Collaboration to Improve Neuroprotection and Neuropromotion in the NICU: A Quality Improvement Initiative

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Abstract

Implementation of neuroprotective and neuropromotive (NP^2) strategies is essential to optimize outcomes for premature infants. Developmental care, once an addition to medical care, is now recognized by the NICU team as foundational to support long-term neurodevelopment of micropremature infants. A group approach to education and sharing implementation processes can result in collaborative and individual center improvements. This article includes examples of quality improvement (QI) education and tools inspired by implementation of NP^2 strategies in a consortium of 11 NICUs in the United States and Canada. Process change guided by potentially better practices are key; however, consistency of application must be included to ensure success. Assessment of NP^2 practices via use of surveys and practice audits are described. Increases occurred in family NP^2 education and provision of support during painful experiences. There were also increases in skin-to-skin holding, 2-person caregiving, and focus on reducing unnecessary painful procedures.

Keywords: quality improvement; NICU; developmental care; neuroprotection; neuropromotion

Developmental care was once considered an adjunct to life-sustaining care in the NICU. However, over the past years there has been increasing recognition of the need to incorporate developmental care strategies in the NICU[1–5] due to limited measurable improvement in long-term neurodevelopmental outcomes for the smallest and most fragile infants reported in the literature.[6–9] The evidence supporting parent involvement in the NICU providing for the short- and long-term needs of preterm infants is growing;[10–15] however, how to implement these strategies remains a challenge for many NICUs.[1–5]

This article is the second of 2 publications outlining the need for, and implementation of, neuroprotective and neuropromotive (NP^2) quality improvement (QI) strategies in the NICU in support of micropremature babies. The first paper described neurosensory development and an educational approach to NP^2 including family integration within these practices.[16] This second manuscript will further describe the implementation of a QI initiative utilizing these practices with a collaborative group of NICUs, as well as the tools and outcomes used to assess the implementation of these strategies.

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QUALITY IMPROVEMENT COLLABORATIVE

The Vermont Oxford Network (VON), a nonprofit, voluntary, worldwide collaboration of NICUs dedicated to improving the quality, safety, and value of neonatal intensive care, is comprised of more than 1,300 member hospitals and offers the opportunity for QI through small-group collaboration. The pod is a group of VON-member NICUs working together as a homeroom group which includes health care professionals and NICU graduate parents. Their combined efforts focusing on micropremature infants have shown proven ability to achieve better outcomes through collaborative QI efforts.[17]

In 2014, the VON Micropremature Pod, which includes 11 NICUs from the United States and Canada, established the common goal of increasing survival without morbidity for "small babies" born prior to 26 weeks gestation; some of the units in the pod expanded this definition to include infants born prior to 28 weeks. Each center included a multidisciplinary team of NICU graduate family members, nurses, physicians, neonatal nurse practitioners (NNPs), respiratory therapists, physical therapists, occupational therapists, speech-language pathologists, and others. The pod met online monthly and in-person twice each year to share care practices and outcomes of QI initiatives. In the 2018–2019 collaborative, the Micropremature pod chose to expand their goal beyond survival without morbidity to a goal of thriving babies and thriving families. This new goal brought increased focus on supporting families, promoting neurodevelopment, and protecting the brains of extremely premature infants. An interdisciplinary, expert workgroup from the participating centers was established to provide the educational content and included 2 VON faculty members (a NNP/clinical nurse specialist and a mother of former NICU infants) and 5 certified neonatal therapists (3 physical therapists and 2 occupational therapists). Borrowing the name from one of the participating centers, the focus group became the NP^2 Workgroup.

The pod faculty and VON supported and encouraged the use of the QI process to facilitate incorporation of the educational information into practice change. Although the education was shared via collaborative experience, the work of changing clinical practice and unit culture was accomplished via individual centers and interdisciplinary teams. In order to support family integration within the QI process, each of the education webinars included a family story such as the one included here (SIDEBAR: Family Story, included at end of manuscript).

