



Why Reading to Babies Matters: Nurturing Minds From the Start

Reading to babies is a comfort activity; it is also a scientifically supported practice¹ that plays a pivotal role in the development of language and literacy skills. Engaging babies in reading, storytelling, and singing from an early age exposes them to the fundamental building blocks of language—speech sounds, words, and visual stimuli—which are crucial for their cognitive and emotional growth.

In neonatal intensive care units (NICUs) around the world, the integration of reading into care routines has become increasingly recognized for its developmental benefits. These practices stimulate the infant's imagination and understanding of their surroundings as well as fostering essential parent-infant bonding, which is vital for the well-being of both.

The global participation in NICU read-a-thon events, with over 75 units from 20 countries involved this year, underscores

the growing recognition of the importance of early literacy interventions. As healthcare providers, we have a unique opportunity to advocate for and implement these evidence-based practices, ensuring that every baby receives the cognitive and emotional benefits that early reading can provide.

1. Fraser A, Griffiths N, Webb A. Why reading matters. The development of a read-a-thon for neonatal intensive care units to encourage neonatal exposure to language, *Journal of Neonatal Nursing*, <https://doi.org/10.1016/j.jnn.2023.02.003>

“The giants of our field are slowly disappearing, but they leave us their vision for 'what could be' to challenge us to continue their work.”

—Dr. Joy Browne

INSIDE

Why Reading to Babies.....	1
Matters	
Editorial	2
Reflection as a Catalyst for	3
Learning	
Profile of a NIDCAP Leader	6
Family Voices	8
Meet the NFI Members	12
Global Perspective: Iran	14
NIDCAP Training Centers	18
Worldwide: Saint-Brieuc	
From the Science Desk	20
Selected Publications	24
NIDCAP on the Web	28
NIDCAP Training Centers	30

Embracing Reflection



In this edition, we explore the powerful theme of reflection, presenting articles that prompt thoughtful consideration of both clinical practice and personal experience. Joy Browne offers a heartfelt reflection on the pioneering work of Stanley Graven in newborn care, shedding light on his lasting

impact on the field. Similarly, Emily Fawaz shares a deeply personal account of her time in the NICU with her twin boys, encouraging readers to reflect on how caregiving can shape both outcomes and experiences.

The theme of reflection extends to Jeff Alberts Science Desk column, where readers are invited to contemplate the role of the cerebral cortex in developmental care, a topic that challenges us to rethink traditional approaches. Inga Warren and Kaye Spence further contribute by providing a practical

model for integrating reflection into the care of newborns and their families, offering valuable tools for everyday practice.

As we look ahead to the upcoming NIDCAP Trainers Meeting in Toulouse, I encourage you to embrace reflection as an integral part of the learning process. The program promises to be dynamic, and the networking opportunities will be invaluable. Participants could consider keeping a journal to capture your insights, ensuring that you can apply your reflections to enhance your practice upon returning home.

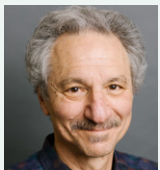
Kaye Spence AM FACNN

Senior Editor – Developmental Observer

Adjunct Associate Professor

Australasian NIDCAP Training Centre/ University of Western Sydney

Editorial Board



Jeffrey R. Alberts, PhD, is Professor of Psychological and Brain Sciences at Indiana University -- Bloomington (USA). Jeff is also a NIDCAP Professional and blends his lab studies with similar research at Cincinnati Children's Hospital Medical Center.



Diane Ballweg, MSN, is the Developmental Specialist at WakeMed Hospital in Raleigh, North Carolina, USA. Diane's writing and editing experience also includes reviewing for several peer reviewed journals and authoring several journal publications and book chapters related to developmental care.



Deborah Buehler, PhD, has a degree in developmental psychology and is a NIDCAP and APiB Master Trainer with expertise in developmental care within newborn and infant intensive care nurseries. Her work has focused on NIDCAP research, education and mentorship, and awareness. Deborah has authored and co-authored papers and manuals pertaining to NIDCAP care.



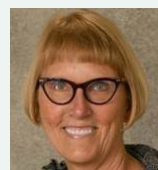
Sandra Kosta, BA, NFI Executive Director of Administration and Finance, has been an Associate Editor for the *Developmental Observer* since 2007. As a Research Specialist at Boston Children's Hospital, Sandra has co-authored several papers on the effectiveness and long-term outcomes of NIDCAP Care.



gretchen Lawhon, PhD, RN, FAAN, is the Clinical Nurse Scientist with Newborn Special Care Associates, at Abington Jefferson Health and a NIDCAP Master Trainer. gretchen has reviewed articles for peer reviewed journals. gretchen has extensive experience as a clinical nurse scientist and has authored numerous articles in her areas of expertise.



María López Maestro, MD, is a Neonatologist at the Hospital 12 de Octubre in Madrid, and is a NIDCAP Trainer and Member of the National Committee for the implementation of Developmental Centered Care in Spain. Maria has 10 research works. <https://orcid.org/0000-0002-0545-6272>.



Debra Paul, OTR/L, is an Occupational Therapist and NIDCAP Professional at Children's Hospital Colorado in Aurora, Colorado and the Column Editor for the Family Voices section for the *Developmental Observer*. Debra writes policies and guidelines which requires succinct writing and an eye for editing.



Kaye Spence AM is a Clinical Nurse Consultant and clinical researcher with numerous publications in peer reviewed journals and several book chapters and is a peer reviewer for eight professional journals. She is a past Editor of *Neonatal*, *Paediatric* and *Child Health Nursing*. <https://orcid.org/0000-0003-1241-9303>

Reflection as a Catalyst for Learning: A Practical Guide for Developmentally Supportive Care

Inga Warren CBE, DSc, FRCOT¹, and Kaye Spence AM, MN, FACNN².

DOI: 10.14434/do.v17i3.39753

¹ FINE, UK; University College London Hospital, UK.

² Australasian NIDCAP Training Centre, University of Western Sydney, Australia

Reflective writing serves as a transformative tool, empowering clinicians to amalgamate insights, foster critical thinking, and crystallize their thoughts. This introspective process facilitates a holistic perspective on experiences and can build the resilience they need to cope with the emotional burden of work in newborn intensive care. It also cultivates skills crucial for future proficiency.

Historically, reflection has been a linchpin in learning paradigms, enabling individuals to dissect events, analyse activities, and assimilate knowledge. In an intensive care environment with a highly technical bias, the value of reflective practice is often overlooked. Engaging in reflective practice amplifies comprehension, bolsters subject mastery, and demystifies intricate subject matter.

There are numerous models available to guide reflective practice,^{1,2} each with its unique approach. One such model, Gibbs' Reflective Cycle,³ provides a structured framework that begins by outlining the experience to be reflected upon. It then encourages a deep exploration of our emotions, considering how we felt during the experience and afterward. The next step involves evaluating the experience—identifying what aspects were positive or negative from our perspective. This evaluation paves the way for a thorough analysis, where we seek to understand the situation and derive meaning from it. Based on this analysis, we draw conclusions, considering whether different actions might have led to alternative outcomes. The final stage involves developing an action plan, outlining steps to take if we encounter a similar situation in the future. Gibbs' Model is particularly useful for writing reports or making recommendations for changes in practice, helping healthcare professionals continually improve their approach to patient care.

Using reflection in clinical practice

To put this into context, imagine you are observing a baby in the Newborn Intensive Care Unit (NICU). The baby is about to have their diaper changed by their mother, who is a first-time parent learning both about her infant's behaviour and the task at hand. A nurse is present to assist and support the mother as needed. Using the Gibbs Model the caregiver is guided in their reflection.

Description: What happened?

At this stage, your task is to describe the situation without making any judgments or drawing conclusions. Focus on providing a detailed account of what occurred, being as specific as possible while maintaining a purely objective tone.



Reflecting on infant responses with parent

Feelings: What were your reactions and feelings?

Here, you should explore your emotional response to the situation, without yet analyzing it. Describe what you felt, how your body reacted, and what you did, as well as how others responded to your actions.

Evaluation: What was good or challenging about the experience?

Now, you can begin to consider the situation and your responses more objectively. Make initial value judgments and try to understand the experience from the perspectives of others involved. This will help you decide whether the situation was challenging or beneficial for everyone, or if it was particularly difficult for you alone.

Analysis: What sense can you make of the situation? What was really going on? Were different people's experiences similar or different?

Having evaluated the situation, you can now delve deeper into its details. Consider the above questions to analyse the experience further. At this stage, you should incorporate insights from colleagues, peers, literature, and relevant theories to help make sense of what happened.

Conclusions: What can be concluded from these experiences and the analyses you have undertaken? What can be concluded about your personal situation and your way of working?

When drawing conclusions, consider both the general applicability of your reflections and your specific situation. Reflect on what these conclusions mean for you personally, for your immediate context, and for others more broadly.

Personal action plan: What are you going to do differently in this type of situation next time? What steps are you going to take because of what you have learned?

Finally, outline the steps you will take to improve your approach in future situations. Based on what you've learned, plan how you'll apply these insights to similar circumstances going forward.

Reflection as a four-dimension process

In the clinical setting reflection can manifest as a four-dimension process:⁴ This enables reflection to move forward and be re-conceptualised to aid practice development and understanding.

Reflection-before-action: This involves anticipating and preparing for an event. Consider what you expect to happen and how you prepare for it. Reflect on what factors you need to consider beforehand. Think about your observations—how do you plan them? How do you involve the caregiver or family? Were there any prior events that might influence the outcome?

Reflection-in-action: This type of reflection occurs at once, during the experience itself. It involves a real-time introspective engagement, requiring a heightened level of self-awareness and the ability to evaluate and adjust actions as they happen.

Reflection-on-action: This retrospective form of reflection allows healthcare professionals to look back on observed events, critically assess their actions, and draw valuable insights. It offers an opportunity to identify lessons learned and develop strategies for improving future care.

