

NIDCAP Federation International (NFI)

Founded in 2001, the NFI is an international, non-profit membership organization. The NFI encourages the implementation of developmental care and assures the quality of the Newborn Individualized Developmental Care and Assessment Program (NIDCAP) approach in all intensive, special care and newborn nurseries around the world. The NFI serves as the authoritative leader for research, development, and dissemination of NIDCAP, and for the certification of trainers, healthcare professionals, and nurseries in the NIDCAP approach.

“We are continually faced with great opportunities which are brilliantly disguised as unsolvable problems.”

MARGRET MEAD

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The NIDCAP Federation International: Who are We?

This was presented on the first day of our 26th Annual NIDCAP Trainers Meeting by our NFI President gretchen Lawhon

In the beginning there was a psychologist who was very determined to understand the premature infant in order to ease his transition to extra uterine life, proactively avoid the iatrogenic effects of the intensive care environment and enhance long-term outcome and quality of life. All of this within the context of the very challenging environmental onslaught to the developing brain and with respect and acknowledgment of the parents who struggled to know and to nurture their son or daughter. This psychologist collaborated with nurses, physicians and therapists and developed the



In 1991, we held our Second Annual NIDCAP Trainers Meeting held in Estes Park, Colorado.

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NIDCAP Trainers Meeting Abstract and Presentation Edition

Dear Readers,

Beginning with this edition and all future Winter/Spring editions of the *Developmental Observer*, we will be publishing abstracts and presentations that were delivered at the most recent NIDCAP Trainers Meeting, as well as related scientific articles. In this edition, we have published eight abstracts and three presentations that were shared with the participants at the 26th Annual NIDCAP Trainers Meeting in Chandler, Arizona, hosted by the St. Joseph's NIDCAP Training Center, Phoenix, Arizona, October 17-20, 2015.

In addition, all past (2007-present) and future editions of the *Developmental Observer*, will be archived at the IUScholarWorks, Indiana University (IU). IUScholarWorks is supported by the IU Libraries and the IU Digital Library Program, a collaborative effort of the IU Libraries and University Information Technology Services.

Please enjoy reading this first abstract edition of the *Developmental Observer*.

Developmentally yours,
The Editors
Developmental Observer



Families are their baby's most important lifelong nurturers.

Newborn Individualized Developmental Care and Assessment Program (NIDCAP). By 1990 there were half a dozen NIDCAP Training Centers and we began to come together every year to enrich our knowledge, ensure the quality of our work and support one another.

An example of this support is a message a fellow NFI member sent me as I prepared to come to our 26th Annual NIDCAP Trainers meeting.

*Oh, how we worry about: the sanctity and precision of a first breath and the lifespan it determines,
Shaping the peace and comfort of the inevitable last breath;
However and whenever it comes on that East wind,
That first experience of mother and child,
And bringing meaning and serenity, in a storm of technology and strife,
How to marshal our very own empathy, and to deal with the pain we will always feel,
What can happen to our humanity, when we carry the weight for others, can it break us?
No.
We have found the others: those who show us their courage,*

*So in our darkest times we may find our courage again,
We have the compassionate symbiosis to support the weight others carry and yet have our burdens lightened by them as well,
All of us working for a compassionate, cognitive clarity of caregiving;
That truly transcends race religion and international boundaries for the youngest of humans,
It is a planetary will for human caregiving now.
Like a catalyst in this human reaction,
Will we be consumed carrying the weight for these tiny souls?
No.
We refuse to be overwhelmed,
So, stop.
Close your eyes,
Take in a thankful breath,
Breathe out a courageous one,
You are not alone, we all carry your weight,
So...with love and compassion, begin again,
Begin again...and again....and again.*

—John Chappel

The NFI is a most amazing professional organization that represents 29 different countries including: Argentina, Australia, Austria, Belgium, Canada, Chile, China, Denmark, England, France, Germany, Iran, Ireland, Israel, Italy, Japan, Korea, Lebanon, Mexico, the Netherlands, Norway, Portugal, Saudi Arabia, Spain, Sweden, Taiwan, Thailand, the United Kingdom, and the United States of America. In addition to the global presence, the NFI includes many different disciplines such as administrators, assistant nurses, child life specialists, counselors, developmental specialists, educators, family members, lactation consultants, midwives, nurses, nurse practitioners, nurse scientists, neonatologists, Newborn Intensive Care Nurseries (NICN) directors, nutritionists, occupational therapists, parents, physical therapists, psychologists, psychiatrists, pediatricians, professors, researchers, respiratory therapists, speech therapists and volunteers. All of us come together as members of the NFI with the purpose and goal of ensuring that one day all infants and families in intensive and special care nurseries will receive individualized and supportive

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Contributions

We would like to thank all of our individual donors for their generous support of the NFI and its continuing work.

family centered care so that they may enjoy optimal health and developmental outcome.

As a professional organization we strive to work together, to collaborate and to support one another in this shared goal. Our members represent many different roles and levels of sophistication in our efforts to achieve our shared mission. In Japan, a highly respected physical therapist and professor works tirelessly beyond his academic duties to bring NIDCAP education to his country. He coordinated efforts and fundraising to successfully support the training and certification of thirteen NIDCAP Professionals from six different hospitals and now is strategizing on creating and establishing a NIDCAP training center.

There is another physical therapist in Atlanta, Georgia in the U.S.A. who, as an individual sought out NIDCAP training, became a NIDCAP Professional, and is becoming an APIB (Assessment of Preterm Infant Behavior) Professional. She continually provides excellent care with infants and families while trying to influence her hospital system to change and become more supportive.

A young woman from Jordan came to the United States of America to pursue higher education. She has recognized the value of NIDCAP and managed to build the training into her doctoral program. She returned to her native country as a nurse scientist and NIDCAP Professional dedicated to integrate NIDCAP into the basic nursing education in her university.

A neonatal fellow working in a newborn intensive care nursery of a NIDCAP center chooses to enhance his medical education by becoming a NIDCAP Professional.

A middle-aged nurse who is a lactation consultant in a NIDCAP certified nursery decides that the synactive theory can guide her dissertation research on breastfeeding readiness in the premature infant.

A nurse hears about the opportunity in her hospital to learn a new approach to care for infants and decides to become a NIDCAP Trainee. Before completing her own training she decides she would like to become a NIDCAP Trainer and contin-



Fátima Clemente, MD (Portugal) and Graciela Basso, MD, PhD (Argentina).

ues to progress to a Master NIDCAP Trainer in Training.