QUALITY IMPROVEMENT MEASURES

To assess the impact of NP^2 education and QI implementation, 3 measures were utilized: gap analysis, health care provider survey, and practice audit. While NP^2 interventions can be challenging to measure, these metrics provided a method for each NICU in the pod to assess the incorporation of strategies in support of infant development.

The pod centers received a toolkit with 8 core potentially better practices (PBP), each with 4 to 6 sub-PBPs.[18] Each pod center leadership team was asked to complete a PBP gap analysis as they began the VON 2018–2019 QI Collaborative. One of the PBPs focused on developmental care: *promote and reinforce encounters with the infant that are developmentally supportive and positive* (see Table 1). The PBP gap analyses for developmental care from each pod center were collated for a collaborative assessment prior to NP^2 webinars. Center leadership repeated the gap analysis after completion of education and any center specific QI initiatives during the 2-year collaborative (Table 2). Potential changes identified by pod center leadership teams following webinar education and center-specific NP2 QI strategies included an increase in providing parents education in developmentally supportive methods, utilizing strategies to support the infant during stressful or painful procedures, and reducing such procedures as able.

Whereas the gap analysis completed by the VON Pod leadership team reflects leadership impression of practice, center individual team members were also asked to self-report their own practice via a developmental care survey. Each NICU received their individual survey data to identify areas of focus for NP^2, and the aggregate pod data is presented in Table 3. The developmental care survey, which included 3 demographic questions and 20 developmental care practice questions, was completed by 813 interdisciplinary team members prior to the webinars and 370 post-education. The respondents reflected all disciplines working in the NICU, with dayshift representing 46 percent pre-education and 48 percent post-education, and nightshift representing 30 percent in each survey. Nursing represented 75 percent of the responses in both pre and post surveys.

Collaborative pod practices shifted toward more consistent implementation following the webinars and focus of the individual centers on NP^2 QI initiatives (Table 3). The most sizable change was an increase in 2-person caregiving, which has often been reported as a difficult process to implement. Another positive improvement was an increase in parental involvement, further supported by the gap analysis improvement of providing parental education in developmentally

TABLE 1 ■ Micro-Premature Infant Potentially Better Practice (PBP) #7

Promote and reinforce encounters with the infant that are developmentally supportive and positive
Reduce painful tissue-damaging procedures to a minimum for safe care
Minimize stressful procedures (defined as any handling that is not for the purposes of nurturing)
When painful or stressful procedures are necessary, utilize strategies that support the infant including containment, 2-person cares, and positive inputs
Make skin-to-skin with the parent the preferred locus of care for the infant
Educate parents in developmentally supportive methods

TABLE 2 ■ Potentially Better Practices (PBPs) Gap Analysis

Sub-PBP	Preintervention 9 NICUs May–August 2018	Postintervention 10 NICUs January–February 2020
Reduce painful tissue-damaging procedures to a minimum for safe care	55%	70%
Minimize stressful procedures (defined as any handling that is not for the purpose of nurturing)	56%	60%
When painful or stressful procedures are necessary, utilize strategies that support the infant including containment and 2-person cares and positive inputs	55%	80%
Make skin-to-skin with the parent the preferred locus of care for the infant	0	20%
Educate parents in developmentally supportive methods	55%	100%

Note. PBP: Promote and reinforce encounters with the infant that are developmentally supportive and positive. Each PBP was scored as: Not Practiced, Practiced Rarely, Practiced Inconsistently, Often Practiced, or Consistently Practiced. Above results combine scores for Often Practiced and Consistently Practiced.

TABLE 3 ■ Pod NP² Survey

Survey Question	Preintervention 11 NICUs, *n* = 813 September–October 2018	Postintervention 8 NICUs, *n* = 370 January–February 2020
Provide containment with diaper changes, temperature, and other caregiving activities	84%	90%
Involve parents in supporting their infant during painful procedures (hand hugging, skin-to-skin, use of breastmilk, covering eyes from bright light)	81%	91%
Anticipate, prioritize, and support individual care to minimize stress by utilizing flexion, containment, and non-nutritive sucking; providing "time-outs" as needed based on infant's motor or physiologic stress cues	84%	90%
Utilize 2 people during caregiving (2-person caregiving)	67%	84%
Positive oral experiences are provided (providing drops of breastmilk with oral care, skin-to-skin with nuzzling at breast)	83%	89%
Softly talk to infant before touching, touch before moving, and when moving, move slowly	73%	81%
Document interventions to support neuroprotection and neuroprotion in the EMR/EHR	64%	71%