Reflection-for-action: This forward-looking approach involves contemplating future actions, often informed by past experiences. It encourages professionals to consider various approaches, refine inclusive practices, and enhance communication strategies to build and keep effective relationships.

Insights into the use of reflection in practice

To further illustrate how reflection is used in clinical practice we would like to share with you some of the student's reflections during a foundational program in developmental care for Newborn Individualized Developmental Care and Assessment Program (NIDCAP). The Family and Infant Neurodevelopmental Education Foundation – Level 2 (FINE 2) places paramount importance on nurturing student learning through meticulous observations complemented by structured reflection. Within the neonatal unit, mentors adeptly steer students toward introspection about specific situations involving infants and their families.

“By spotlighting participant experiences, we will show how reflection emerges as a potent pedagogical strategy, transcending the boundaries of traditional and online learning realms.”

Drawing from the Program, this paper illuminates the thoughtful impact of reflection. By spotlighting participant experiences, we will show how reflection emerges as a potent pedagogical strategy, transcending the boundaries of traditional and online learning realms.

Each reflective quote sits within a theme.

Seeing the individual - Questioning assumptions

‘Reflecting on baby’s behaviour, I was surprised at how regulated he was for his birth gestation and corrected [age of] just 36 weeks. I expected him to be fussier and vocal particularly through the face wash and nappy change.’

Emotionally challenging - Connecting with the baby and living their experience

‘As I watched the baby turn pale then dusky, not breathing, his body completely stiff then limp, I grieved for him. The baby desperately needed a support person, preferably [his] mother or father. After the exam I held him for a long time, muttering my apologies for his pain, wishing his parents would come soon, as he lay spent in my arms’

In-tune with the baby - Trusting them to do their best

‘My pulse was getting rapid along with the baby's and I was about to reach into the incubator and help the baby when his foot touched the edge of the nest. Still sucking on the pacifier, he leaned his foot against the edge of the nest and soothed himself. I started silently cheering!’

Awareness of pain - and gaps in the way we manage it

‘This [observation] has highlighted the value of using pain tools for monitoring an infant's condition and recognising deterioration or increased pain, as well as evaluating the effectiveness of a pain-relieving intervention.’

Realisation - Questioning practice

'I wondered why we don't often think of routine caregiving tasks as being stressful and difficult for the infant, despite frequently seeing a lot of observations during care that would indicate otherwise.'

Mother's presence - and her key role in the baby's care team

'This observation also confirmed to me the power of a mother's observation, Annie has sat by Jenni's side for hours and hours every day since she was born. She is able to identify when Jenni is 'not right', more unsettled or in fact the opposite, doing better.'

Talking with parents - Watching, wondering and listening

'Compared to the first week or so, I feel like I am also growing in confidence when discussing the baby's behaviour with parents, possibly because I have gained more knowledge on the subject since then, or maybe simply because I've had more practise at having these conversations.'

Helplessness - and finding resilience

'[James] had just been born. He seemed disorientated, and his movements were all over the place. His bedside nurse had done her best to contain him in his nest, but he was still agitated and crying. This made me feel helpless. I thought about how awful it must have felt for him to be suddenly delivered, having to breathe independently.'

The reflections shared by students during their program vividly illustrate the impact that structured reflection can have on learning and practice in the newborn unit. By examining their experiences through the lens of reflection, these students have not only deepened their understanding of infant care but also developed a greater sensitivity to the needs and emotions of the babies and families they support. These reflections

highlight the importance of questioning assumptions, recognizing emotional challenges, and acknowledging the critical role of parents in the care team. They also underscore the value of being attuned to subtle cues from the infant, the need for effective prevention of or management of pain, and the growth of personal resilience in the face of difficult situations. Through these insights, reflection emerges as an invaluable tool for fostering compassionate, evidence-based care, ultimately enhancing both the student's learning experience and the quality of care provided to infants and their families.

In conclusion, the NIDCAP model of co-regulation demonstrates the benefits of incorporating reflection as a fundamental framework of practice. While this approach may seem unfamiliar in the typically action-oriented, fast-paced environment of intensive care, it is essential for the effective implementation of developmental care.⁵ To truly support newborns and their families, healthcare professionals must cultivate a reflective, self-aware practice that not only hones their technical skills but also deepens their ability to engage in meaningful relationships. Through this integration of reflection, technical excellence, and relational engagement, the care provided becomes more attuned to the unique needs of each infant and their family, fostering better outcome and more compassionate care.

Reference:

1. Morris TH. Experiential Learning – A systematic review and revision of Kolb's model. *Int Learn Env*. 2020; 28(8):1064-77. <https://doi.org/10.1080/10494820.2019.1570279>
2. Ingram- Bloomfield B. A nurses' guide to using models of reflection. *Aust J Adv Nurs*. 2012; 28 (4): <https://doi.org/10.37464/2020.384.395>
3. Gibbs G. (1988) Learning by Doing: A guide to teaching and learning methods. Further Education Unit, Oxford Brookes University, Oxford.
4. Edwards S. Reflecting differently. New dimensions: reflection-before-action and reflection-beyond-action. *International Practice Development Journal*. 2017; 7 (8): <https://doi.org/10.19043/ipdj.71.002>
5. Als H, McNulty GB. The Newborn Individualized Developmental Care and Assessment Program (NIDCAP) with Kangaroo Mother Care (KMC): Comprehensive Care for Preterm Infants. *Curr Womens Health Rev*. 2011;(3):288-301. <https://doi.org/10.2174/157340411796355216>



Mission

The NFI improves the future of all infants in hospitals and their families with individualized, developmental, family-centered, research-based NIDCAP care.

Adopted by the NFI Board, June 29, 2022

Vision

The NFI envisions a global society in which all hospitalized newborns and their families receive care in the evidence-based NIDCAP model. NIDCAP supports development, enhances strengths and minimizes stress for infants, family and staff who care for them. It is individualized and uses a relationship-based, family-integrated approach that yields measurable outcomes.

Adopted by the NFI Board, October 20, 2017

Stanley N. Graven, MD: 1932–2024

A Visionary For The Care Of Babies And Families

Joy V. Browne

DOI:10.14434/do.v17i2.38135



Stanley N. Graven, MD

Several pioneering neonatologists laid the foundation for practice with sick and preterm babies in intensive care. Stanley Graven was one of them. His contributions to the field in the 1960s and 70s were not those of new surgical procedures, identification of new treatments, or technological advances. Instead, he was known for developing hospital systems that developed specialized neonatal units and resulted in de-

creased infant mortality. He further influenced care of babies by showing that education for the then basic level hospitals in delivery room care, control of glucose and temperature as well as early recognition and support for respiratory distress could significantly change outcomes for babies. The model he developed in the United States included regionalization and leveling of perinatal care. The current leveling of NICU designations by acuity continues to be a standard for NICUs in the US and Canada. Dr. Graven also chaired the development of standards for neonatology practice resulting in the "birth" of neonatology as a recognized subspecialty.¹

Dr. Graven and his lifelong partner, Mavis, worked to change other less recognized systems and practices typical in early NICUs; those of restricting parents from being with their babies in intensive care. Recognizing that outcomes of both mothers and babies could be enhanced when they were not separated in the perinatal period, they worked to change restrictive policies that they knew influenced early parent/child relationships. Perhaps that was the birth of family centered care practice change as we know it today.

Dr. Graven also recognized the impact of the physical/sensory environment on babies in intensive care. At the same time—in the 1980s and 90s—there was increasing interest in the brain development of preterm babies, primarily in the area of provision of extra sensory stimulation which was designed to enhance outcomes. Several prominent developmental psychologists and nurses began studies that added sensory stimulation, perceived to be optimal to support brain develop-

ment.²⁻⁶ Recognizing that additional sensory input for the developing newborn could be less than optimal, Heidelise Als,⁷⁻¹⁰ diverged from the typical stimulation based protocols and developed the individualized developmental care approach.

Recognizing the importance of the impact of the environment and caregiving on babies' outcomes, and the diverse approaches to caregiving practices that were used in the 1980s, Dr. Graven convened a group of interprofessional leaders who gathered available information about the impact of intensive care environments on the physiology and development of preterm babies. He compiled a library of more than 30,000 related references that included both the physical environment and those related to optimal caregiving. Two complimentary articles were published in the early 1990s: one on the sensory environment and one on optimal caregiving.^{11,12}

These comprehensive reviews of early developmental research thus opened an expanded view of how-to best support both medical and developmental outcomes of babies and their families. Since then, Dr. Graven and others have provided a host of articles and books documenting the importance of the sensory and caregiving environment on babies' and families' outcomes.

Although Dr. Graven's professional publications, accomplishments and awards are too numerous to cite individually and can be found in his obituary. <https://www.facebook.com/stanleyngraven>.

Several areas of Dr. Graven's legacy have particular implications for the work of those of us in the NIDCAP community.

- Articulation of the science underlying the impact of the sensory environment and the importance of family inclusion in caregiving supported the provision of individualized developmental caregiving. It laid the groundwork for NICU design, practice change and the necessity of systems support. Some of these essential articles have been co-authored by NIDCAP professionals^{13,14}
- The expanding interest in the impact of the environment on babies and families in intensive care fostered the establishment of an annual internationally acclaimed Gravens meeting on the *Environment of Care for High Risk Infants and their Families* (now in its 37th year of attendance). Many of the NIDCAP global community members have been included as faculty for these meetings.