A speech therapist works as a key leadership team member and supports NIDCAP implementation in her unit including the complete creation of a new environment and, more importantly, the written philosophy of NIDCAP so embedded that it is part of the interviewing and hiring process for that unit.

A young man worked in early intervention and wanted to become more involved in the newborn intensive care unit. He attended national developmental conferences and learned of the NIDCAP program. He travelled across the country and became NIDCAP certified. Within a few years he successfully obtained federal grant funding to bring together neonatal professionals with early intervention community professionals and designed synactive theory education with two arms of training; NIDCAP for the NICU professionals. At least a dozen newborn intensive care units around the United States received NIDCAP training and education with one unit progressing to a NIDCAP training center.

A neonatal nurse attended several different conferences on developmental care. She travelled a great distance to another country to learn NIDCAP and for a number of years, struggled as a staff nurse now acutely aware of the missed opportunities for infants, and families in her unit. Following several years of single handedly advocating for change in practice to include NIDCAP this nurse traveled again to another country and met with the President of the NFI to arrange NIDCAP training in her own unit. With her full support and organization, as well as translation services three additional nurses and a physician became NIDCAP Professionals. She and her physician colleague gradually worked to bring their unit to become NIDCAP certified. Both of them have become APIB Professionals and are currently working as NIDCAP Trainers in Training within their NIDCAP Center in development.

A seven year old child desperately wants to be a nurse when she grows up. Two years later she is given charge of her newest baby sister and provides most of her care including late night bottle feedings. At twenty-six she becomes an overeducated and inexperienced NICU nurse when she meets a psychologist. They begin a now thirty-five year relationship in which this nurse



Karolinska NIDCAP Training and Research Center team: Agneta Kleberg, RN, PhD, Bjorn Westrup, MD, PhD and Anna-Karin Asp, RN, BSN.



Ita Litmanovitz, MD offers NIDCAP family support at Meir Medical Center, Kfar Saba, Israel.

becomes the first NIDCAP educated nurse and then the second NIDCAP Trainer. She is then so fascinated and fueled by her NIDCAP work, both in the NICU and in training others that she became a clinical nurse scientist. She established a new NIDCAP Center and later supported nursery certification in another NIDCAP Center unit. By the time she was sixty years old she became the President of the NFI with all of its privilege, honor, challenges, responsibilities and opportunities.

In these examples showing the faces of the NFI we see and appreciate the variety of ways in which one can play a part in achieving our mission to promote the advancement of the philosophy and science of NIDCAP care and to assure the quality of NIDCAP education, training and certification for professionals and hospital systems.

Since our incorporation as a nonprofit organization in 2001, the NFI has served as the authoritative leader for research, development and dissemination of NIDCAP. The NFI envisions a global society in which all hospitalized newborns and their families receive care and assessment in the evidence based NIDCAP model, which supports development, minimizes stress, is individualized and uses a relationship based family integrated approach. As a member of the NFI one can have a voice in discussions on our list serve. We support one another with helpful sharing and information and advice. NFI members are encouraged to be more active participants in our professional organization.

The NFI has four major committees, each chaired by a member of the Board of Directors. NFI members are welcome to join committees and actively support the professional organization with time, talent and energy. The Program Committee ensures the quality and further development and growth of all programmatic aspects of the NFI as the key professional training, certification, education and scientific advancement organization that works on behalf of the best development of all newborns and their families in hospital settings and the professionals engaged in their care.

Our Finance Committee is to advise and oversee the overall financial operation of the NFI. The NFI Advancement Com-

mittee is to develop strategies and activities to gain resources and public awareness to support the mission, goals and work of the NFI. The Governance Committee advises and oversees the Board's activities and policies.

The NIDCAP Nursery Assessment and Certification Program recognizes the excellence of a hospital nursery's commitment to and integration of the principles of NIDCAP for infants, families and staff. NIDCAP Nursery Certification is the culmination of NIDCAP best practice exemplified.

Currently our Board of Directors consists of our founder, an additional three Master NIDCAP Trainers, two Senior NIDCAP Trainers, two additional NIDCAP Professionals, our treasurer, a fundraiser and a family member. The NFI has two half time consultants; the Director of the NNACP and the Financial Operations and Administration Director. Our membership includes two honorary members, four emeritus members, nine family members, fifty student members and one-hundred eighty-seven professional members.

The NFI is an amazing professional organization made up of outstanding individuals who mentor caregivers, change hospitals and improve the future for newborns and their families. We are the voice of the newborn. Because we are all so influenced by the Synactive Theory and the philosophy of NIDCAP we are able to view one another from the perspective of emerging competence. We additionally are embedded in and appreciate the value of relationships. We understand the importance of our environmental context. We strive to build a cohesive global perspective and identity as we progress in achieving our shared goal.

The NFI: who are we? We are the NFI. We have challenges. We have responsibilities. We have opportunities. We are changing the future for infants, families, staff and ourselves.



The NIDCAP team at "NIDCAP Germany, NIDCAP Training Center Tübingen." Front row, left to right: Ina Hübner, RN; Natalie Broghammer, RN; Heidelise Als, PhD; Clivia Langer, Dipl. Psych.; Rebekka Bauer, RN; Back Row: l to r: Birgit Holzbüter, MD; Christian Poets, MD; and Annette Poets, MD.

The Karolinska Experience

Stina Klemming, Agneta Kleberg, Björn Westrup, Ann-Sofi Ingman



Pairing skillful medical care with attuned nurturance.

The most vulnerable patients in our health care system are probably the ill term newborn and the prematurely born infant, due to central nervous systems in rapid development and consequently immature systems for autonomic control and stress regulation.

The multidisciplinary based care philosophy called developmentally supportive care has evolved along with the ever-increasing success in treating severely ill or extremely premature born infants. With increasing survival comes the subsequent growing attention to long-term medical and mental health, as well as the neurobehavioral and social functioning. Neonatology has developed to hold a holistic perspective, where high-technology medicine and pharmaceutical treatments are integrated with general caregiving, taking into consideration the research findings from the social and neurobehavioral sciences.