Note. Partial questions from NP² Survey, n = number of individual staff respondents. Participants were asked to complete the survey regarding the neuroprotective and neuropromotive processes as to "how you yourself deliver care." Choices of answers were: Not Practiced, Practiced Rarely, Practiced Inconsistently, Often Practiced, or Consistently Practiced. Above results combine scores for Often Practiced and Consistently Practiced.

supportive methods (Table 2). Family engagement in care as well as in QI is a core tenet in VON collaboratives.[19]

Finally, monthly audits of selected NP² strategies from the education presented to the pod allowed real-time assessment of incorporation of these practices into each member NICU (Table 4). These practice audits were an important QI tool allowing each unit to assess if perceived practice change was truly occurring. For each audit, centers were asked to assess practice via record review, for a specific 24-hour period, and record the number of patients meeting audit criteria. Center response rates varied by audit, with one audit receiving responses from only 5 centers responding and other audits receiving responses from all 11 centers. The monthly pod-day audit questions were developed to coincide with the specific NP² education provided each month.

Collaborative results are shared in Table 4; however, the benefit of the audit for each center was to assess their individual practice. Sharing the results among the collaborative provided community learning and an opportunity to compare and contrast data and practice with other centers. For example, in examining the skin breaks audit, some centers did not require "routine" bedside glucose monitoring, while others required it up to every 12 hours. Some centers did not order "routine" blood gases, while others appeared to have daily or more frequent routines, yet these same centers may not require "routine" bedside glucose. The information from this audit alone provided a powerful reflection into the number of stressful and painful experiences for babies in the NICU as well as potential opportunities for practice change. The audits also demonstrated as a collaborative that with increased focus on skin-to-skin and proper documentation of this intervention, the rate of preterm infants being held by a family member improved from 30% to 57%.

TABLE 4 ■ Pod-Day Audits

NP² Practice	Measures	Results
Skin-to-skin holding, at least 1 hour in 24 hours (February 2019) Centers = 8; Infants = 105	Skin-to-skin	30%
Eye protection provided (April 2019) Centers = 6; Infants = 42	Incubator covers Eyes covered Lights off/dimmed Cycled lighting protocol	100% 43% 88% 60%
Number of skin breaks (June 2019) "Routine" or scheduled (R) Change in condition (C) Centers = 12; Infants = 43	Labs CBG Bedside glucose	83% R 17% C 33% R 67% C 84% R 16% C
Skin-to-skin holding, at least 1 hour in 24 hours [we asked for greater detail] (July 2019) Centers = 9; Infants = 80 (Infants may also have been held skin-to-skin)	None <1 hour 1 hour >1 hour or >1 time Held, not skin-to-skin TOTAL skin-to-skin ≥1 hour	45% 0% 10% 31% 16% 41%
Parents provide comfort during care or assessments (September 2019) Centers = 5; Infants = 25	None Once Twice 3 times >4 times	40% 32% 16% 4% 8%
Parental presence at the bedside (October 2019) Centers = 11; Infants = 73	None < 1 hour 1–3 hours >3 hours <6 hours >6 hours	20% 15% 32% 18% 15%

Utilizing all 3 methods: leadership assessment, self-reporting, and practice audits, offered the teams essential information in support of their QI efforts to improve NP² practices. Surveying individual team members shared important feedback about culture and context of caregiving, and auditing provided real-time practice information. Unfortunately, auditing practice has taken on a negative connotation in healthcare and often team members are concerned that it is punitive, so much so that frequently other terminology is substituted for "audit." As QI is a sequential, dynamic process of clinical practice change, measurement of implementation (audits) must be included in the process.[20]

APPLICATION OF NP² STRATEGIES IN PRACTICE IN INDIVIDUAL UNITS

Each unit in the pod adopted QI projects based on their survey results and prioritized areas for improvement in developmental care. Examples from 3 of the pod NICUs are shared below.