- With the support of Dr. Graven, several globally recognized collaborative efforts have been established to advance evidence-based standards for NICU caregiving. The Standards for NICU Design chaired by Dr. Robert White (now in its 10th revision)¹⁵ are globally recognized recommendations for optimal environments for babies and families.
- The parallel Standards, Competencies and Best Practices for Infant and Family Centered Developmental Care (IFCDC), chaired by Dr. Joy Browne developed under the Gravens umbrella. The standards established a guide for evidence based developmentally appropriate caregiving in intensive care, consistent with the values of individualized developmental care and systems change.^{16,17}

Dr. Graven died on July 8th, 2024, in Dallas, Oregon. He was 92 years old. His wife and life love Mavis carries on his spirit and his surviving children, as well as his grandchildren, nieces and nephews continue to share his generosity and love. His celebration of life took place in late September. It was a time of recognition of his legacy and his amazing contributions to babies, families and all of us who have benefitted from professional and personal relationships with him.

Until recently, he told us he was working on a research project, singing in a choir with Mavis and thinking more about the development of spirituality in young children. His commitment to emphasizing the spiritual development of children leaves us with yet another challenge, that of understanding an aspect of caregiving not typically recognized in our professional roles.

A number of those of us in the NIDCAP community have been both directly and indirectly influenced by Dr. Graven's professional contributions. However, those activities do not capture his personal impact on all those with whom he has worked. In working with him on programs, writings, celebrations and more personal issues, his humility, humor, and pragmatic approaches contributed to the establishment of collaborative and supportive relationships. Whether he was in the lead role on a task force meeting, at the podium in front of a large audience, or in a one-on-one conversation, he was able to provide a safe space for talking about challenging or novel issues. His gentle leadership included providing options that typically promoted compromise and collaboration. As a result, the quality of the resulting work reflected the contributions of all involved whether new ideas, controversial issues or vision of the future for care for babies and families.

He was always approachable, had a funny joke to share, or a story that provided for insights and reflections, and always a benevolent twinkle in his eyes.

The giants of our field are slowly disappearing, one by one, but they leave us their vision for "what could be" to challenge us to continue their work. Dr. Graven left us with work to be continued, and a vision of what could be for babies and families who experience intensive care. His loss leaves big shoes to fill, but also a solid foundation from which to walk forward.



Dr. Heidelise Als receiving the Graven's Award

References

1. Hartline J. Historical Perspectives: Neonatology. Secondary Historical Perspectives: Neonatology 2022. <https://www.aap.org/en/community/aap-sections/sonpm/tecan/career-development-leadership/exploring-and-evaluating-practices-of-neonatal-perinatal-medicine/historical-perspectives/>
2. Thoman EB, Ingersoll EW, Acebo C. Premature infants seek rhythmic stimulation, and the experience facilitates neurobehavioral development. *Journal of developmental and behavioral pediatrics* : JDBP 1991;12(1):11-8 [published Online First: 1991/02/01].
3. Davis DH, Thoman EB. The early social environment of premature and fullterm infants. *Early human development* 1988;17(2-3):221-32.
4. Scar-Salapatek S, Williams ML. Early stimulation based on a deprivation construct. *Child development* 1973;44(1):94-101 doi: <https://doi.org/10.2307/1127684>.
5. Korner AF, Schneider P, Forrest T. Effects of vestibular-proprioceptive stimulation on the neurobehavioral development of preterm infants: a pilot study. *Neuropediatrics* 1983;14(3):170-5 doi: 10.1055/s-2008-1059573 [published Online First: 1983/08/01].
6. Anderson J. Sensory intervention with the preterm infant in the neonatal intensive care unit. *Am J Occup Ther* 1986;40(1):19-26.
7. Als H, Duffy FH. The Behavior of the Premature Infant. In: Brazelton TB, Lester BM, eds. *New Approaches to Developmental Screening of Infants*. New York, NY: Elsevier Science Publishing Co., Inc., 1983:153-73.
8. Als H, Duffy FH. The behavior of the fetal newborn: Theoretical considerations and practical suggestions for the use of the APiB. In: Waldstein A, Gilderman D, Taylor-Hershel D, Prestridge S, Anderson I, eds. *Issues in Neonatal Care*. Chapel Hill: Westar, 1982:21-60.
9. Als H. Earliest Intervention for Preterm Infants in the Newborn Intensive Care Unit. In: Guralnick M, ed. *The Effectiveness of Early Intervention*. Baltimore: Brookes Publishing Co., 1996:47-76.
10. Als H. Infant Individuality: Assessing patterns of very early development. In: Call JD, Galenson E, Tyson RL, eds. *Frontiers of Infant Psychiatry*. New York: Basic Books, 1983:363-78.
11. Graven SN, Bowen FWJ, Brooten D, et al. The high-risk infant environment. Part 1. The role of the neonatal intensive care unit in the outcome of high-risk infants. *Journal of perinatology: official journal of the California Perinatal Association* 1992;12(2):164-72.
12. Graven SN, Bowen FWJ, Brooten D, et al. The high-risk infant environment. Part 2. The role of caregiving and the social environment. *Journal of perinatology: official journal of the California Perinatal Association* 1992;12(3):267-75.
13. Philbin MK, Lickliter R, Graven SN. Sensory experience and the developing organism: a history of ideas and view to the future. *Journal of perinatology: official journal of the California Perinatal Association* 2000;20(8 Pt 2):S2-5.
14. Graven SN, Browne JV. Visual development in the human fetus, infant, and young child. *Newborn and Infant Nursing Reviews* 2008;8(4):194-201.
15. Altimier L, Barton SA, Bender J, et al. Recommended standards for newborn ICU design. *Journal of Perinatology : official journal of the California Perinatal Association* 2023;43(Suppl 1):2-16 doi: 10.1038/s41372-023-01784-4 [published Online First: 20231212].
16. Browne J, PCNS IV I. Gravens By Design: Standards, Competencies and Best Practices for Infant and Family Developmental Care in Intensive Care: The Time Has Come. *TODAY Peer Reviewed Research, News and Information* 2006:26.
17. Browne JV. How NICU design and infant and family-centered developmental care act synergistically to support babies and families. *Journal of Perinatology : official journal of the California Perinatal Association* 2023;43(Suppl 1):55-58 doi: 10.1038/s41372-023-01746-w [published Online First: 20231212].

Column Editor: Debra Paul, OTR

The experience of navigating the NICU as a parent can be frightening, overwhelming, and filled with uncertainty. It can also be a life changing experience that drives one to seek out opportunities to create a positive difference for others. In this story, we hear firsthand how this mother was able to gain strength from her lived experiences and maintain a positive attitude which ultimately sparked her commitment and desire to make a difference in the lives of NICU families.

A Mother's Perspective of the NICU Experience: Passion for Advocacy Ignited

Emily Fawaz

DOI: 10.14434/DOV1713.39756

Our story starts with our first ultrasound for our first pregnancy at eight weeks when we found out we were having twins! I just remember seeing a lot of white on the screen and holding my breath in anticipation of the tech saying that something was wrong. But instead, she said “well you have a couple little nuggets in there.” We were in shock! They knew immediately that they were identical because they were sharing a placenta. Shortly after we learned that this also meant that they were at risk for Twin-to-Twin Transfusion Syndrome (TTTS). We were told that we would have to have ultrasounds every two weeks starting at 14 weeks to monitor for TTTS. At our 16-week ultrasound, we found out that we would be welcoming two sweet boys into our life! We made it past 24 weeks when the chance of developing TTTS was higher and thought we were in the clear! Other than there being two babies, it seemed like a pretty uneventful pregnancy. I felt great and the boys were growing perfectly. But that all changed at our 28-week appointment.

In mid-July 2019, my husband Dylan went to Fort Carson for his two-week annual training for the Army National Guard. My parents came into town to visit while he was gone. I was looking forward to taking them to one of our ultrasounds at the perinatologist to see their grandsons. On Tuesday at nine in the morning, we went to my 28-week appointment. I remember driving there in a state of ignorant bliss, no idea that an hour later my whole world would be turned upside down. During the ultrasound, the tech immediately noticed that there was a large fluid discrepancy between the boys. Ryan, the recipient twin had lots of fluid, while Mason, the donor twin, had very little. They immediately called the Children's Hospital Colorado (CHCO) Fetal Care Center for a consultation, and I had an appointment scheduled for the next morning. My parents and I were in shock as we drove home...I had to make the hardest phone call of my life to my husband to let him know that things weren't good, and he needed to come home. He came home that night and the next morning we went down to CHCO. After a long ultrasound and a fetal echo, the boys were



Skin cuddles with mom

diagnosed with stage 3 TTTS and starting to show signs of stage 4. TTTS has 5 stages. Stage 1 is a large fluid discrepancy between amniotic sacs and stage 5 is the death of one or both twins, so it was a pretty severe case. We were beyond the point where they could try to close some of the connections via laser surgery, so we were told that I would be admitted for continuous monitoring and get two doses of steroid and deliver about 48 hours later. Mason had different plans, however. I started having severe contractions at about one in the morning, and despite medication to reduce them, Mason was having consistent late decelerations with each contraction. At 3:30 in the morning the attending let me know that it was time, and they were born less than 30 minutes later just before 4 am on Thursday. So, between the ignorant bliss of thinking that everything was ok before my 28-week appointment and the boys' birth was 43 hours. It was the biggest whirlwind of our life.

After the hustle of surgery was over and getting to quickly peek at the boys on their way to the NICU, I was taken back

to my room to recover. Once I was settled, Dylan hurried over to the NICU to check on the boys and I was alone. The nurses came in for their interval checks, but it was just me, feeling like, how could this possibly be real life? I didn't realize how much that moment impacted me until I was preparing for my c-section with my third son when I was sitting in my OB's office crying over the thought of not getting to hold him or having him taken away - I was still feeling that pain from the first hours and days in the NICU.

My in-laws brought us donuts the morning my twins were born, and I remember taking a bite and my first thought was that I would feel the boys start kicking because they always wiggled when I ate sweets. And then my heart sank because they weren't inside me anymore, but they were *supposed* to be.