NIDCAP is the only infant and family centered developmentally supportive intervention designed to be implemented right from the moment of birth. It is also unique compared with other programs by incorporating a systems perspective in the care of the infant and its family. This includes the environment around the infant, the organization and design of the nursery and of the hospital.¹

A key concept for all effective intervention is the ability of parents and staff to read and understand the behavior of the immature infant, in order to individualize support and facilitate co-regulation between caregivers and infant. This is the basis of an attuned and sensitive interaction.² Optimally, there is a sensitive and responsive parent-infant interaction, a co-regulation, between child and caregiver to organize the child's control of bodily functions, and an ability to manage primary emotions and to

maintain focus and attention with the social environment—primarily the parents. By improving co-regulatory competencies as well as providing the environmental and task activities that the infant expects and can handle, the intervention program enhances the infants' information processing and abilities to explore. In concert with supportive actions to maintain autonomic stability, the objective of developmentally supportive care is also to create conditions under which the brain can mature, create and maintain adequate neuronal connections between different parts of the brain and consequently develop mechanisms for more complicated human functions such as stress regulation and ability of social interaction.³

From a neurobiological developmental perspective it is therefore logical to implement interventions ultra-early—from the moment of birth—and throughout the hospital stay as proposed by NIDCAP. Multidisciplinary developmentally supportive interventions during the hospital stay, as well as after discharge, are important means to address these challenges.^{2, 4} The interventions seem to play the most evident role among the infants at “double risk,” i.e., infants that have experienced medical complications during the neonatal period and/or are born into socially less privileged families.^{5, 6, 7, 8} These interventions have shown to improve brain development and positively affect the cognitive and psychomotor development of the infant.³ From an economic perspective it is very important that, by providing a comprehensive developmental care program or facilities for parents to live in the nursery, the length of stay has been reported to be reduced. It has also been demonstrated that developmentally supportive interventions are more cost-effective the earlier they are initiated.^{9, 10, 11, 12}

For more than twenty years the Department of Neonatology at The Karolinska University Hospital has used NIDCAP as a philosophy of care and as a primary program for infant- and family-centered developmentally supportive care. We have gradually increased the presence and participation of parents in the care of their babies.

Parents are the primary caregivers, with individualized and attuned support from staff. The staff are the facilitators of co-regulation, attachment and bonding instead of “doers.”

The Karolinska neonatology department consists of three separate NICUs (level IIb, III and IV). We have approximately 17000 deliveries annually and 10% of these infants are admitted



Parents are the primary caregivers, with individualized and attuned support from NICU staff.

to one of our neonatal wards. One at a time, we have reconstructed our nurseries. In 2016, all three units will be specially designed for infant- and family-centered individualized developmentally supportive care, with family rooms, couplet care rooms and family areas in the special nursery and intensive care units. The family rooms are designed as hotel rooms with a shower and bathroom. The NICU rooms are also designed for family-centered care. However, we do not have single rooms during the most acute phase, but multipurpose rooms for three to four infants. This ensures that staff are present all the time and that infants always are under visual monitoring and cared for instantly whenever needed. Parents receive on-going, individualized support and encouragement as they care for their infant. No baby is left alone and nursing staff can support parents and infants easily and promptly. The atmosphere in the NICU is calm, low keyed and pleasant for infants, parents and staff. The environment and the bedding around the child are tailored to the individual needs of the infant and comfort for the parents. Depending on level of care, every nurse cares for two to six infants and their parents.

Couplet care is an emerging concept of newborn care that provides rooms for parents to live in the nursery with their infants throughout the entire hospitalization, by coupling the care of the infant with the care of the newly delivered mother, with medical needs of her own. Over the years it has become clear that the engagement of the families as primary caregivers from the very start is important. The parental engagement plays a crucial role in effectively implementing all the categories of developmental care mentioned above. When introducing couplet care, it is very important to appropriately adjust the design and structure of the nursery. Moreover, it is essential to build structures for a close collaboration with the obstetrics department since they have the medical responsibility for the mothers in the nursery, including mothers with more advanced conditions such as pre-eclampsia, hypertension, infections, diabetes etc.¹³

The psychological bonding of the parents to the infant, the infant's attachment to the parents, and subsequently their

capability to adequately interact with each other, are of equal importance for the future health of both infant and parents.³ This developing parent-infant relationship begins at pregnancy and may be interrupted by the premature birth or the unexpected illness of a term infant. This developing relationship may be negatively affected by the crisis reaction of the parents as the infant is admitted to the nursery. The behavior of a prematurely born or sick infant is different from that of a healthy full term baby as its

The Art of Helping

“If one is truly to succeed in leading a person to a specific place, one must first and foremost take care to find him where he is and begin there...”

—SØREN KIERKEGAARD
Danish philosopher
(1813-1855)

behavioral cues are weaker and often more difficult to interpret and adequately respond to. This may further complicate parent-infant interaction.^{14,15} Therefore, it is important to organize care that will minimize the separation of parents and infant, and help to facilitate the ever evolving parent-infant relationship.

For twenty years, the Karolinska Neonatal Department has an established early discharge program that enables us to care for patients in the family's own home. Approximately half of our patients, at any given moment, are in the early discharge program. Most infants can be discharged to home-care when they reach approximately 34-35 weeks of postmenstrual age. Discharge is guided by an individualized medical evaluation; when an infant is stable in autonomic functions and care can continue safely at home (we do not have a strict age or weight limit that determines discharge readiness). Breastfeeding is the primary way of feeding and therefore many babies continue to be fed with a nasogastric tube parallel to breastfeeding close to term age. We have a high incidence of breast feeding for both term and preterm babies.¹¹

Karolinska University Hospital is engaged in global health and infant survival for very low birth weight babies (VLBW). Since 2014, we have instituted a scientific program to stabilize infants from week 28+0 using immediate skin-to-skin care. This project is run in collaboration with countries in Africa and Asia with the objective to lower mortality in VLBW babies. At Karolinska, parents care for their baby skin-to-skin (Kangaroo Care), for an average of eight hours a day. Babies have the right to receive support and comfort from their parents whenever undergoing unpleasant procedures. We strive to involve parents to support their baby whenever the baby needs to undergo a potentially stressful procedure.