2-Person Caregiving

One of the strategies outlined in the education modules provided to the pod was use of routine, 2-person caregiving in support of preterm infant regulation.[21] This practice can be challenging to implement as it requires 2 caregivers to be at the bedside, one of whom provides containment of the infant in flexion while the other provides needed interventions. One of the member units undertook this practice by first developing a workflow with role delineation and listing the recommended order to provide care. The workflow was followed by education of the interdisciplinary team on the importance of providing containment with all hands-on caregiving, such as diaper changes and respiratory equipment changes. While staff in this unit were initially concerned about the availability of other team members to accommodate the need for 2 caregivers at the bedside, they quickly reported seeing improvement in infant physiologic and behavioral responses utilizing this practice. In this unit, depending on the care needed, 2-person care can be provided with a nurse and respiratory therapist, neonatal occupational or physical therapist, nurse practitioner, and most of all with a parent as the second caregiver as much as possible. This NICU has now adopted 2-person caregiving as a cultural norm. The team also identified increased parent engagement in these activities and improved satisfaction. Challenges to implementation aside, the pod team surveys showed an increase in the utilization of 2-person caregiving by 17 percent during the collaborative (Table 3).

Skin-to-Skin Holding

Provision of skin-to-skin was explained throughout the education modules as the ideal method to protect and promote neurodevelopment. Some of the pod centers shared their positive experiences with standing transfers, which minimize infant stress and movement as the parent holds the baby during the transfer. One of the pod member centers identified an opportunity to consistently provide standing transfers

with skin-to-skin holding for intubated infants, as parents often remarked that their opportunity to provide skin-to-skin holding was dependent on the particular bedside nurse. The NP² education reinforced the benefits of skin-to-skin holding and supported the QI initiative.[22] During discussion with an interdisciplinary team of nurses, neonatologists, respiratory therapists, lactation consultants, and parents, it was identified that staff lacked confidence and skill to facilitate skin-to-skin with intubated neonates due to fear of unplanned extubation. An aim was set to increase NICU staff comfort with standing skin-to-skin transfers with ventilated neonates from 42 percent to 52.5 percent, a 25 percent improvement, and a survey was used to assess staff comfort before and after the training.

Utilizing Plan-Do-Study-Act (PDSA) methodology, NICU staff simulation training of standing transfers for skin-to-skin care with a ventilated patient was conducted and a flowchart was drafted (Figure 1). This flowchart was tested, revised, and finalized, and a guideline was developed. Standing transfer simulation was then trialed with a small group of NICU staff and feedback on the training was provided. Additional steps regarding communication with parents during transfers were added to the guideline and simulation training was implemented with the entire NICU staff, giving opportunity to identify important components of successful standing transfers such as the need to arrange equipment based on the room configuration. Participating staff verbalized and noted in their surveys the need for coordinated teamwork to make the process successful.

Based on a unit survey conducted before and after training, the center aiming to increase skin-to-skin with intubated patients saw an increase from 30 percent presimulation to 68 percent postsimulation in ensuring skin-to-skin transfers minimized stress and promoted safety for infant, parents, and staff. The survey also demonstrated an increase from 20 percent to 58 percent in staff responding they would consistently provide opportunities for skin-to-skin holding for as long and as frequently as possible. Furthermore, consistently educating parents on the benefits of skin-to-skin increased from 40 percent to 65 percent. Finally, the center's aim to increase NICU staff comfort with skin-to-skin standing transfers with ventilated neonates to 52.5 percent was far surpassed with an increase to 80.6 percent, an improvement of 92 percent, which demonstrated the alleviation of staff fear about unintended extubation. While there was no change in the rate of unintended extubation, staff did report increased comfort in assisting families with standing transfers following simulation training.