It was three days before I was able to hold Mason and a week before I was able to hold Ryan. Mason kept us on our toes with an unplanned extubation while I was holding him triggering them to call a code blue. Twenty-four hours later, he was taken to the OR for emergency surgery for a bowel perforation. He had an ostomy for eight weeks until he went back for surgery. Following the second surgery, however, he developed a central line infection that spread to his blood and lungs setting him back in his respiratory progress. Talk of a trach and g-tube started, but after a final round of steroids Mason made a huge leap and weaned down to low flow. Meanwhile, Ryan had a couple of steps back with the initial attempt to extubate him on his second day of life. He ended up on an oscillator and on nitric oxide for about a week. He steadily made big gains after weaning to low flow by around 34 weeks gestational age and was our feeder-grower until he discharged in mid-October – right around my due date. Mason took another month to be ready to go, but we finally walked out of the NICU for the last time with both of our sweet boys on November 15th. We had watched so many other families walk by our room with their sweet kiddos for the last time and yearned for that moment. It felt like it would never come. And then it DID! That moment felt better than I could have possibly imagined.

Reflections

Our NICU experience was the most challenging, devastating and transforming experience of my life. We were in the NICU for 114 days before we finally went home, and during that time, I only went one full day without seeing them. And while it was exhausting to be there for 12-18 hours a day every single day, I feel so fortunate to have been in a situation that allowed me to do that.

When you think about becoming a parent, you expect to be with your baby all the time. So, when you are away from them, it is a strange feeling of wondering, am I actually a parent? Is this real? Are those *really* my kids? And even though we were there every day, it was very hard for us to feel bonded to them. At the time, I thought that I was. I cared about them,



Skin to skin time with dad

worried about them, and spent every day with them, but didn't realize how long it took me to bond with them until I had my third son. I realized how quickly I bonded with my son, Owen, compared to my twins. But I don't think that is surprising. While I was excited to see my twins and touch them and hold them for the first time, it wasn't what I had hoped and dreamed for when becoming a mother.

In the NICU there are wires and alarms and tubes everywhere. And while they may be cute in their own way, they are not the chunky, peaceful, newborn that you imagine curled up, sleeping on your chest. All I wanted to do was hold them and snuggle them and nurse them, but I couldn't – the first few days all I could do was cup their head and hold their feet, with my arms in the isolette standing there with swollen tired feet, pain in my stomach from my incision, and tears in my eyes. Honestly, I would finally walk away when I was just too heartbroken to stand there anymore.

And then we could finally hold them, and it was wonderful. Those moments of finally getting to kiss our sweet babies and see them lying on our chest after days of waiting were so amazingly, and inexplicably sweet. But days turned into weeks and weeks into months and a lot of days, despite being there all day and having that time, I didn't even want to hold them. I didn't want to sit there by myself with the deafening sound of the CPAP in my ear, staring at the monitor in fear that they would brady for hours on end. I just wanted my life to be different than it was. I felt so much sadness and guilt every day. I felt guilty that I wouldn't want to hold them, or I felt guilty if I only had time to hold one and not the other, so sometimes I would just not hold either if I didn't have time to hold both of them. I also had a really hard time figuring out a good schedule for myself that worked around care times and pumping and trying to fit in a meal and being available for rounds.



Discharge home November 2019



First day of school, 2024

The nurses, and providers encouraged me to be involved and to advocate for my babies – and I definitely did! I was there for rounds almost every single day. And while I absolutely felt that my thoughts and opinions were heard and considered and validated during rounds, overall, we were not in control of their care. And that's not necessarily a bad thing! I can't emphasize enough how in awe we were of the care and skill of the whole team that took care of our boys. The NICU specializes in growing these babies to get them home and thank God because that is way beyond my scope as a parent. But at times, it didn't feel like they were my boys-it felt like they were babies that, while following strict rules to care for them, I was supposed to love deeply and devote all my time and energy toward with the hopes that one day they would be big enough and strong enough to come home and *then* they would be my babies, but they weren't really mine yet.

I am so wholeheartedly thankful to the bedside nurses who helped us to slowly overcome those feelings. Our primary nurses were the shoulders we cried on, the ones who could make us laugh even on the really hard days, and the ones who could make us feel like parents. Those nurses helped us to see past the lines and monitors and tubes and told us how sweet and adorable our boys were even when it felt like our family and friends couldn't. That is just another thing that you grieve - you look forward to your family getting to snuggle and love on your newborns, but our parents didn't hold our babies until they were 10+ weeks old because they were so afraid to hold them, so afraid to hurt them, or make them sick, so afraid of how fragile they seemed. We tried hard to love our boys, we worried about them constantly and tried to convince ourselves that we really were their parents. But at the same time, we had to release control of their care to other people, and that is so unnatural. I feel like many providers in the field know that, but the way that the tension feels in your heart is something that I

believe can't truly be understood unless you have been there.

While in the NICU, I was able to connect with another NICU family in a similar situation and I also had a mentor through Children's Hospital come meet with me. I was so grateful for those connections because often those conversations with strangers were way more powerful and reassuring than conversations with even my closest family and friends. Our family, especially, didn't want to see us hurting and wanted to try to say something to make us feel better, something to take away the pain. But we were hurting and there wasn't anything that they could say to make the pain and sadness go away. We were hopeful and terrified, so grateful they were alive and also mourning their journey. We knew that every minute we had with them was a gift but that in an instant everything could change. It's just hard, every single day was so hard.

When Mason was still admitted and ready to be discharged, we fought for the discharge to be on a Friday night instead of Saturday morning so that we could have a whole weekend before my husband had to go to work that Monday. We were asked "you have already been here this long [114 days], what is one more day?" And while I can understand why they would think that, they need to understand that it never gets easier. It's not just one more day. It's another day of being away from home, another day of suppressing our parental instincts and letting other people be in control of our babies, another day of not getting to snuggle up on the couch and just be together as a family because the cords don't reach, and another day of walking out of those hospital doors without our babies. That feeling is so unnatural, and it never gets easier – I would say it just gets harder and harder because as you do start to bond and become more attached to your baby it hurts so much more to leave them. The beginning of our time in the NICU was mentally and physically draining, we were running on adrenaline, and we were tired from hearing all the alarms and standing up at the isolette and just the roller

coaster of good and bad days, and good and bad moments, that many families describe. But a few months in was hard in a different way. We were more bonded to our boys and just becoming so worn down and tired of being there. We were starting to feel more protective of them and more comfortable participating in their care. They were also nearing being ready to go home so they weren't as fragile as they were when they were first born, so we were just ready to take them home and stop having their care controlled by someone else.

We did fight that last fight and we discharged in the evening of Friday November 15th – and it was one of the sweetest days of my life. Removing the pulse ox and monitor wires, getting them dressed in their matching outfits that we picked out for them when we found out we were having boys, loading them in their car seats, walking down the long NICU hallway and out the doors, riding down the glass elevator with both our sweet boys, walking out the double glass doors of the hospital and to the parking garage, and finally driving away – driving home. It was so familiar since we had walked that walk and driven out of that parking lot probably 200+ times except this time we were *actually* going home. We arrived at our house to balloons and signs and a big group of friends playing “The Boys are Back in Town” ecstatic to welcome us home at last. I still can't listen (or even think) about that song without tearing up. It was a moment that I will cherish forever.

But the journey didn't end there by any means. And while it was so sweet to be home, it was also very hard to take on the role of caretaker that a whole team managed at the hospital and do it on our own. We had weekly well visits and weight checks, and follow up with various specialists, and evaluations with early intervention. I think we had 15 different appointments in the first four weeks we were back. Meanwhile, we were averaging probably two hours of sleep a night total. It was really hard, but we also chose to see the joy and appreciate that not everyone gets to bring home their kiddos from the NICU, and we did, and we are eternally grateful for that. My husband is quick to start sleep talking or do nonsensical things when he is in that in-between sleep and awake state or when he is woken up. We have some funny stories from our 2AM baby adventures – one of the funniest times were when he would scoop up an oxygen tank off the bed, instead of the baby and start patting it over his shoulder and bouncing. Over the past months and years since being home, we have had the pleasure of watching these amazing boys grow and develop into the hilarious and sweet boys that they are. They are feisty, and opinionated, and loud, they are the sweetest one minute and tantruming the next, and I'm here for all of it. It's definitely not easy and being overwhelmed is just a regular part of my life, but a day does not go by that I don't appreciate and admire how far they have come.

As if our life wasn't busy enough we were blessed (and surprised) to find out that we would be expecting another boy and he arrived just 17 very short months after the twins were born. That pregnancy could not have been more uneventful, and Owen stayed put until my scheduled c-section at 39 weeks.

“Our primary nurses were the shoulders we cried on, the ones who could make us laugh even on the really hard days, and the ones who could make us feel like parents.”

He was born and less than 48 hours later we were walking out of the hospital doors with him to go home. It was a very, very different experience. Although I am so thankful to have my twins and so thankful to have been blessed with a second and uneventful pregnancy, the first year with all three boys was a really hard year. For the first few months after Owen was born, I was both overwhelmed with joy and gratitude for how infinitely better our experience with Owen was compared to being in the NICU with the boys, and also devastated because I didn't really know what I had missed, and I realized that I had missed some of the sweetest, most amazing moments with the twins because they were born prematurely.

While I wouldn't choose to go through NICU again and wouldn't wish that experience on anyone, I am also grateful for what we have learned about our children and life in general. I am grateful for the strength Dylan and I have gained as individuals, as parents, and in our marriage, and I am also grateful for the way my life trajectory has changed and for my growing passion to help other NICU families. Families in the NICU are experiencing a weight of pain, fear, and grief that is hard to even fathom. It is lonely and heartbreaking even on the good days. While we may never be able to take away that pain completely, I wholeheartedly believe that supporting parents and connecting them with other NICU families both during and after their NICU stay will not only lighten the burden of the NICU but also have lasting impacts on the family in the weeks, months, and years to come.