Infant- and family-centered, developmentally supportive care recognizes that the newborn infant is a human being in his



Hospital care for the entire family.

or her own right, and supports health professionals to be guided by the current needs of the individual infant and family. This makes good biological sense and is ethically sound.¹⁶

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NIDCAP Care in the Moment



Family supporting their baby during medical care

State of the Science: Feeding the Fragile Infant

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Feeding is a developmental milestone for infants in the Neonatal Intensive Care Unit (NICU) – both for those born prematurely, and for those born with medical morbidities. Despite advances in medical care, the average post-menstrual age for attainment of full oral feedings in infants born prematurely continues to be in the 36th week for healthy infant born over 29 weeks PMA, and in the 37th week for those born before 29 weeks PMA.¹ Infants born prematurely who have medical comorbidities are typically achieving this milestone in the 37th to 39th week PMA.¹ Therapeutic interventions that are primarily motor-based with the goal of decreasing the age of full oral feedings have not been successful.

Unfortunately, despite this lack of evidence these motor-based programs are widely in use. What differentiates motor-based interventions from feeding programs that are based upon a more holistic approach is that motor-based interventions are targeting rate of oral intake, transition time from initiation to full oral feeding, and length of stay; quality is not typically a main objective of these studies. Additionally, post-discharge outcomes are not currently available for any of these interventions. The lack of post-discharge data is concerning, given the high prevalence of feeding and growth problems in children born pre-term.²⁻⁴

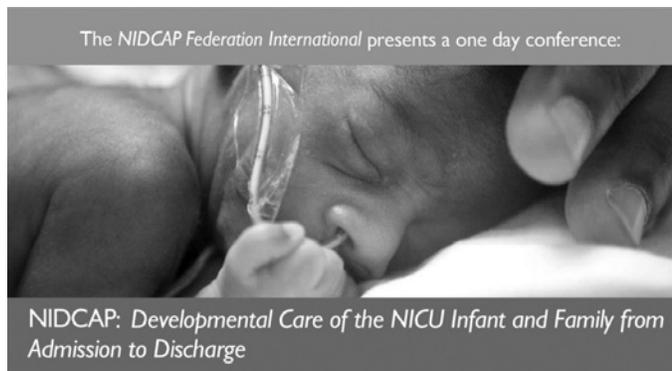
Infant-led feedings have begun to emerge, with some promising data. Initially, “cue-based” feedings focused on initiating feedings based upon infant readiness behaviors.⁵ More recently, infant-led feeding programs have been developed.^{6,7} These differ in that they focus on observing a variety of infant behaviors, typically across the channels of communication described in the Synactive Theory of Newborn Behavioral Organization and

Development.⁸ The role of the feeder as a co-regulator is also increasingly appreciated, as is the importance of the parent being the primary feeder. Feeding requires an ongoing attention and response to the behavior of the infant, with support of regulation being a primary focus. In addition, breastfeeding is finally being recognized as the gold-standard for infant-led feedings. As such, myths about breastfeeding in the NICU setting are being refuted using good quality research.⁹ As feeding interventions change focus from a “volume-driven” to “infant- and family-focused” perspective, hopefully feeding outcomes post-discharge will also improve.

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The NIDCAP Federation International Presents a One Day Conference



NIDCAP: Developmental care for NICU infants and families from admission through discharge

April 29, 2016, 8:00-4:30 PM
Abington Hospital — Jefferson Health
Abington, Pennsylvania

Continuing Education Credits offered to Nursing, Occupational and Speech-Language Therapy, and Psychology.

For meeting details and registration please visit www.nidcap.org

A Pilot Study: Randomized Clinical Trial: Kangaroo Care Extubation

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Introduction

The prognosis of premature children is associated, partly, to successful early extubation. To achieve early extubation, infants should be in the best possible condition. There is proven evidence that Kangaroo Care (KC) reduces stress in preterm infants and therefore could increase the success of an extubation carried out in Kangaroo Care.

The hypothesis of this work is that KC extubation does not generate more reintubation rate and can reduce the stress of the infant at the time of extubation.

Objective

Assess the feasibility and safety of extubation versus conventional method KC incubator.

Material and Methods

Pilot Study. Randomized clinical trial. The study was conducted during the months of November and December 2014.

Eligible infants included those born between ≤ 1500 g and/or < 32 gestational age who required mechanical ventilation. Infants whose parents agreed to participate in the study were previously randomized into two groups: KC extubation and conventional extubation. All infants were given doses of caffeine prior to extubation and the same action protocol was followed. Information about oxygen saturation and heart rate were collected.

Results

During this period there were 17 eligible infants. Twelve parents agreed to have their infant included in the study and were randomized. Two cases were excluded after randomization as the parents were not present at the time of extubation.

Finally, out of the 10 cases analyzed, five were extubated during KC (average gestational age 29.07 ± 1.8 and average weight 948.29 ± 250.48) and five inside the incubator (average gestational age of 28, 27 ± 1.8 and average weight 948.43 ± 181.72).

Reintubation rate in the first 24 hours was 0% in both groups. 60% of the patients extubated through KC needed FiO_2 post-extubation in the first hour, and 80% of those extubated conventionally. The heart rate decreased 0.4% after extubation through KC compared with an increase of 5.9% in the incubator extubation.

Conclusions

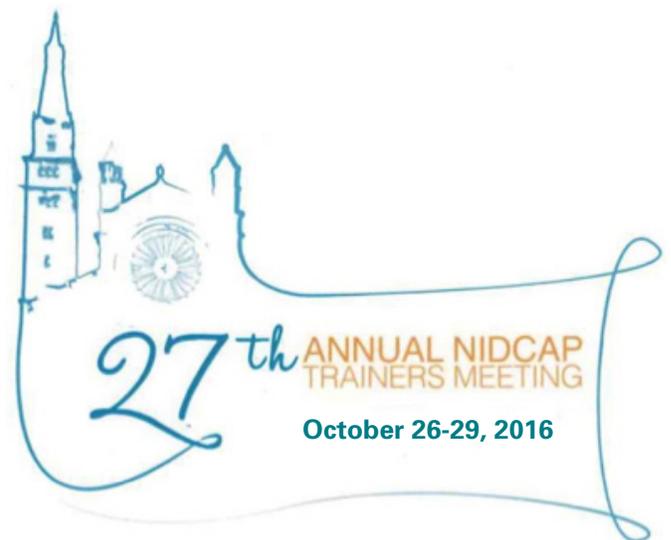
It appears that Kangaroo Care extubation is feasible and does not increase the risk for the infant. It appears that KC could provide greater comfort. This data will be the starting point for a clinical trial that will include a larger, multi-center sample design.