Nurturing Encounters

Prior to the NP² education, another of the pod centers self-reported successfully reducing their rate of severe intraventricular hemorrhage (IVH) among inborn small babies from 20.9 percent to 12.8 percent via implementing neuroprotective strategies. The NP² education illuminated evidence demonstrating an increase in the prevalence of mental health and behavioral disorders among surviving babies born at less than 26 weeks,[23] and inspired a workgroup in this center to investigate ways of positively impacting neurodevelopment by increasing nurturing encounters (NE). Nurturing encounters NE is an umbrella term that refers to all positive encounters with the baby that are outside of stressful or painful care activities. Some examples include, but are not limited to, skin-to-skin, hand hugs, talking, singing, and reading. These can be performed by any caregiver including nurses, physicians, NNPs, neonatal occupational or physical therapists, respiratory therapists, and most advantageously, parents. This center, which had become proficient at reducing IVH with neuroprotective practices, saw the need to expand their focus to include neuropromotive strategies designed to maximize positive neurosensory experiences appropriate for each neonate's developmental stage.

The center hypothesized that by increasing NE through a series of PDSA cycles while continuing to provide neuroprotective strategies, they would decrease rates of severe IVH and optimize neuronal connectivity in the micropremature brain. The baseline average of NE documented was 6.4 hours per small baby in the first 2 weeks after birth, which this unit saw as a clear indication improvement was needed. An aim was established to increase the amount of NE experienced by micropremature infants within the first 2 weeks of life by 15 percent by December 2021.

Neuroprotection and neuropromotion NP² strategies from the pod educational webinars were shared with staff in this unit through a lecture series known as Small Talks. These sessions included presentations by graduate families regarding the impact skin-to-skin and other nurturing activities had on them throughout their NICU stay and postdischarge. Bedside information sessions for staff were also provided to reach more team members and answer questions directly. Progress was evaluated after each education session, and immediate improvement was seen.

The first PDSA cycles focused on improving the location and consistency of NE documentation so they could be accurately measured, and the first step included the development of a neuropromotion policy and a standardized documentation tool. Developing the tool required several smaller PDSA cycles as usability and compliance were evaluated. The NE Log was designed (Figure 2) to standardize documentation; use of a paper tool with pictures and words was intentional to surmount language barriers and an example of NE documentation was provided to ensure consistency.

Families were educated and encouraged to use the NE Log by bedside staff and the family support specialists. Parents indicated they appreciated the ability to document their own NE. Following standardization of documentation, staff education was developed and implemented. Post-education audits showed immediate improvement as an average of 12.4 hours of NE per small baby were documented in the first 2 weeks after birth.

The paper NE Log was ultimately found to be unsustainable and clear feedback from team members indicated electronic

FIGURE 1 ■ Standing Transfer flowchart.

