care can be provided to neonates born via cesarean section. The benefits of breastfeeding to both mother and her newborn are well documented, and this practice can be successfully implemented by hospitals with little to no cost.

Skin-to-Skin in the OR: A Family Centered Cesarean

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LEWISVILLE, Texas

Learner Objective: To determine if keeping new mothers and babies skin-to-skin following an uncomplicated full-term cesarean section would increase maternal satisfaction with her birth experience.

Background/Problem: A tradition of separation of mother and baby after cesarean birth persists in many hospitals. The evidence shows that keeping mother and newborn together after cesarean birth promotes family-centered care and increases satisfaction regarding the birth experience.

Evidence: Detailed review of the research located multiple evidence sources. Analysis of the evidence shows that keeping mother and newborn together after cesarean birth promotes family-centered care and increases satisfaction regarding the birth experience.

Intervention: The presenter implemented a process change for the uncomplicated, full-term cesarean delivery. Stable newborns greater than 37 weeks gestation with an Apgar score of at least 8 at five minutes of life, were placed on their mother's chest wearing a diaper and hat. Newborns were covered with warm blankets and remained skin-to-skin until completion of surgery.

Methods: Pre/Post survey questionnaire was used. A total of 42 mothers were surveyed prior to implementing the process change to evaluate their cesarean birth experience. Following project implementation, 32 mothers were asked the same survey questions.

Results: Keeping mother and baby together following an uncomplicated cesarean birth improves mother's birth experience. Pre-survey results revealed a 78 percent satisfaction score regarding the birth experience. Following project implementation, survey scores rose dramatically to a 98 percent.

Recommendation: The standard of care for the healthy full-term baby born via an uncomplicated cesarean section should be to be placed skin-to-skin as soon as possible following delivery. By making this standard practice, new families will experience a birth rather than just an operation.

Bringing the AAP Safe Sleep Recommendations into a Level III Neonatal Intensive Care Unit: Using Crib Audits to Define Readiness for Safe Sleep

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CINCINNATI, OHIO

Sudden infant death syndrome (SIDS) and sudden unexpected infant death (SUID) remains the leading cause of death in the postnatal period. Research has shown that premature and low birth weight infants have a higher risk of SIDS/SUID than term infants. In 2011, the AAP expanded its back to sleep recommendations to include a safe sleep environment and risk reduction education for all caregivers. Using the Iowa Model of Evidence-Based Practice to Promote Quality Care (1998) as a framework, a quality improvement program was designed for the staff to increase the percentage of 'safe sleep ready' infants sleeping in a safe environment in a level III NICU. However, following a review of the literature, we determined that there is conflicting data regarding readiness for safe sleep in premature infants (weeks gestation, current weight in grams, use of oxygen). We decided that in order to move forward with the planned intervention, we first needed to define what "readiness for safe sleep" looks like in our level III NICU. Through systematic crib auditing and surveillance in a run chart, safe sleep readiness was defined and clinical practice guidelines were built based on the findings.

Safe Sleep in the Hospital Setting: Pediatric Teaching Service Physician and Nursing Collaborative

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GREENSBORO, NORTH CAROLINA

Background: At our Institution, Mother-Baby Unit and Pediatrics Unit did not ideally model the American Academy of Pediatrics safe sleep recommendations of 2011. There is a great deal of evidence suggesting that parents model physician and nursing behaviors that they observe in the hospital. Unsafe sleeping practices highly correlate with SIDS, which is still the number one cause of infant mortality in children aged between 1 month and 1 year of age. Problems occur when doctors or nursing staff is uninformed about safe sleeping practices or chose not to comply with them with their patients.

Project Scope: This poster represents a nursing and provider educational initiative about infant safe sleep practices in the hospital setting. We hypothesize that a formal program for staff education, patient education and introduction of a Safe Sleep Policy for infants <1 year of age will reduce the number of unsafe sleep practices by 50 percent by the winter of 2015. Pre/post intervention data was collected using a crib audit tool.