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Training Center*

Utilizing a Primary Care Model of Nursing during a NIDCAP Advanced Practicum: Does it Make a Difference? One Patient's Experience.

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Key Words: Primary Care Model, Developmental Care, NICU

Background

Premature infants, and infants with congenital defects, represent a fragile and vulnerable patient population whose survival is largely dependent on the provision of expert holistic nursing care.¹ The delivery of care in the Newborn Intensive Care Nursery (NICN) relies on a number of factors among which are staff experience, education levels and staffing ratios. Systems of nursing care delivery have historically evolved based upon economic issues (great depression), political issues (wars), a change in social consciousness (1960's & 1970's) and a move towards healthcare as a business model.²

Primary Nursing Care Model's emerged in the 1960's with a focus on a one to one, patient and family centred relationship that promotes continuity of care.³ It was viewed as means by which consistent care could be applied in the clinical setting with autonomy from the nurse to plan, organize, implement, coordinate and evaluate care in collaboration with the patients and their families.² Consistency of nursing caregivers utilizing a primary care model in one study served as a powerful mediator of length of stay, and duration of mechanical ventilation, supplemental oxygen therapy and parenteral nutrition.¹

Within the context of NIDCAP, the use of nursing care delivery models that promote collaboration, communication and continuity of care, appears to support the achievement of individualized development goals. During the implementation of the NIDCAP Advanced Practicum (AP), the direct observation of the infant's interactions with their caregivers provided an opportunity to review the infant's responses in a setting of familiar (primary care team members) and unfamiliar (non-primary care team members) caregivers. A comparison of the infants' responses to differing models of care was undertaken.

Objectives

The objectives of this session were:

- To demonstrate the benefits of a primary care nursing model within a NIDCAP Advanced Practicum;
- To review the difference in responses to individualized care from an infant's perspective; and
- Demonstrate how a primary care model of care improves nursing practice and direct patient care.

Approach

Prior to the initiation of the NIDCAP AP, a primary care team was established. A description of the AP process was sent to members of the multidisciplinary team explaining the AP method and the work required as a member of the primary care team. Twenty two registered nurses were recruited to the team that included managers, lactation specialists, nurse practitioners, clinical consultants and clinical nurse specialists. Two neonatologists, a surgeon, physiotherapist, occupational therapist and speech therapist formed the remaining team members.

During the NIDCAP AP, primary care team members were provided with a weekly email update to identify the infant's goals and strategies that supported self-regulation. Over time the email evolved to include photographs, as it was felt this was more powerful in demonstrating the individualized approach and responses for this infant. Copies of the email updates were placed at the infant's bedside in a colorful NIDCAP folder for members of the non-primary care team to have access to this information.

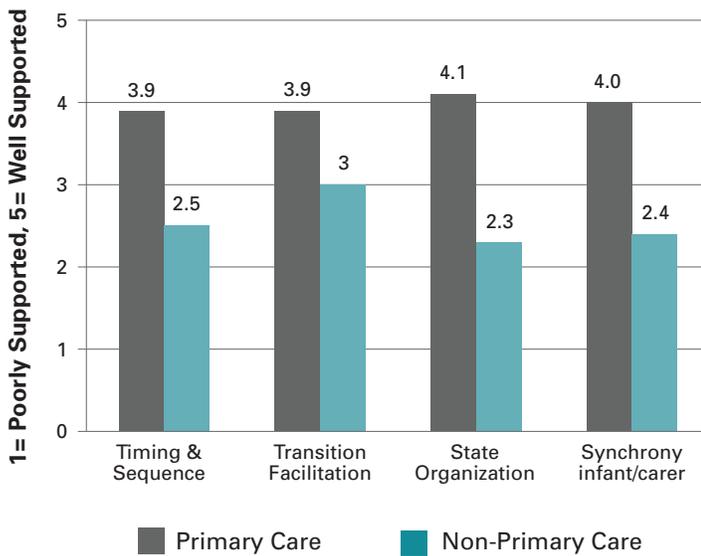
Sixteen behavioral observations were undertaken in the clinical setting, one approximately each week over a four month period. The infant was observed during caregiving which included endotracheal suctioning, being weighed, diaper changes, x-rays and feeding episodes. Instances of patient care were scored on the Profile of Care Components template against a criterion five point Likert scale, with specific aspects of direct infant care that were compared between the primary care team and non-primary care team models.

The results are summarised on page 8, scores indicate a mean result.

Sixty-two percent of the caregiving interactions were provided by members of the primary care team that consisted of nurses, family members and an allocated ward grandmother. Differences between the infant's responses to care which were provided by primary care team and non-primary care team members, were observed across all areas. Increased sensitivity in supporting the infant in an individualized manner, based on their current and emerging developmental goals, was observed during interactions with the primary care team.

Conclusion

In this instance, care of the infant by members of an assigned primary care team was more likely to be in tune with the infant's needs, responses and capabilities. The results of this presentation could be used by clinical settings to explore models of care to support newborns with complex needs in the NICN.



The use of a primary care model has been recommended to the units' governing multidisciplinary councils. We are currently exploring ways to incorporate the model within expected long term admissions.

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The Transport of the Newborn in Skin-To-Skin with the Father from the Delivery Room to the NICU is Safe

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Introduction

The transfer of the newborn from the delivery room to the NICU requires an experienced medical team and usually a transport incubator. Since 2003, a NIDCAP family-centered care approach has been implemented at the Children's Hospital in Toulouse, France. The Neonatology and Pediatric Transport team (SAMU) and the Neonatology team worked together and proposed medical guidelines to transfer the sick or premature newborn in skin-to-skin with the father instead of using the transport incubator.

Objectives

To evaluate the feasibility and safety of the transport of the newborn in skin-to-skin with the father from the Delivery room to the NICU.

Material and Methods

A prospective observational pilot study was performed from June 2014 to August 2014. Newborn babies > 32 weeks and > 1000 grams clinically stable and born at the maternity hospital level III of Toulouse were included. Physiological and comfort parameters (DAN score) of the newborns were collected during the transfer. A questionnaire to parents and caregivers was also collected and analyzed.

Results

Seven newborns were included. There were no incidents during the transfer. Heart rate, respiratory parameters and temperature were stable. Pain evaluation (DAN score) showed a complete absence of discomfort. All parents enjoyed this transport and 6 out of 7 mothers thought that they felt less stress. The nursing and medical staff was positive and wanted to continue this experience.