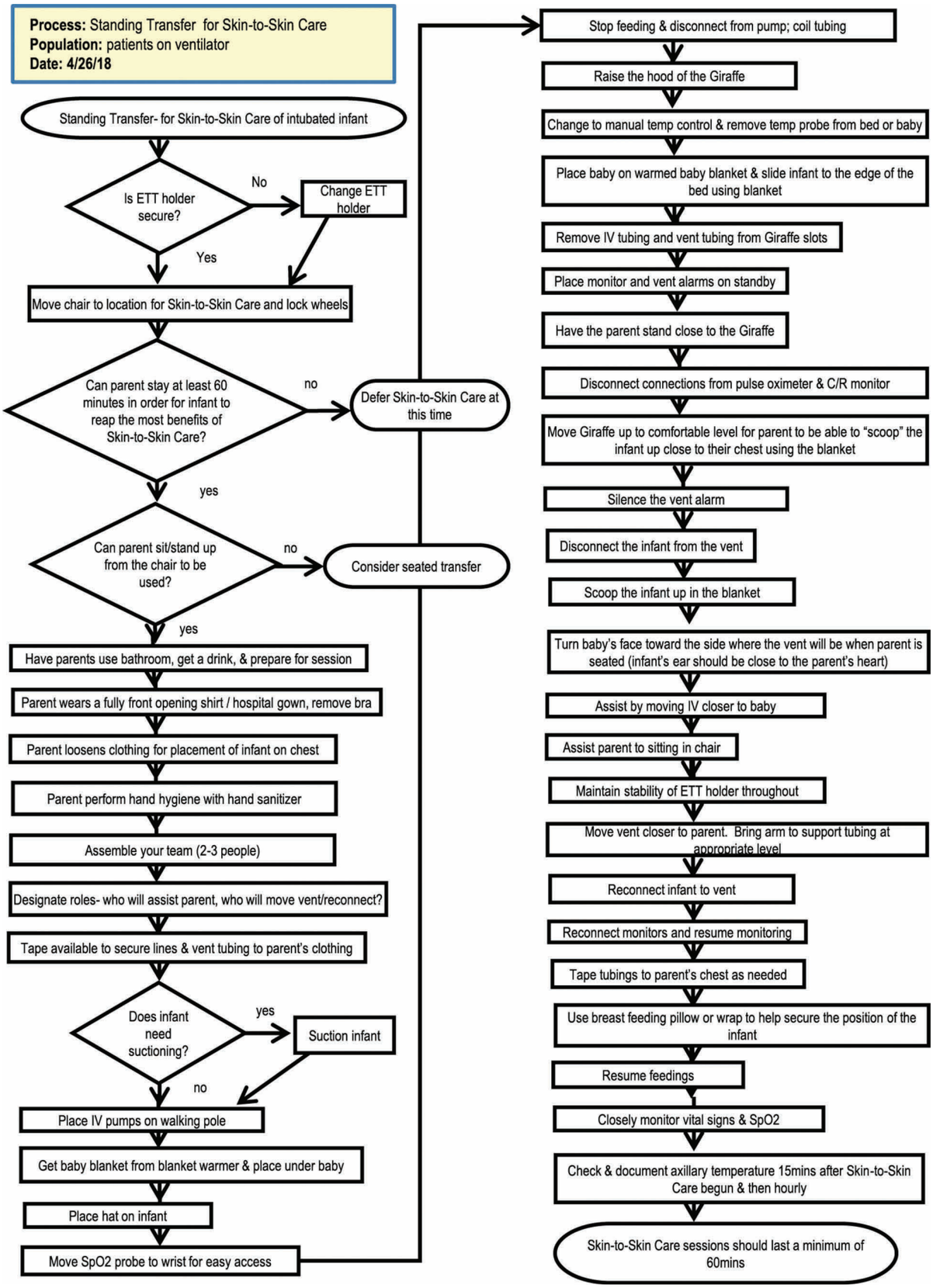

FIGURE 2 ■ Nurturing encounters log.

Nurturing Encounters Log

Parents, Cuddlers, Care providers – Please record all positive touch interactions. Place a check mark in column of the type of positive encounter.
Nurses – Please record the total amount of positive touch in a 24 hour period (00:00-23:59) as a note in Metavision. E.g. – total amount of positive touch for January 12th = 125 minutes.

Date, Time	How long in minutes	Hand Hug 	Kangaroo Care 	Cuddle 	Reading, Singing, Talking 	Other	Who?
Dec 3, 2019	20 mins	✓			✓		RN

documentation was required. The electronic medical record (EMR) was updated to reflect the standardized method of documenting NE; however, the paper tool remains available to parents and families to document their own NE, ensuring greater accuracy in capturing the total number of NE minutes experienced by small babies.

The final PDSA cycle, intended to increase the total minutes of NE, is still underway, and the current focus remains on micropremature infants, those born <26 weeks, in the first 2 weeks after birth. The team will continue to quantify accurate NE experiences while providing ongoing education and promotion. Audits will be used to measure consistency of practice and documentation, and evaluate outcomes including the longer-term effects on neurodevelopment and mental health.