Results: With provider and nursing staff education, safe sleep policy initiation, introduction of a crib card and a program for patient education, unsafe sleep infractions were reduced by 50 percent. "Safe Sleep Model of Excellence Hospital" status was obtained.

Stuck On You: Skin to Skin as a Standard of Care for Newborns in the OR/PACU

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Objective: Incorporate best practices that will promote improved patient outcomes based in science and innovations, exemplifying creative fiscal boundaries.

Background: Uninterrupted Skin-to-Skin (STS) care involves the newborn being placed directly on the chest of the mother or significant other immediately after delivery remaining there until transfer from the PACU. This practice is overwhelmingly supported in the literature and has become increasingly common following vaginal deliveries.

Purpose: To establish STS as standard of care for all newborns delivered via cesarean section. This goes counter to the traditional care of the newborn in the OR/PACU.

Outcomes/Implications: All involved were overwhelmingly supportive of the project and encouraged the continuation of the practice. This was the first hospital of its size to do this in the state and one of very few in the nation. We accomplished this major practice change by developing 3 phases of care, implementing one at a time. One discipline went up against the "sacred cows" of another discipline for the sake of best practice, patient satisfaction and common sense. Measurable outcomes include decreased admissions to NICU for hypoglycemia and decreased readmissions to Pediatrics for jaundice.

Road to Zero: Driving Outcomes for Neonates

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CHARLOTTE, NORTH CAROLINA

To address challenges neonatal nurses are faced with, focus groups were held to gain a better understanding of the unit culture, teammate engagement, and priority on clinical outcomes. The findings led to a nurse leader creating a unit vision to direct work and declare outcomes expected for the team. Key areas of focus were identified and 'Road to Zero' was created. 'Road to Zero' conceptualizes the importance of providing high, quality, safe care. Areas highlighted as expected outcomes are zero breast milk errors, zero central line infections, zero mislabeled lab specimens, and zero tolerance for inappropriate behavior. Using a visual of a road with signs, twists, and turns has helped "drive" and highlight initiatives towards improving clinical care for the neonatal population. Taskforces led by neonatal nurses have been developed to identify evidence based research and apply findings to daily practice. Clinical outcomes have improved, errors have been prevented, and teammates feel more empowered and involved in decision making and the unit has evolved into a positive, healthy work environment. This unit vision has been essential to move the team forward through inspiring teammates, creating comradery, and improving outcomes to prevent harm to neonates.

Where's My ETT? Reducing Unplanned Extubations in the NICU

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HOUSTON, TEXAS

Background: Unplanned extubations (UEs) are the fourth leading cause of harm in NICU's. At Texas Children's Hospital in FY 2015 our NICU had a UE rate of 3.3/100 ventilator days. We set a goal to decrease this to 2.64/100 ventilator days in FY 2016, giving us a 20 percent reduction.

Methods: Two novel concepts were developed and then placed into clinical practice. One was PACE this was introduced to replace the old mantra of "When in doubt, pull it out!" Our staff was asked to PACE (P_{osition} of ETT, A_{uscultation}, C_{hest rise}, E_{TCO}₂) themselves. The second concept was "Where is my ETT?" which correlated with the NRP ETT depth measurement of 6 + weight in kg. "Where" (W_{eight H}elps E_nsure R_{ight} E_{TT} depth) was developed in response to the fact that about 14 percent of our ETTs were related to ETT depth.

Results: To date we have exceeded our 20 percent reduction in UEs and continue to chase zero!

Conclusions: Our new concepts armed our staff at the bedside with information that could help safeguard their infant's ETT and gave a common language for the healthcare team.

Improved Patient Experience After Initiation of a Developmental Care Program in a Neonatal Care Intensive Unit

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Melissa Mancuso, PT, MS, CPST

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Background: Developmental Care involves providing an environment in the Neonatal Intensive Care Unit (NICU) that minimizes overstimulation of the infant, involving parents in the infant's care, and adapting care based on infant's behavioral state. Use of Developmental care concepts results in a trend toward improved growth, decreased need for respiratory support, decreased length of stay, and decreased hospital costs.