Conclusion

We showed the feasibility to transfer the newborn in skin-to-skin with the father from the Delivery room to the NICU. The comfort of the newborn was maintained. The feelings of parents were positive. These guidelines are now implemented in Toulouse.

Parental Perception of Their Involvement in the Care of Their Children in French Newborn Units: A National Web-Based Survey

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Background

Newborn care units are technological environments designed to care for tiny and sick infants. In such situations, families struggle as they cope with parenting their infants, not feeling like real parents and hesitating to become involved in care. The extent and the perception of parents' engagement in care processes has not yet been assessed in France.

Objective

To describe parental perceptions concerning their participation in the care of their infant, hospitalized immediately at birth in a neonatal unit.

Design/Methods

An anonymous online survey was designed by a French national group of neonatal health care professionals and parents conducted between February and August 2014. The survey was intended for parents after their infant's hospital discharge. Thirteen items out of 220 concerning parental perception of their participation in care of their hospitalized infant were analyzed and are presented here.

Results

The questionnaire was completed by 1500 parents from 262

neonatal units all over France. The mean gestational age of the infants was 32 weeks and the mean birth weight was 1600 grams. Ninety-eight percent of the respondents were mothers. Most parents (85%) said that they were encouraged to participate in the care of their baby. Twenty percent of the respondents reported that they did not feel like a real parent and 15% felt judged by nurses. Concerning the first time they had taken part in the caring of their child, 15% described joy or pride, 33% anxiety, fear or sadness. Thirty percent of parents reported not to have given oral medication during the hospital stay although they considered themselves capable. Concerning skin-to-skin care, 20% reported having no information about its benefits, and 15% reported it had never been proposed during the hospital stay. Among the parents who had practiced skin-to-skin care, 30% described it as stressful and frightening, mostly because they felt lonely.

Conclusions

Results of this survey show that first time parents who take part in the caring of their hospitalized newborn felt it very stressful. Parents usually feel supported by health care providers but also judged or not often encouraged to do simple caregiving activities for which they felt capable. Skin-to-skin care remains inadequately offered and/or supported.

Is There a Place for Infant Massage within a Developmentally Supportive Framework of Care?

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Key Words: Massage, Infant Massage, NICN, developmental care

Background

Infant massage in the Newborn Intensive Care Nursery (NICN) remains one of the most researched interventions currently in practice. It has been studied in the NICN for over 35 years.

Current research has explored the benefits of massage in premature infants from a brain maturation perspective, attachment formations, weight gain, feeding tolerance, visual development, and short and long term outcomes perspective.^{1, 2, 3, 4, 5} Yet, the existing massage research that is implemented in an NICN setting, is methodologically limited (e.g., small sample sizes, differing research protocols and unclear operational definitions).

This limits the ability of current research findings to inform clinical practice.⁶

Why then does massage continue to be researched in the NICN population? In the premature infant the skin is considered a neurodevelopmental boundary with the stratum corneum, a smart material that interfaces between the brain and the external environment, due to shared embryological origins.⁷ Massage and touch in premature infants is viewed as a way of mediating the development of the central nervous system that would otherwise occur in utero. Massage is placed within a positive touch framework, a buffer between the routine caregiving touch provided by health care professionals and the NICN environment. Yet these fragile premature and high risk infants may react to touch with physiologic, motor and state compromise.⁸

We are left with a number of questions to consider when reviewing touch and massage:

- How much touch is too much or too little?
- What are the alternatives, and who should be providing the touch?
- Does parent led massage have a place in the NICN?

Objectives

- Explore the research driven impetus for infant massage in the NICN;
- Investigate how massage might be considered a component of developmental care, which is both an individualized and parent/family-focussed approach to care; and
- Describe how positive touch is implemented within a clinical practice framework from a unit and country perspective.

Approach

In early 2015, two NIDCAP certified registered nurses presented a proposal to the governing body of their NICN. This proposal recommended training in infant massage to explore its potential use in the NICN. The patient population identified to receive infant massage were long term NICN admissions and their families, as well as infants with gut motility issues following surgery. Following the completion of infant massage training and a broad review of the available literature, newborns with gut motility issues following surgery, were excluded due to potential patient risks.

Three families were invited to participate in a five week trial infant massage program; all accepted. The infants were all >44 weeks gestation when the program began. To participate in the program all infants were required to be at least six weeks post surgical intervention. Two infants were treated in the NICN for complex cardiac conditions, and one ex 27 week premature infant, with chronic lung disease and bowel resection from necrotizing enterocolitis (NEC). Sessions were conducted by the infant massage instructor with the family. Prior to beginning the program, all families were provided with information on how to introduce touch to their infants. Families were instructed on how to utilize touch and still-holding each day for one week.

They evaluated their infants' response to touch and met with the instructor to determine if their infant was ready to proceed with the five week course.

The program consisted of sessions that addressed: 1) infant behavioral cues, 2) still-holding and containment, 3) demonstration of strokes and techniques, and 4) specific modifications that were offered to their infant. The instructor utilized a demonstration doll throughout the sessions, never touching the infant to avoid interfering with the developing relationship between the infant and his/her parents. At the end of the five week program, parents reported they that they "learned to read his cues;" that the program was "adaptable to my individual baby's needs;" and "I learned how to read his facial cues and body language." All parents felt that the program had helped to increase their confidence in interacting with their infant.

The instructors noted that conducting the program required a large degree of flexibility and personal commitment in order to incorporate the program in their existing workload. They found they were frequently approached by members of the multi-disciplinary team and parents interested in learning about massage. Both instructors remain conflicted about the place for massage in the NICN. Within the context of this trial, parents identified the process as both individualized and family-centred. The continuation of the program, however, would be resource intensive, with the outcomes identified by the families and not specifically aligned with the current research priorities in infant massage. Both of the instructors have recommended a shift in focus to implementing a positive touch protocol both locally and nationally.⁹

One of the instructors recently was an invited presenter at Australia's Annual Neonatal Nursing Conference. In this setting a discussion on infant massage, its history, the research and the apparent drive to prove massage has a place in the NICN took place. Recommendations have been made and accepted by the Australian College of Neonatal Nursing (ACNN) that a position statement regarding infant massage in the NICN be developed. Within this statement, it is recommended that massage, if practiced in the NICN, is only to be undertaken by parents, and not health care professionals. The ACNN has also agreed to the national development of a policy on Positive Touch in the NICU, this will be developed in collaboration with its developer in the United Kingdom.⁹

Conclusion

Infant massage continues to be practiced in the NICN despite issues with the evidence-based nature of this research. NIDCAP professionals are in a unique position where they can focus the investment of touch research and clinical practice back to benefit the individual infant and their family.