LESSONS LEARNED

Quality improvement projects in the NICU can seem daunting, but as the examples in this paper demonstrate, intentional and collaborative efforts can be implemented at the bedside with favorable and lasting results for babies, families, and staff. Via individual center and collaborative QI efforts, the pod centers have reduced major morbidities known to impact long-term outcomes for this vulnerable population.[17] Unfortunately, NP² practices are not as easy to measure as morbidities and documentation of these practices is often scarce or incomplete in the neonatal medical record. However, this should not be taken to indicate that these practices are less valuable than those which are more easily measured and documented, an unfortunate and frequent assumption in health care. Neonatal health care providers understand the future impact of retinopathy on a child, but less so the potential social and mental health implications of unsupportive or stressful care in the NICU. Indeed, every interaction in the NICU becomes important when the potential long-term consequences of developmental care, or the lack thereof, are considered. This paper thus illuminates methods via which the incorporation of NP² strategies can be assessed in the NICU while allowing comparison of the potential discrepancies between surveyed, self-reported behaviors and audited, observed behaviors. Future studies which examine the effect of NP² measures on preterm infant outcomes would be beneficial.

Limitations with the collaborative QI work described herein include a challenge for all care providers at member NICUs to easily watch the NP² educational webinars. Centers continue to share this education within their units; however, the webinars are hosted on an online learning management system, which can be difficult for individual team members to access from a hospital setting due to video streaming and web security issues. Additionally, the need for EMR documentation in support of evidence-based NP² practices was a common theme voiced by participating NICUs. Without the documented occurrence of NP² interventions, they can be exceedingly difficult to measure and report and the ability to associate practices with improved outcomes will remain a challenge.

CONCLUSION

Incorporation of NP² strategies in the NICU is imperative, as is measurement of the effectiveness of caregiver education and QI. While there are numerous challenges in implementing unit-wide education and change, by identifying select strategies and then assessing their incorporation into NICU care, improvements in the quality of NICU care become more easily attainable.

Finally, this manuscript serves as a solid example of a QI collaborative in describing the assessment of unit knowledge and practice before and after education regarding NP² via individual survey, gap analysis by unit leadership, auditing of actual unit practice, and providing specific examples of implementing NP² strategies which can be replicated in other NICUs.

FAMILY STORY

Karen and Andrew were newlyweds enjoying a healthy and uneventful first pregnancy when her membranes ruptured prematurely, landing her in the hospital on bed rest. A week later an acquired infection led to fetal distress, and their daughter was born at 25 weeks via emergency cesarean section. Karen and Andrew felt overwhelmed by the shock of preterm birth, terror for their baby's life, anxiety due to their lack of control over what was happening, and the wholly unfamiliar setting of the NICU.

Initially afraid to even touch their ventilated 700 g daughter, repeated demonstrations of hand-hugs and consistent encouragement around the importance of skin-to-skin holding from bedside nurses helped them overcome their anxiety, and starting at a week of age, they would go on to hold their baby daily for the remainder of her hospital stay. Karen and Andrew took to heart any direction from staff, and their NICU's culture of supporting parental involvement was key to engaging them as hands-on team members. They were a daily presence at the bedside, holding their daughter skin-to-skin, providing care, pumping milk, talking and singing to her, and learning about prematurity, the NICU, and what to expect once home.

Enrollment in a Family Integrated Care study was a further boost to their parental involvement and helped validate their importance as team members. Education and support from the study coordinator helped Karen eventually give daily reports at morning rounds and helped both parents take on even more care for their daughter. While in the NICU, providing hands-on care was very beneficial as it allowed them to gain confidence as parents and express their love for their daughter. Like all NICU families, they wanted to support their baby's development and dreamed of the day they could bring her home, and skin-to-skin holding, providing breast milk, and comforting their baby during stressful procedures were all specific actions they could take toward those goals. It was psychologically important for the family to do things for their baby when the situation generally made them feel helpless.

After 109 days in the NICU, Karen and Andrew were able to bring their daughter home, not just as a proud mom and dad but as parents experienced and comfortable with caring for her. That familiarity and attachment helped bridge the gap between the traumas of the medical journey they experienced as compared to parents with a more typical pregnancy experience. After their long NICU stay, they felt confident in caring for their baby because they understood her needs and how to meet them.