Problem: No formal developmental care program or education in NICU.

Interventions: Developed and introduced Developmental Care Program in 2012. Program included: interdisciplinary staff education, Developmental Specialist certification of 25 staff who are resource persons, developmental care rounds twice weekly on day/ night shift, developed developmental care posters, weekly Baby Care Classes, instituted cue-based feeding protocol and audits, developed pain committee, and completed research project.

Results: Change in unit culture to incorporate developmental care interventions in daily practice. An increase in skin to skin, an increase in infants breast feeding on discharge from NICU from 78 percent in Dec 2011 to 90 percent in 2015, implementation of quiet hours- 3A-5A and 3P-5P, improved pain management, and an increase in parental involvement.

Recommendations: Continue to re-inforce education; continue NICU Baby Care Classes, research project on effects of cue-based feeding protocol, increase parental education.

A Holistic Nursing Approach to the Education of Vulnerable Substance Exposed Mothers and Infants

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Increasing numbers of women are using narcotics and other addictive drugs in pregnancy. In Delaware a novel alternative to incarceration and separation is a program called New Expectations. Pregnant women entering the corrections system with drug issues can be sentenced to this group home for the duration of pregnancy, remaining there with their infant for up to six months. With an innovative program coordinated through the March of Dimes and the Delaware Healthy Mother and Infant Consortium, education and support was designed, refined with feedback, and offered weekly for the mothers and staff regarding maternal and infant needs. Information covers topics including neonatal abstinence syndrome, breastfeeding, safe sleep, abusive head trauma, normal infant development, when to call the doctor, nutrition, smoking cessation, financial education, home visiting nursing, and healthy relationships. Since inception just over one year ago, twenty-six women have come through the program with eleven completed and seven currently enrolled. Eight have been moved back to confinement. A perinatal nurse and a neonatal nurse practitioner facilitate the weekly offerings including tours of the NICU and NAS continuing care unit. Leveraging local March of Dimes connections, they act as liaisons bridging gaps in services for this vulnerable and underserved community.

Patterned Somatosensory Oral Stimulation in Very Preterm Infants Reduces Length of NICU Stay: Multicenter Randomized Controlled Trial

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Problem: Very preterm infants have delayed establishment of full oral feeding (FOF), a rate-limiting step for discharge, prolonging hospital stay.

Literature Review: Oro-sensory stimulation has been shown to improve preterm infants' feeding skills.

Methodology: We performed a multicenter randomized controlled trial in five centers, from 2011 to 2015, to evaluate the effect of standardized patterned somatosensory oral stimulation on transition to FOF and on length of stay (LOS) in very preterm infants. Preterm infants born between 26 0/7 and 30 6/7 weeks gestation were enrolled. The experimental group (n=109) received programmed patterned somatosensory oral stimulation via a pulsatile pacifier and the control group (n=101) received a non-pulsatile pacifier. Interventions were performed 3-4 times a day, for 10-14 days. Oral feeding was initiated and advanced based on a standardized feeding protocol.

Data Analysis: There was no significant difference in days to reach FOF (21 vs. 24, $p=0.1$) but significant difference in LOS (56 vs. 65, $p=0.03$) between experimental and control group.

Data Interpretation: This RCT shows that oral stimulation shortens LOS. The magnitude of reduction in LOS compared to FOF suggests that impact of entrainment is not limited to enhancing oral feeding but also in promoting developmental maturity in these infants.

Integrated Neonatal Intensive Care: Keeping Compromised Neonates with Moms

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Neonatal Intensive Care has evolved since its inception. Compromised babies initially received care in a designated area of the well-baby nursery. Those areas then evolved into large open bay units with rows of sick babies leaving no privacy for family or baby. Parents and then regulatory agency guidelines drove the change to individual rooms for NICU babies providing privacy and the beginnings of family centered care. Change is happening again. Babies requiring intensive care have historically been separated from their mothers. Fathers are in turmoil. Should they go be with their sick newborn or stay and provide support for mom? Integrated Neonatal Intensive Care is a care model that brings intensive care to the mother's delivery room so that there is no separation of mother and baby. It provides the same standard of care as a traditional NICU care model. LDRP rooms are transformed into a LDRPNICU room. The care model has been in continued development at Covenant Medical Center for over two years and more than 190 babies and mothers have remained together during baby's hospitalization.