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Quality of Attachment in Children < 32 Weeks or ≤ 1500 Grams at Two Years Corrected Age

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Introduction

Prematurity is a risk factor for both the neurodevelopment of the child and for supporting parenting competence. In Spain, there is hardly any information available on the impact on the attachment in premature children.

Objectives

- Assess the pattern of attachment at 22/24 months of corrected age in children ≤ 1500 g <32 weeks gestational age at birth (GA).
- Analyze the relationship between the pattern of attachment and the neurodevelopment at 22/24 months corrected age.

Material and Methods

Prospective study of two cohorts of <32 weeks or ≤ 1,500 g born in 2012 in two level III-C Neonatal Units. The attachment pattern was analyzed by the *Strange Situation* (Ainsworth et al. 1978), a semi-structured laboratory situation that analyzes the interactive behaviors between the child and the primary caregiver. The interactions are classified into three patterns of attachment: Safe (B): identified as the child's confidence in the availability of the attachment figure; Avoiding (A): the attachment figure is not available; and Resistant/Ambivalent (C): the child learns that the availability of the attachment figure is unpredictable. All the assessments were recorded on video with the parents consent. The children's development was assessed through the administration of the Bayley Scales of Infant Development III (2005).

Results

The study monitored 62% of the study population (123/199). The weight of the evaluated children was 1149 ± 285 versus 1246 ± 300 (p = 0.03) of the non evaluated. Some differences were also in the length of stay: 61.2 ± 31.1 days in the evaluated

versus 50.1 ± 28.3 for the non evaluated (p = 0.003), and the presence of twins: 57 (46.3%) in the evaluated versus 23 (30.3%) in the nonevaluated (p = 0.02). The average GA of the evaluated children was 29.5 ± 2.3 weeks.

Regarding the quality of attachment, 64.1% of the children showed secure attachment (B); 23.1% showed a pattern of resistant attachment (C) and 12.8% were classified as avoidant (A). There were no differences in newborn characteristics depending on the type of attachment among children except in the case of those with parents with Spanish nationality: 88% of the children with a Spanish father showed secure attachment versus 69% in the other types (p = 0.01); 84% of the children with Spanish mother showed secure attachment versus 66.7% in the other types (p = 0.03).

The children with secure attachment (B) had a Bayley test (cognitive development) of 107.6 ± 16 versus 98.8 ± 18.8 (p = 0.007) in the case of children with other types of attachment. Significant differences were found between secure attachment patterns (B) vs. avoidant (A) in all development subscales (p <0.017). With regard to the cognitive development, children with secure attachment (B) had a Bayley test score of 107.6 ± 16 versus 90 ± 18.8 in (A) (p = 0.005); regarding language development (B) was 98 ± 80 versus 13.8 ± 18.8 in (A) (p = 0.005). Furthermore, the (B) motor development was 13.8 ± 98 versus 80 ± 18.8 in (A) (p = 0.003).

Some differences were also found between attachment patterns A and C in relation to the Language subscale: 80 ± 18.8 in (A) versus 97.6 ± 17.2 in (C) (P = 0.003).

Conclusion

Our study shows that most children under 1500g or less than 32 weeks develop a secure attachment. Secure Attachment pattern occurs most often when the child's parents are born in Spain (country where the study was conducted).

The study has also found a link between secure attachment pattern and a better outcome in the cognitive development (BSDI III, 2005). The avoidant attachment is associated with a compromised outcome in all areas of the Bayley Scales of Infant Development III.

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Perinatal Nurses' Attitudes, Knowledge and Practices of Skin-to-Skin Contact

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Purpose

Although benefits of skin-to-skin contact (SSC) are well documented in the literature, practices remain inconsistent. Nurses report knowledge about SSC, however confusion still exists regarding safety and appropriateness. The purpose of this study was to examine the knowledge, beliefs, attitudes and reported practices of perinatal nurses regarding implementation of SSC with the parent/infant dyad. This study explored nurses age, years of experience, primary work setting and education levels in relationship to nurses' SSC perceptions and reported behaviors to identify knowledge-practice gaps.

Methods

A descriptive cross-sectional online survey design was used. An email with a link to an anonymous survey was completed by 101 perinatal nurses from the northeastern United States. The survey had 35 questions related to nurses' knowledge, attitudes, beliefs and their perceptions of SSC guidelines and protocols. The instrument's construct validity was established using Principal Component Analysis with alpha reliability of .79-.90. The survey contained four constructs or dimensions; SSC implementation, SSC knowledge, SSC attitudes and beliefs and SSC education and training. There were six additional demographic questions on the questionnaire to identify participants' race, gender, age, education level, years of experience, and primary practice setting. The SPSS Statistics version 22 was used for data analysis. Descriptive statistics and one way analysis of variance (ANOVA) were used to describe and compare nurses' responses.

Results

The majority of nurses surveyed strongly agreed that it is nurses' responsibility to advocate for SSC. Significant differences ($p < 0.01$) in provision of SSC with eligible infants between nurses within and between practice settings, education levels, years experience and age differences was found. More highly educated nurses responded they had not received adequate education during orientation ($p < 0.002$). Education level significantly influenced attitudes and implementation of SSC, Nurses' perception and beliefs about how difficult it is to initiate SSC changes were affected by years of nursing practice ($p < 0.04$). Nurses' attitudes inform practice and influence policy development. Positive attitudes or favorable beliefs appear to have a relationship with nurses' perceptions on implementing SSC and may translate into opportunities for practice change. Nurses with less experience perceive parents as having expectations to hold their infant's SSC. Perhaps this was due to benefits of SSC within mainstream media which contributed to these nurses' perceptions. Nurses with higher education levels are more apprehensive about the way infant responses are measured in terms of the appropriate interpretation of the infant's responses. Interpreting accurate infant behavioral responses is imperative to creating an appropriate plan of care for the infant and family. Perinatal nurses have many opportunities to influence safe and effective SSC practices.