Families cannot see brain development in real time, and so must take it on faith that their actions to support neurodevelopment are beneficial and worthwhile. Karen and Andrew's daughter is a happy 7-year-old, meeting developmental milestones, and thriving at school. Those who don't know her medical history wouldn't guess that she was born far earlier than full term. Less obviously, their daughter exhibits characteristics common to former micropremature babies, such as difficulty self-regulating emotions and behavior, tactile defensiveness, and hyperactivity.[18] While considered minor morbidities, the associated challenging behaviors, such as frequent tantrums over seemingly small things, make day-to-day family life more demanding and difficult. When this feels overwhelming, Karen and Andrew find comfort in knowing they did everything suggested in the NICU to foster their daughter's neurodevelopment. Karen is now serving as a family support specialist in the NICU where her daughter was cared for and is able to support other parents and families on their journeys.

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About the Authors

Kati Knudsen, PT, MPT, CNT, PCS, DCS, CLE, is a physical therapist and certified neonatal therapist who has practiced in the NICU for more than 2 decades. She has earned numerous certifications to help improve NICU and follow-up care.

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Mindy Morris, C-ELBW DNP, NNP-BC, CNS, is a nurse practitioner who spent decades at the bedside prior to expanding her reach through evidence-based education as co-founder of Engage-Grow-Thrive, LLC. She continues to support quality improvement in NICUs throughout the world through her work with the Vermont Oxford Network.

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Main Conference Sessions

NEONATAL PROGRAM

Thursday September 9

General Sessions
- Quality Improvement in Neonatal Care
- Artificial Placenta
- Neonatal Infections

Breakout Sessions
- Diagnosing Neonatal Sepsis
- To Beat or Not to Beat: Perinatal Case Studies
- Case Studies Highlighting Fluid and Electrolyte Management in the NICU Patient
- Core Quality Improvement Methods
- The Neuro Alphabet Soup in the NICU
- Seen but Not Heard: Dynamics, Assessment and Interventions in Intimate Partner Violence

Friday, September 10

General Sessions
- Congenital Diaphragmatic Hernia
- Antibiotic Stewardship in Neonatal Care
- Neurodevelopmental Outcomes After a Diet of Donor Milk in Preterm Infants

Breakout Sessions
- Ethics in the NICU
- NRP 8th Edition: Breaking New Ground
- Newborn Transition to Extrauterine Life
- Podium Presentations
- Necrotizing Enterocolitis
- Back to Basics: Neonatal X-Ray Interpretation
- HIE Update

AP PROGRAM

Thursday September 9

General Sessions
- Quality Improvement in Neonatal Care
- Artificial Placenta
- Neonatal Infections
- Small Baby Successes
- ECMO 101

Friday, September 10

General Sessions
- Diagnosing and Management Hypotension
- How Cool is That? Celebrating Hypothermia for HIE at 21
- Transcatheter Device Closure of the PDA in the ELBW Infant: How and When to Treat

Breakout Sessions
- Twists, Turns and Telehealth on the Road to End NEC
- Medical Management of PDA
- Podium Presentations

Saturday, September 11

Combined Sessions–all programs

General Sessions
- The Future of Nursing Practice
- ESCape from Neonatal Abstinence Syndrome Using Eat, Sleep, Console
- Demystifying Provider Well-Being: What Does it REALLY Mean to be Resilient?

MOTHER BABY PROGRAM

Thursday September 9

General Sessions
- COVID 19 and Pregnancy: Lessons from the Frontline
- Compassion Fatigue
- Safely Reducing Primary Cesarean Births

Breakout Sessions
- OB Drills: Using Simulation to Improve Perinatal Care
- Seen But Not Heard: Intimate Partner Violence
- Glucose Gel and Hypoglycemia Management in the Newborn
- Diabetes in Pregnancy
- What We Have Right…and Wrong…about Newborn Jaundice
- Podium Presentations

Friday, September 10

General Sessions
- Innovations to Improve Maternal Outcomes
- Maternal Sepsis: Identification and Management
- When Work Hurts: Workplace Violence

Breakout Sessions
- Hypertension Disorders in Pregnancy
- Newborn Assessment for New Nurses
- Implementation of Eat, Sleep, Console for NAS in a Mother Baby Unit
- Fetal Heart Rate Monitoring Update
- Postpartum Depression and Psychosis
- Newborn Transition to Extrauterine Life

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