Hiding in Plain Sight: A Case of Undiagnosed Hepatoblastoma in a Full Term Newborn

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Neonatal cancer is rare and causes remain unclear making the presentation and behavior of this diagnosis even more complex. Hepatoblastoma accounts for less than 1 percent of all pediatric cancers; however, it remains the most common liver tumor in newborns. With the advances of prenatal ultrasound technology, early/ prenatal detection is becoming more common, but this is not always the case. In the context of no known predisposition and a "normal" early ultrasound these newborns can be left undiagnosed. The diagnosis of hepatoblastoma can be extremely difficult postnatally due to the wide spectrum of presentations and physical exam findings during the neonatal course. The vulnerability of the population and the rapid advancement of the tumors make early physical exam findings paramount to identify these malignancies and facilitate early diagnosis. Identifying malignancies is a diagnostic challenge, as hepatoblastoma in the neonate differs substantially from cancers occurring later in childhood in terms of incidence, anatomical location, clinical features and treatment. This case will review hepatoblastoma in a full term neonate diagnosed postnatally. It will highlight the post-natal physical findings and recognition of these findings, diagnostic evaluation and management as well as discuss the specific diagnostic, therapeutic and ethical challenges of managing these newborns.

Recombinant Tissue Plasminogen Activator to Restore Catheter Patency: Efficacy and Safety Analysis from a Multi-hospital NICU System

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Study Design: In 2001 the US Food and Drug Administration approved recombinant tissue plasminogen activator (rTPA, alteplase, Cathflo Activase) to reestablish patency of central catheters. We conducted a retrospective quality improvement study to determine the value of this procedure in our NICUs.

Results: Alteplase was administered to 169 neonates, each given one to four doses, totaling 205 episodes. PICC lines were the most common type of catheter (78 percent), other lines included UVCs, arterial lines, and chest tubes. Postnatal age at first dose ranged from 0-132 days; dosed patients were 22 to 41 weeks gestation at birth. Fifty-eight percent of administrations restored catheter function. Success was more likely at younger postnatal age (10 ± 2 vs. 14 ± 1

days; $p=0.023$). Seventy-two percent of the re-canalized catheters remained functional until they were no longer needed. Nine percent of episodes were treated with a second dose for re-occlusion and 50 percent of those were successful. Bleeding consequences were identified in only one case where three separate lines were treated within a six-hour period. Costs of doses, minus savings to the system, averaged a net of \$34/dose.

Conclusions: The apparent safety and favorable value analysis prompted us to develop a consistent approach of Alteplase usage across our health care system.

Retinopathy of Prematurity and Oxygen Within Limits (OWL): Nursing Interventions in Very Low Birth Weight Infants

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Background: Retinopathy of prematurity (ROP) is a proliferative neovascular disorder of retinal vessel development that can lead to blindness. Most significant risk factors are prematurity and oxygen exposure. Research shows that limiting supplemental oxygen so that oxygen saturation is less than 95 percent decreases ROP. Maintaining oxygen saturation within limits is difficult with variable compliance.

Problem: 2012 – Oxygen within Limits Protocol (OWL) was established with oxygen saturation limits 85-97 percent for infants born $\leq 1,250$ g. 2015 audits showed 40 percent of time infants not within target range.

Interventions: Guidelines developed to maintain saturations 85-95 percent. Protocol reminders at morning/evening briefs. Visual aids developed: OWLs placed on bedside monitors, OWL reminder to set limits 85-95 percent when oxygen >21 percent placed on O₂ regulators, guidelines for regulating O₂ placed in patient rooms. Oxygen limits discussed on daily rounds, daily rounds to check compliance with limits on monitors instituted.