Conclusions

Findings of this survey confirm that perinatal nurses strongly believe in SSC practices and perceive infants are capable of reciprocal responses when held in SSC. Nurses agreed that parents

are emotionally affected by the stress their infant experiences. Perinatal nurses continue to have educational needs pertaining to the physiologic effects of SSC on the infant to understand the appropriate use of SSC. A perinatal nurse's years of experience and primary practice setting appear to have influence on their knowledge of SSC. Nurses' education levels appear to influence implementation of SSC. Younger nurses with less experience and less education find it difficult to initiate SSC changes on

their units indicating a need for collaboration and mentorship with more experienced and educated nurses. Education levels, primary practice settings and years of practice appear to influence nurses' implementation of SSC.

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A Developmental Care Strategy in a Surgical NICU

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Key Words: Developmental care, families, support, surgery

Background

Developmental care is an approach to individualized care of hospitalized newborns to maximize neurological development and reduce long term cognitive and behavioral problems. The approach is built on developing and supporting relationships between the newborns, their families and staff. While advances in perinatal care have resulted in decreased mortality rates, morbidity rates remain significantly high. In addition to cerebral palsy, hearing loss, visual impairments and developmental delay, long term follow up studies have identified other important neurosensory impairments that may not become evident until preschool or school age such as cognitive and behavioral problems.

Critical periods of brain development happen in the third trimester of fetal development where there is a period of rapid brain growth, and environmental influences such as noise or handling may impact the developing brain. Modifications to the nursery environment and care practices that may reduce morbidity can easily be implemented. The newborn intensive care environment with its technology and task-oriented interventions can cause additional stress to the infant and family, compromising the infant's physiological and behavioral stability.

Sick newborns who require surgery are at risk of stress and developmental compromise. Developmentally Supportive Individualized Care was implemented as a model of practice into the surgical NICU in a Children's Hospital. While there are physical constraints of the nursery environment and design, several components of a developmental care model can be implemented to facilitate a developmentally supportive environment for the parents and their infants in the hospital nursery.

Objectives

- To describe the strategies used in implementing the support framework for a developmental care model in the surgical NICU.

- To match these strategies to standards within the NIDCAP Nursery Assessment and Certification Program (NNACP).

Approach

Components of developmentally supportive individualized care were introduced over several years based on previous experiences using the evidence from the literature. A multi-disciplinary developmental team was convened to oversee the model and to provide expertise for implementing the various components (14-A). A continuum was used commencing in the antenatal period with tours of the unit and written information for families explaining the model of developmentally supportive care used within the Grace Centre for Newborn Care (111-C). The strategies continue through to discharge and the follow-up developmental clinic (1V-D). Parents are actively involved in their infant's care as well as recommendations for functioning of the unit through a Parent Advisory Council (111-A,B, F).

Early neurological assessment (1V-D) on the Unit utilizes the 'General Movements Assessment', which is a non-invasive approach that does not require handling, and can be timed to coincide with routine cares, minimising disruption to infants' sleep routines.

Individualized care strategies include developmental rounds (11-C), baby diaries, parent cot-side folders, skin-to-skin support, breastfeeding targets, feeding plans, cot-side developmental dots, pain reduction and management strategies (11-B, C, D, E). Specific care practices include quiet time, music therapy, cue-based care-giving, and parent education on positive touch, handling and positioning and parent-drop-in teaching sessions (1V-B). New staff are introduced to developmental care through extended orientation program containing study days and clinical support from the developmental team (1V-A). NIDCAP model of behavioral observations provide a focus for long-stay newborns following surgery for structural abnormalities (1V-A).

Conclusion

A structured individualized developmentally supportive program can provide a supportive framework for parents and staff in implementing caregiving interventions in the surgical NICU. Newborns who require surgery are often late preterm or term who are at risk of compromise due to the operation, anaesthetic and post-operative pain. The NIDCAP Nursery Assessment and Certification Program (NNACP) standards are a useful guide to match and guide the innovations of a specific unit based model of developmentally supportive individualized care.

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Statement of Financial Support

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Sonicu Signs as Inaugural NIDCAP Federation International Corporate Sponsor

Sonicu, an industry leader in neonatal intensive care unit sound level monitoring, once again takes a leading role in Newborn Intensive Care Unit (NICU) advances by supporting NIDCAP Federation International, Inc. (NFI) as the organization's first corporate sponsor.

Sonicu pioneered NICU sound monitoring in 2008 at St. Vincent Hospital in Indianapolis, Ind. Since that time, the company has been refining and expanding its healthcare capabilities to create a safe healing environment for newborns needing intensive and specialized care.

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The NFI has been promoting the philosophy and science of NIDCAP (Newborn Individualized Developmental Care and Assessment Program) for nearly 30 years. As worldwide preterm births increase, NIDCAP focuses on individualized care that supports development, minimizes stress, and utilizes a relationship-based, family-integrated approach.

"The NIDCAP Federation International is pleased to welcome Sonicu as our first corporate sponsor,"

"Sonicu's support will help us raise global awareness of the need for NIDCAP care."

— Deborah Buehler, PhD

*NFI Vice President for
Organizational Advancement*

said Deborah Buehler, PhD, NFI Vice President for Organizational Advancement.

"Sonicu's support will help us raise global awareness of the need for NIDCAP care and will enhance opportunities to develop educational programs to broaden the reach of this care to ever more NICU professionals and the 'preterm families' they serve. Together we will share the privilege to be the Voice of the Newborn" Dr. Buehler said.

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Mission

The NFI's mission is to promote the advancement of the philosophy and science of NIDCAP care and to assure the quality of NIDCAP education, training and certification for professionals and hospital systems.

Adopted by the NFI Board, May 1, 2015

Vision

The NFI envisions a global society in which all hospitalized newborns and their families receive care and assessment in the evidence based NIDCAP model, which supports development, minimizes stress, is individualized and uses a relationship-based, family-integrated approach.

Adopted by the NFI Board, May 1, 2015

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NIDCAP On the Web



The NFI is pleased to offer our NIDCAP Blog, with observations from many different perspectives on NIDCAP and its implementation, such as NIDCAP and APIB training, Nursery Certification, the science behind the approach, the family experience with NIDCAP, the NFI, and much more. We encourage you to visit the NIDCAP Blog and to leave comments for our bloggers and our NIDCAP community in general. If interested in becoming a guest blogger please contact Sandra Kosta at sandra.kosta@nidcap.org.

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