Emily Fawaz lives in Fort Collins, Colorado with her husband and three children. During her twins 16 weeks in the NICU, Emily developed a strong passion to support and advocate for NICU families. She participates in various programs to support NICU families, including providing lived expertise, and guidance, and serves as a parent leader in several capacities. Emily is an occupational therapist and supports NICU families in a professional manner as an OT in Early Intervention.

Kathy Frankel MS, PT

I am a physical therapist and have been a NIDCAP professional for a very long time. When I began working with children with disabilities, I quickly realized that there was much to be done on the prevention side of the equation for good care. This took me to the NICU, and Dr. Als had just recently published some of her seminal research. NIDCAP resonated with me as I embarked on a degree in psychology with an emphasis on mother baby communication. Jim Helm was available to us and as a community we raised funds to have him coach us in the NIDCAP approach. Along this journey I have had the fortune to work with the greats: Joy Browne, gretchen Lawhon, Dorothy Vittner, Juzer Tyebkhan, Deborah Buehler, and Jean Powlesland.

I wish that I could live in a bubble with them and take care of the people in our communities.

NIDCAP strengthened my understanding of human



Kathy Frankel

their capacity.

How fortunate I am to have had Jim set me on this path and to continue to learn from the “greats.”

development. I have relied on my understanding and reading of nonverbal cues in some incredible settings. In the care I provide for pregnant mothers who are refugees, I rely heavily on reading their expressions and emotions due to our language differences. In the NICU while mentoring staff or parents, I observe and wait and show compassion to understand our shared humanity. With the elderly who are in my care, many have Alzheimer’s disease. I understand that their cries are likely due to an unmatched perception of the sensory world. And most recently in providing professional development in my state of Georgia, I hold NIDCAP as the gold standard to organizing my thoughts when helping professionals see the strengths in families and build

OUR SPONSORS



Dr. Brown’s Medical delivers valuable feeding solutions that help provide the best possible outcomes for all babies.

Sponsor of the NFI and the 34th Annual NIDCAP Trainers Meeting.

NIDCAP Federation International Board of Directors and Staff 2024

PRESIDENT

Deborah Buehler, PhD

NIDCAP Master Trainer
APIB Trainer
Director, West Coast NIDCAP and APIB
Training Center
email: nfipresident@nidcap.org

CO-TREASURER

Gloria McAnulty, PhD

National NIDCAP Training Center
email: gloria.mcanulty@childrens.harvard.edu

CO-TREASURER

Jennifer Hofherr, MS, OTR/L, CNT

National NIDCAP Training Center
NIDCAP Trainer
Children's Hospital of University of Illinois
NIDCAP Training Center
email: jennifer.hofherr@nationwidechildrens.org

SECRETARY

Jean Powlesland, RN, MS

NIDCAP Trainer
Director, Children's Hospital of University
of Illinois NIDCAP Training Center
email: nidcapchicago@gmail.com

Fatima Clemente, MD

NIDCAP Trainer
Co-Director, São João NIDCAP
Training Center
email: clemente.fatima@gmail.com

Mandy Daly, Dip. H Diet and Nutrition, ACII, DLDU

Family Representative, Dublin, Ireland
email: mandy.daly@yahoo.co.uk

Jennifer Degl, MS

Family Representative, New York, USA
email: jenniferdegl@gmail.com

Dalia Silberstein, RN, PhD

NIDCAP Trainer
Co-Director, Israel NIDCAP Training
Center
email: daliasil1960@gmail.com

Charlotte Tscherning, MD, PhD

Division Chief of Neonatology
Oslo University Hospital, Norway
email: charlottecasper66@gmail.com

Juzer Tyebkhan, MBBS

NIDCAP Trainer
Director, Edmonton NIDCAP Training
Centre
email: juzer.tyebkhan@albertahealthservices.ca

Dorothy Vittner, PhD, RN, FAAN

Senior NIDCAP Trainer
West Coast NIDCAP & APIB Training
Center
email: dvitt8@gmail.com

STAFF

Sandra Kosta, BA

Executive Director of Administration
and Finance
email: sandra.kosta@childrens.harvard.edu

FOUNDER OF THE NIDCAP FEDERATION INTERNATIONAL, INC.

Heidelise Als, PhD 1940–2022

NIDCAP Founder, Past President 2001–2012
Senior NIDCAP Master Trainer
Senior APIB Master Trainer
Director, National NIDCAP Training Center,
1982–2022

Developmental Observer

The official publication of the NIDCAP Federation International published on-line three times a year. ©2024. The statements and opinions contained in this publication are solely those of the individual authors and contributors and not necessarily of the NIDCAP Federation International. Articles from the *Developmental Observer*, duly acknowledged, may be reprinted with permission. Please contact us at: developmentalobserver@nidcap.org.

Contributions

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

Developmental Observer current and past issues from: <https://scholarworks.iu.edu/journals/>



Articles are welcome for peer review and may be submitted via the ScholarWorks site or sent directly to the Senior Editor. The submission guidelines are available on the ScholarWorks site.

ISSN: 2689-2650 (online)

All published items have a unique document identifier (DOI)

Global Perspective on Developmental Care in Iran

Marzieh Hasanpour¹, Mohammad Bagher Hosseini², Mohammad Heidarzadeh³



¹Pediatric and Newborn Intensive Care Nursing Education Department, School of Nursing and Midwifery, Tehran University of Medical Sciences, Tehran. ²Department of Pediatrics, School of Medicine, Department of Neonatology, Tabriz University of Medical Sciences, Tabriz, Iran. ³Department of Pediatrics, School of Medicine, Zahedan University of Medical Sciences, Zahedan, Iran.

DOI: 10.14434/DO.V17I3.39757

Greetings (Durood! درود) from Iran to the world

Iran has a history of over 3,000 years and is home to one of the oldest known civilizations. It is the 18th largest country in the world and the 17th most populated nation. Iran is one of the world's most dynamic and prolific centers for art, architecture and literature. Inspired by various schools of thought and ideologies, artists, architects and literary figures alike have made Iran into the unique center of creativity and ingenuity it is today. As Asia's fourth largest United Nations Educational, Scientific and Cultural Organization World Heritage Site, Iran houses many historical sites and tourist attractions in various provinces and cities.

Newborn Infant Health in Iran

Neonatal medicine officially began in 1988 with the construction of the country's first NICU. The specialty became established with the founding of the Iranian Associations of Neonatology and of Perinatology in 1998 and 2003 respectively. These associations supported the continuous expansion of the number of Neonatal Intensive Care Units (NICUs) and of trained perinatal health care providers. Iran has made substantial progress in neonatal health with the neonatal mortality rate (NMR) declining from 27 deaths/1000 live births in 1990 to 8.6/1000 in 2017. Despite the progress, Iran's NMR is considered average, leaving room for improvement, especially considering 57% of deaths in children under 5 years occur in the neonatal period (2017).¹

Establishment of Developmental Care and NIDCAP

Marzieh Hasanpour, PhD was a faculty member at Isfahan University of Medical Science (MUI) when the Neonatal Intensive Care Nursing Master's Program was launched in 2009. She led the pediatric nursing department and taught developmental care topics based on the work of Als,² and Kenner and McGrath.³ That same year, a brief visit to the UCSF Children's Hospital and Nursing School in San Francisco, USA, enabled the start of a developmental care strategy to be used in Iran.

Following this visit, Dr. Mohammed Heidarzadeh, Chief of the National Neonatal Health Office, who had a long-standing interest in developmental care and educating using the Training of Trainers Model (TOT),⁴ suggested project collaboration



with the Ministry of Health (MOH). In a 2013 meeting at the MOH, Dr. Hasanpour presented information about NIDCAP and recommended inviting foreign trainers and the model's founder to train a national group in NIDCAP.

The request was approved and plans were made to host Iran's first developmental care (NIDCAP) course at Isfahan University of Medical Sciences. Dr. Heidelise Als and Dr. Nikk Conneman accepted the invitation to provide training. UNICEF provided financial assistance for the program and Mr. Amirhossein Yarpourvar, a UNICEF representative, helped coordinate. A memorandum of agreement was signed by the NIDCAP Federation International (NFI), UNICEF, and the Nation's Neonatal Health Office to plan and provide NIDCAP in Iran. During planning in 2013, Dr. Hasanpour became a member of the NFI. Additionally, she spent two weeks under Dr. Dorothy Vittner's supervision in the WakeMed NICU at the Carolina NIDCAP Training Center in Raleigh, USA and a few days with Dr. Juzer Tyebkhan in the Royal Alexandra NICU at the Edmonton NIDCAP Training Centre, Canada. Finally, a highly successful five-day workshop occurred in October 26-30, 2013, with 65 experts from across Iran, including officials from the Ministry of Health's Department of Neonatal Health, representatives from UNICEF, and international trainers Dr. Als and Dr. Conneman.