Results: Increased compliance-before intervention- 56 percent, 1 month after-74 percent, 6 months-100 percent. Infants spend significantly less time hyperoxic compared to infants with 97 percent upper limit (16.6 percent vs 32 percent, $p<0.0001$). Infants requiring laser surgery decreased 84 percent to 43 percent.

Recommendations: NICUs should establish oxygen saturation limits to prevent ROP. Implemented interventions increase compliance with OWL and decreases incidence of ROP.

Nurse-Controlled Analgesia in the NICU: A 10-Year Perspective

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There is no “gold standard” in neonatal pain assessment or treatment. Effective pain management in neonatal patients is challenging but essential, especially in post-operative patients. Challenges include accurate dosing and timely administration of medications. Also, neonates quickly build up tolerance to the dose and require more to maintain the same effect. Research has shown detrimental neurologic effects in neonates with increase cumulative dosing of fentanyl, it is presumed that is the same for other narcotics.

Patient, parent and nurse controlled methods of analgesia have been efficacious in adult and pediatric populations. This has not been reported in infants. We developed a “Nurse-Controlled Neonatal Analgesia” protocol using a programmable infusion pump to deliver continuous and bolus dosing of intravenous fentanyl in order to give the least amount while controlling post-operative pain. We did a pilot study and found few adverse events. We currently have 10 years of experience using the protocol in infants of all sizes post operatively. There are many positives for the infant, family, and nurses with the protocol and only the limitation of fluid that is a negative. This is a safe, efficient way to enhance postoperative pain control in the neonatal intensive care nurseries.

Identifying and Validating Early Calling Criteria to Mitigate Deterioration in the NICU

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Background: The non-availability of simple bedside calling criteria (CC) that proactively identifies infants at risk for profound deteriorations or escalated care events (ECE) in NICU, precludes coordinated action to rescue the infants from developing an ECE.

Aim: To develop and validate a list of bedside CC to identify infants at risk for ECE.

Method: A multidisciplinary team developed a consensus list of CC using RAND appropriateness method. The CC was then validated prospectively over 8 weeks. All staff received information on CC and ECE prior to the study. Frequency of events was collected by contacting staff during handover, reviewing charts and by following infants' course.

Results: Ten calling criteria for identifying 7 ECEs were developed and validated. Of the 170 infants receiving care in NICU, 41 percent manifested with CC and 17 percent with ECE. On 26 occasions (37 percent), CC was followed by an ECE within 72 hours. The median time interval between CC and ECE was 113 minutes. The sensitivity, specificity, positive predictive value and negative predictive value of CC in identifying an ECE were 0.96, 0.69, 0.37 and 0.99 respectively.

Implications: Simple bedside CC identifies ECE reliably in NICU, providing opportunity to proactively intervene to prevent or mitigate ECE's.

Implementing an Education Program to Increase Breastfeeding in Neonates Diagnosed with Neonatal Abstinence Syndrome

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Breastfeeding is considered safe for women in substance abuse treatment programs. Despite recommendations from professional medical organizations, breast-feeding rates in this population remain low due to lack of clear, consistent breastfeeding guidelines for mothers, inconsistent advice and inadequate support from healthcare providers.

Formal educational sessions were developed for pregnant women in a treatment program and healthcare providers in a Level III NICU to increase knowledge on breastfeeding and NAS. Pre and posttests were given to both groups to assess knowledge and attitude change.

A limited increase in mother's knowledge was demonstrated from pre to post intervention scores (mean score increase 4 percent). Of those who delivered, feeding choice was evenly divided between breast and formula feeding. A greater knowledge increase was noted for healthcare providers following education (mean score increase 65 percent).

Evidence demonstrates that mothers in treatment programs that breastfeed have increased bonding with their neonates, neonates experience decreased symptoms of NAS and decreased hospital stay. Structured education sessions can be helpful in increasing knowledge levels of healthcare providers and pregnant women. Future work should evaluate changes in breastfeeding rates and hospital length of stay as a result of increased knowledge in all settings that care for babies diagnosed with NAS.