Figure 1: Timeline of developmental care implementation in Iran¹

2012	2013	2014	2015	2016	2017	2018
Introduction of NIDCAP to neonatologists and nurses	First NIDCAP workshop for 65 personnel from different universities Study visit to the Netherlands MOHME formally adopted NIDCAP	First National Iranian committee for NIDCAP First survey on NIDCAP to 23 hospitals and 9 universities Preparation of 4 Iranian Centers for NIDCAP Training	Visit to Sophia Hospital in the Netherlands Iranian trainers for NIDCAP chosen Four training sessions provided by Drs Als and Conneman Trainees worked to incorporate NIDCAP in their NICUs Spiritual and holistic care in the NICUs Budget allocated for NIDCAP Introductory NIDCAP workshops in 13 universities NIDCAP introduced at numerous conferences Workshop for Nursing Academia at Iran Medical Center Translation and adaptation of NFI documents for NIDCAP program	Two-day NIDCAP Seminar in Tehran for 350 participants Developmental care packages prepared Final NIDCAP training completed, and 10 trainees certified as NIDCAP Professionals under Dr Als	NIDCAP training completed in Tabriz and Shiraz 16 NIDCAP Professionals Support for scientific references for neonatal program 17 NICU pediatricians, neonatologists and nurses in Tehran, Tabriz, and Shiraz certified as NIDCAP professionals Support to scale-up NIDCAP nationally through two training workshops for 134 experts from 19 medical universities and nursing midwifery faculty	Support for NIDCAP Professionals to maintain their membership of the NFI Support for the assessment of NIDCAP in NICUs based on the minimum standards for NIDCAP

After the workshop, a national agreement was signed by the MOH, UNICEF, and the NFI selecting four hospitals with NICUs to implement the developmental care (NIDCAP) pilot program: Hafez Hospital in Shiraz, Al Zahra Hospital in Tabriz, Mahdijeh Hospital in Tehran, and Valiasr Hospital in Tehran. As a result, the National Developmental Care Committee was established. Dr. Hasanpour and Dr. Heidrzadeh, along with eight others, trained with Dr. Als in Tehran, and Dr. Conneman provided training in Tabriz and Shiraz to eight persons. All, except two who withdrew from the program, were certified as NIDCAP Professionals in 2016 and 2017, leaving a total of sixteen graduates.

Additionally, Iran actively participated in World Prematurity Day and World NIDCAP Day (WND) events. Activities were photographed for posters and shared with the NFI. Every semester, NIDCAP bedside observations are taught to neonatal nursing master's students. Some NFI teaching materials for parents were translated into Farsi for the NFI website. The Farsi segment of the Incubator Podcast (sponsored by Chiesi) invited Dr. Hasanpour to speak about WND 2024 and share 10 pearls of wisdom along with the NIDCAP care model.

Insight into Developmental Care in Tabriz

Al-Zahra Hospital, an academic perinatal hospital located in northwestern Iran and affiliated with the Tabriz University of Medical Sciences, has 50 NICU beds, 20 neonatal beds, and 10 Kangaroo Mother Care (KMC) beds. Dr. Mohammad Bagher Hosseini is a Professor of Neonatal-Perinatal Medicine, a

NIDCAP Professional, and the Head of the NICU at Al-Zahra Hospital.

During 2015-2017, two nurses and two physicians were trained and certified as NIDCAP professionals. Three remain at the hospital and are dedicated to training clinical nurses and specialist and sub-specialist assistants in developmental care. Developmental and supportive care for premature infants starts in the Operating and Labor and Delivery rooms. About 80% of NICU care is provided as four-handed care. Infant sleep support, pain management during painful procedures, and KMC are optimal. Mothers not yet discharged from the hospital are present at their baby's bedside three times a day accompanied by maternity unit staff. After their discharge, they are free to be with their baby 24 hours a day and play an active role in caregiving.

Due to limited physical space and insufficient privacy, fathers are present at the baby's bedside twice from 12-1 and 3-4 PM and, of course, in a coordinated and flexible manner at other times of the day and night. They participate in their baby's feedings and kangaroo care. The NICU environment is good in terms of light and sound. Only during the shift handover is the sound a little above the desired level. All preterm babies receive individualized care in a supportive nest and older babies are swaddled.

Facilities are available for mothers in the neonatal unit and the NICU, including a kitchen, bathroom, library, and a room for mothers' rest. About two years ago, the continuous KMC



Dr. Mohammad Bagher Hosseini and Dr. Marizeih Hasanpour

department started and is the first continuous KMC department with comfort facilities and 24-hour presence of mothers in Iran. Recently, a speech therapist was added to the NICU care team.

In the 2015 initial evaluation by the MOH, this centre obtained the highest average score¹⁰ for developmental care implementation out of 23 NICUs selected in the country. Overall, Al-Zahra's NICU score is 3-4 for the NIDCAP Nursery Assessment Certification Program. The occasional high patient census and lack of facilities for the permanent presence of fathers are among the current challenges. We are very interested in expanding developmental care programs in our unit and across the country if more support becomes available from the MOH and the NFI.

NIDCAP Certifications

During Dr. Conneman's last visit in April 2017, NIDCAP certification was achieved for the 16 neonatologists and nurses working in the four pilot hospitals. Table 1 (below) shows the distribution of NIDCAP certified professionals per pilot

hospital. At the time of this writing, 12 certified health professionals remain active. Ms. Zahra Eskandari moved from Mahdijeh Hospital to the Ministry of Health and Medical Education (MoHME), and later to Ali Asghar Children Hospital (Tehran). Dr. Keyvan Mirnia moved from Al-Zahra Hospital in Tabriz to the Tehran University of Medical Sciences in Tehran. Dr. Parisa Mohagheghi moved from Mahdijeh Hospital to Ali Asghar Children Hospital (Tehran). Dr. Nikoo Niknafs and Dr. Jila Mirlashari moved abroad. Ms. Zahra Godarzi retired. Mohammad Heidarzadeh moved from MoHME to the NICU in Zahedan University of Medical Sciences. Ms. Ameneh Abroon retired.

UNICEF Support and Evaluation

UNICEF support towards NIDCAP was aligned with MoHME strategies and priorities. NIDCAP was also consistent in responding to newborn and parent needs and the development of health professionals' skills. Improving neonatal care has been a priority for the MoHME. The healthcare reforms put in place since 2014 prioritized maternal and child health, including neonatal health. At the NICU level, willingness to evolve professional practices and the commitment of healthcare staff facilitated the introduction of the NIDCAP approach and principles. Overall, NIDCAP benefited from national leadership and an enabling environment, despite some resistance to change at the NICU level. Additionally, in Iran, NIDCAP is a gender and culturally sensitive intervention.

Effectiveness

Evaluation shows good improvement due to NIDCAP, including a focus on care for preterm newborns, upgrade of physical spaces and equipment, and adoption of new protocols and clinical procedures in the pilot NICUs. Previously, ad hoc programs like KMC were implemented in a few units, but NIDCAP resulted in broader changes. Health professionals got involved in developmental care and interest in this field emerged. Today, the presence of mothers around the clock in all units is considered normal whereas before they were only allowed to be there during visiting hours. Downstream effects with only

Figure 2: Initial Distribution of NIDCAP Training in pilot hospitals.¹

NIDCAP Certified Professionals	Hafez Hospital (Shiraz)	Al Zahra Hospital (Tabriz)	Mahdijeh Hospital (Tehran)	Valiasr Hospital (Tehran)	MoHME	TOTAL
Neonatologists	Dr Seyed Mostajab Razavi	Dr Keyvan Mirnia Dr Mohamad Baqer Hosseini	Dr Parisa Mohagheghi	Dr Hosein Dalili Dr Nikoo Niknafs	Mohammad Heidarzadeh	7
Nurses	Ms Masoumeh Pakrouh	Ms Marzieh Sami Ms Hamideh Nikzad	Ms Elaheh Rastkar Ms Zahra Eskandari (Ali Asghar Hospital & MoH)	Mrs Zahra Godarzi Ms Ameneh Abroon Dr Marzieh Hasanpour Dr Jila Mirlashari (Faculty of Nursing)		9
TOTAL	2	4	3	6	1	16

"Iran undertook an innovative approach for the implementation of developmental care and NIDCAP across the country"

some evidence include the improvement of the quality of care and reduction in preterm morbidity. However, publications in specialized medical journals regarding NIDCAP benefits in Iran constitute a source of rigorous information that attest to a generally positive appreciation of the introduction of NIDCAP.

Efficiency

With a modest level of external funding, NIDCAP has had a positive leverage effect on promoting developmental care in Iran. The introduction of NIDCAP helped four NICUs adopt a family and baby centered approach and improved newborn care standards. It also stimulated biomedical research and scientific publications in this field.⁵⁻¹² The absence of a logical framework for the program and a structured planning, reporting, and monitoring system has, however, hampered capturing progress and challenges. NIDCAP as a "pilot project" here has not been able to capitalize on and showcase learnings and good practices emanating from its implementation.

Sustainability

Overall, the MoHME and the four hospitals have the capacity and means to maintain NIDCAP standards of care without external support. However, the high workload in the four NICUs seems to affect the performance of health professionals, which may result in care variability and a gradual decline in NIDCAP care standards. From a health systems perspective, NIDCAP in Iran has not matured enough to allow for scalability and to continue developing local capacities.

Conclusion

Iran undertook an innovative approach for the implementation of developmental care and NIDCAP across the country. A pilot project in four NICUs was funded by UNICEF and supported by the MOH. From a health system perspective, NIDCAP contributed to changing mindsets about neonatal care and reinforcing national capacities in developmental care. A major achievement is the positive impact on newborn caregivers. As part of broader efforts, NIDCAP helped transition from traditional task-oriented NICU care to newborn and family centred, developmentally supportive care in the four piloted NICUs. The program, however, did not achieve all NIDCAP standards and did not meet initial ambitions such as the creation of a

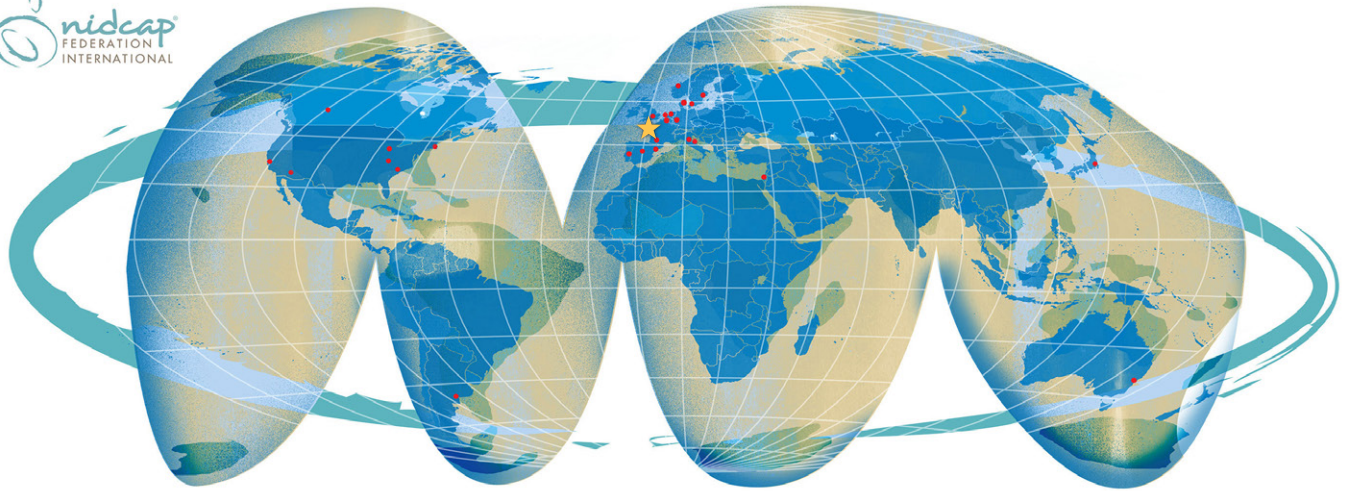


Dr. Heidelise Als with Dr. Marizeih Hasanpour

NIDCAP Training Centre in Iran and establishment of Centres of Excellence. Most NIDCAP certified professionals continue working in different NICUs and represent an asset the health system can continue to leverage to relaunch NIDCAP both in pilot hospitals and other hospitals.¹

References:

1. Heshmat R, Grau E. UNICEF and MoHME Team. External final evaluation of the "Newborn Individualized Developmental Care and Assessment Programme (NIDCAP)", Iran, 2013 – 2018". UNICEF and MoHME. May 16, 2021.
2. Als H. "Newborn Individualized Developmental Care and Assessment Program (NIDCAP): New frontier for neonatal and perinatal medicine". *J Neonatal-Perinat Med* 2009; 2(3): 135-147.
3. Kenner Carole, Jacqueline McGrath, National Association of Neonatal Nurses. Developmental Care of Newborns and Infants: A Guide for Health Professionals. 1st Edition. St. Louis, MO: Mosby, 2004.
4. The Training of Trainers (TOT) Model. National Center for chronic disease prevention and health promotion. Division of Population Health. <https://www.cdc.gov/healthyschools/trainingtools.htm>
5. Sefatbaqa S, et al. Cue-Based Feeding and Short-Term Health Outcomes of Premature Infants in Newborn Intensive Care Units (NICU): A Non-Randomized Trial. Unpublished. <https://doi.org/10.21203/rs.3.rs-509074/v1>
6. Hasanpour M, Alavi M, Azizi F, Als H, Armanian AM. Iranian parent-staff communication and parental stress in the neonatal Intensive Care Unit. *J Edu Health Promot* 2017;6:49.
7. Hasanpour M, Farashi F, Mohammadzadeh M, Abdeyazdan Z. The impact of a neonatal sleep care training program on nurses' knowledge and performance in neonatal intensive care units. *Iranian J Nursing Midwifery Res* 2017;22:215-8.
8. Baghlani R, Hosseini MB, Safaiyan A, Alizadeh M, Bostanabad MA. Neonatal Intensive Care Unit Nurses' Perceptions and Knowledge of Newborn Individualized Developmental Care and Assessment Program: A Multicenter Study. *Iran J Nurs Midwifery Res* 2019 Mar-Apr;24(2):113-117. doi: 10.4103/ijnmr.IJNMR_54_18. PMID: 30820222; PMCID: PMC6390436.
9. Soleimani F, Torkzahrani S, Rafiey H, Salavati M, Nasiri M. Assessing Factors Influencing the Quality of Developmental Care in Neonatal Intensive Care Units of Tehran, *Iran J Pediatr* 2017; 27(1):e6733. doi: 10.5812/ijp.6733.
10. Razavi Nejad, M., Heidarzadeh, M., Mohagheghi, P., Akrami, F., Almasi-Hashiani, A., Eskandary, Z. (2017). Assessment of Physical Environment of Iran's Neonatal Tertiary Care Centers from the Perspective of the Neonatal Individualized Developmental Care. *Iranian Journal of Neonatology IJN* 8(4), 20-25. doi: 10.22038/ijn.2017.21258.1240.
11. Razavi Nejad M, Eskandari Z, Heidarzadeh M, Afjeh A, Almasi-Hashiani A, Akrami F. Assessing infant-oriented care with developmental support approach in Iranian NICUs. *J Matern Fetal Neonatal Med* 2018 Jul;31(14):1851-1855. doi: 10.1080/14767058.2017.1330879. Epub 2017 May 31. PMID: 28508672.
12. Eskandari, Z., Akrami, F., Razvi Nejad, M., Almasi-Hashiani, A., Heidarzadeh, M. (2020). Assessing Family-Centered Care in Iranian NICUs from Perspective of Neonatal Individual Developmental Care. *Iranian Journal of Neonatology IJN* 11(4), 87-92. doi: 10.22038/ijn.2020.47189.1808.



Saint-Brieuc NIDCAP Training Center

Saint-Brieuc – Paimpol – Treguier Hospital Center, Saint-Brieuc France

DOI: 10.14434/do.v17i3.39758

The Saint-Brieuc unit has 25 beds for preterm infants and newborns, 12 for intensive care and 13 for neonatology. It also has parent rooms.

From 2001 to 2008, many members of the team benefited from the "Introduction to developmental care" training, delivered by Drs Sizun and Ratynski in Brest, the first NIDCAP Training Center in France. This two-day training, coupled with the actions of various interdisciplinary working groups (postures, sensory environment, presence of parents and siblings, pain, carrying, reading, breastfeeding, preparation for discharge, etc.) allowed for joint reflection by the team, which then committed to a philosophy of infant and family centered care.

In 2010, the Brittany Regional Health Agency financed the NIDCAP implementation. Five registered nurses and one doctor began their NIDCAP training observations, and were certified NIDCAP professionals by 2013. A full-time equivalent position was dedicated to NIDCAP coordination in developmental care. All infants born before 33 weeks of gestation benefit from NIDCAP observations.

At the same time, the maternity and neonatal intensive care units achieved certification from the Baby-Friendly Hospital Initiative. Two new professionals were trained in NIDCAP® observations, and certified in 2017.

The team also continues with various training courses to improve the support for infants and their families. These were SOFFI training (Support of Oral Feeding in Fragile Infants),

and the NBO training (Newborn Behavioral Observation). During team meetings, the local parent's association "Bébés en Avance" is contacted. This enables the service projects to be carried out in consultation with parents whose babies have been hospitalized within the unit.

With the NIDCAP being established within our NICU, Saint-Brieuc Hospital supported Ms. Guillou for her NIDCAP trainer training project. She was trained for three years by Delphine Druart, Belgian Master Trainer, under the supervision of Agneta Kleberg (Swedish Master Trainer) and Deborah Buehler (President of the NIDCAP Federation International, NIDCAP and APIB Master Trainer). Ms. Guillou brought two of her colleagues to the NIDCAP professional certification. At the same time, she undertook the NBO trainer training with Professor Sizun (NBO Trainer, Toulouse University Hospital) and Isabelle Olivard (NBO Trainer, Brest University Hospital).

The Saint-Brieuc NIDCAP Training Center opened in January 2024. It has a collaboration with the already existing Training Centers in Brest and Toulouse, and that of Valenciennes which also opened recently. This had allowed the continuation of the expansion in French neonatology units of this philosophy of preterm infant and family centered care. This dissemination is supported and reinforced by collaborative work between the different Training Centers, experts from the NIDCAP Francophone Association and SOS Préma Association.



Saint-Brieuc NIDCAP Training Center Team

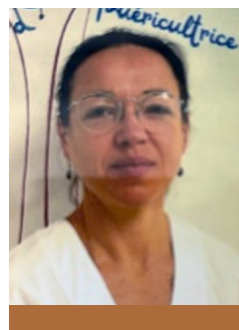
Saint-Brieuc NIDCAP Training Center Team

Group photo (above), From left to right :

- Mme Robin-Bregeon Marie-Noelle, Administrative Manager of St Brieuc NIDCAP Training Center
- Dr. Andro-Garçon Marie-Cécile, MD, NIDCAP Professional and director of St Brieuc NIDCAP Training Center
- Mme Guillou Aurélie, RN and NIDCAP and NBO Trainer aurelie.guillou@armorsante.bzh
- Mme Coer Manuella, RN and NIDCAP Professional
- Mme Josse Anne-Claire, RN and NIDCAP Professional
- Mme Le Clec'h Aurélie, RN and NIDCAP Professional



Mme Collet Cécile, RN and NIDCAP Professional and NBO

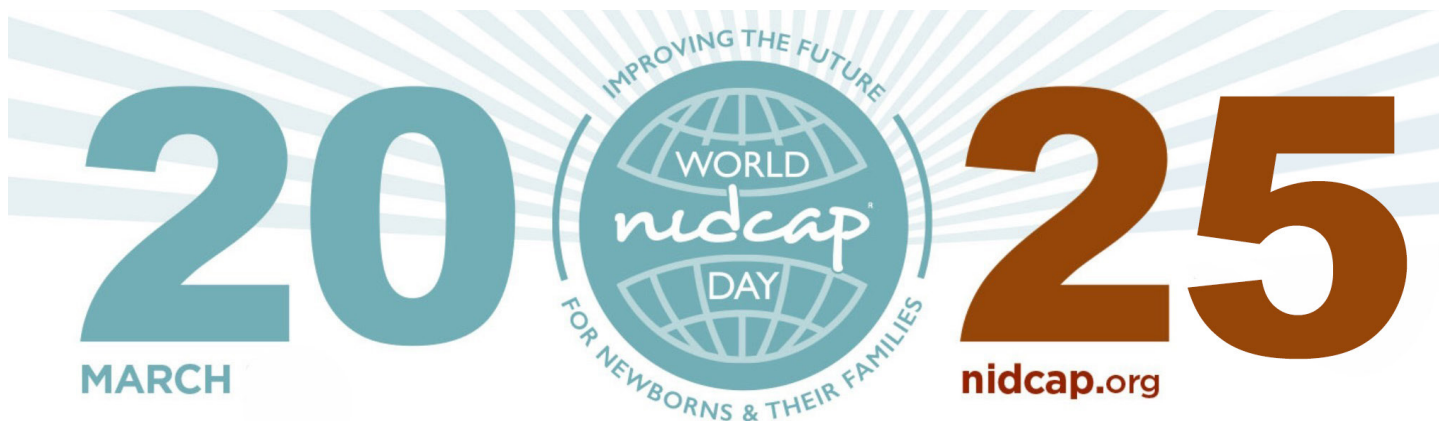


Mme Faijan Céline, RN and NIDCAP Professional and NBO



Mathieu, NICU head-nurse and NIDCAP Professional

[Click Here to Visit the Saint-Brieuc NIDCAP Training Center Website](#)



Reflecting on Motor Cortex and Its Place in Developmental Care

Jeffrey R. Alberts, PhD

Indiana University, USA, NFI Science Committee, Associate Editor for Science

DOI: 10.14434/do.v17i3.39755

Organisms, by definition, are made of interconnected organs that perform specific functions. Here we focus on one particularly magnificent organ – the brain. The human brain is an organ that makes a variety of products. With receptors tuned to the world outside the body, the brain makes percepts such as colors, temperatures and tastes. Other receptors tuned to the world inside the body, stimulate the brain to create sensations such as hunger, thirst, and fulfillments. The brain metabolizes experiences and produces thoughts. It secretes emotions. Yet, the majority of the processing of the nervous system is involved in making *movements*.

Movement is the stuff of behavior. And behavior is the stuff of NIDCAP. To make a NIDCAP observation is to see a world of movements on multiple levels, all manifested by a baby organism.

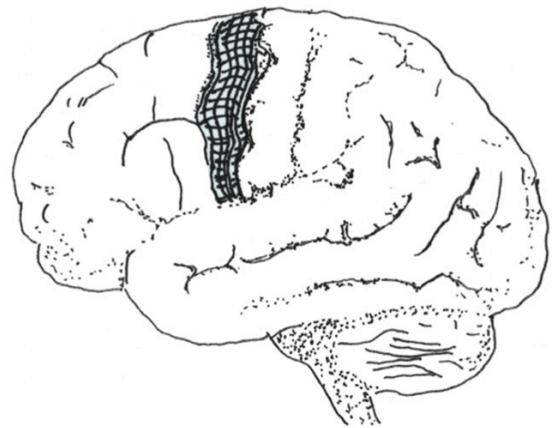
"Movement is the stuff of behavior. And behavior is the stuff of NIDCAP"

Synactive theory delineates movements in three domains: motor, autonomic, and regulatory.^{1,2} The motor domain comprises limb movements and other actions that are typically tagged as “behavior”. But the autonomic functions that we observe are also behavioral movements: respiratory movements of the diaphragm and beating movements of the heart muscle, for example. Similarly, the regulatory domain is full of movements: those of muscles that alter facial expression and flare nostrils, as well as the tiny muscles that can modulate skin tones which signal changes in state. Synchronies among limb movements, heart rate, and breathing function as a total regulatory dynamic. Together, we use these movements to recognize and interpret “the voice of the infant”.

The goals of developmental care are served by our understanding of the movements that constitute behavior, for this is our window on the states, status, and progress of a baby. To understand better, we must ask: What neural structures and organization constitute the motor system?

In its neural organization, the adult human motor system

Figure 1: Drawing of adult brain showing location of M1, or Primary Motor Cortex (*cross-hatched area*).



is both hierarchical and distributed. Top billing goes to the primary motor cortex (also known as M1) which occupies a prominent region of cerebral cortex. M1 arches from one side of the brain to the other like the headband of a pair of headphones. Figure 1 depicts the band of M1, just anterior to the Central Sulcus.

The cerebral cortex is one sheet of cells comprising six layers. The sheet is crumpled together to fit within the skull, thus creating the ridges and valleys (gyri and sulci) defining the human brain's appearance. There's a spatial representation of the body along M1's surface. Head and face occupy the most lateral positions; the rest of body is represented along M1 in orderly fashion, creating a map of what is controlled where.

From Layer V of primary motor cortex (M1), axons of the large, “pyramidal” neurons gather to form the *corticospinal tract* (CST) which extends down into the brain and beyond. The CST contains the longest axons in the central nervous system, reaching from cortex to the sacral spinal cord. This white matter (myelinated) tract is not a simple ‘straight shot’ to the base of central nervous system. For many of the neurons, there are terminals and loops within the brain. These include connections in the subcortical basal ganglia and the thalamus. Along its path, the CST also connects in the hindbrain (pons and medulla). It gets inputs from cerebellum, one of the brain

systems that contributes learned patterns of movement control.

At each vertebral station along the spinal cord there are neural circuits arranged so that they fire in patterns that create organized muscle movements. Some of these movements appear as simple “reflexes”, others as more complex sequences that may move a hand to grasp or a foot to withdraw. The CST and its inputs orchestrate and coordinate the spinal components to create adaptively organized voluntary behaviors.³

Importantly, M1’s control of the muscles of face, mouth, tongue and eyes is organized similarly in and on the way out of the cortex, but has a separate name - *corticobulbar tract* (CBT). The CBT emanates from cortex via the same type of Layer V neurons described earlier. The two populations (CST and CBT) are bundled together subcortically in the brain where they give and receive connections as they traverse to mid brain. The CBT group departs in the hindbrain. There it connects with nuclei of the cranial nerves. This is an ancient array of sensory and motor nerves that serve the anterior end of essentially every organism that has a front end and is bilaterally symmetrical! In humans and other organisms that have a face, the same organized array of cranial nerves are at work. The CBT axons go no further, but they are in charge from the neck up.

Following this ultra-brief characterization of the *adult* motor system, we can turn to some stunning new findings about the development of M1. This new knowledge requires some radical re-thinking, but I believe it has a lot to say about babies in the NICU and about developmental care, so it’s worth digesting. Note that the results covered in this discussion apply similarly to humans and a variety of non-human animals.

Let’s start with one of the major findings: Early in postnatal life, M1 does *not* control movements! Is this because M1 is too immature to function and is thus “silent”? No, M1 neurons fire in orderly, lawful, functional ways. But its neuronal activities do not produce movement. Instead, M1 neurons in the infant organism fire *in response* to movements. This was discovered in the lab of Mark Blumberg (University of Iowa), a prominent infant sleep neuroscientist. Blumberg and his associates have been carefully observing sleeping infant rats, specifically the “twitches” made regularly by their paws and limbs during “active” sleep, often called REM sleep.^{4,5} They have mapped the impulses going from the limbs to the brain and from the brain to the limbs. Blumberg and his associates discovered that the infants’ spontaneous (unprovoked) twitches aren’t preceded by brain activity; instead, M1 responds to the movements.⁶ That is, M1 senses the movements – from receptors in the limbs, the skin, or both. Simply put, during early infancy M1 is sensory cortex, not motor cortex!

"The goals of developmental care are served by our understanding of the movements that constitute behavior"

In identifying M1 as a functional sensory cortex before becoming primary motor cortex, Professor Blumberg sees M1’s sensory function as the brain’s way of acquiring a map of its body, perhaps learning the ‘feel’ of the movements of each joint, minor appendage, and limb – and guiding the wiring and sculpting of an accurate cortical map of the body it will come to control. The idea that sensory experience regulates, and shapes neural architecture is supported by examples in other sensory systems.^{6,7,8} The transformation from sensory-to-motor function in a major cortical area is a stunning finding, challenging long-held ideas about developmental continuities and some traditional uses of behavioral measures for inferring cognitive processes.⁹

We also have to ask, if M1 in the infant is sensory and not motor cortex, what controls the young infants’ movements? The answer attests to the capabilities of the basal ganglia, associated subcortical, hindbrain structures, as well as cerebellar and spinal circuits that comprise the motor system. Lack of motor inputs from cortex probably explains the absence of fine motor control that typifies early infant movements.

These new findings have many implications pertinent to developmental care in general and to NIDCAP practice in particular. If the motor behaviors of young infants are controlled subcortically, does this mean that their movements are expressed without conscious awareness and thus lack agency or intent? Does this make them meaningless, automatic, reflexes? To such questions and concerns, I believe the data say “no!” All evidence indicates that regardless of “how” an infant’s movements make and maintain contact with the mother, they are in contact with her body, at which point they can derive all the marvelous benefits of contact behavior. In the animal world, think of infant monkeys, reflexively grasping and holding the fur of their mothers as they amble or climb. These “mere reflexes” serve their purpose. Babies stay warm, protected, and repeatedly engaged in prolonged contact interactions with the mother. They are exploring her body and their own in relation to her

and to their own movements. Every moment teaches a lesson of comfort and safety. Every moment is a learning moment.

Blumberg's results, for example, demonstrate that sensory stimulation that is experienced as a "by-product" of spontaneous, uncontrolled "twitching" stimulate activity in specific areas of M1. The neuroscience literature provides numerous examples of how "activity-dependent" development shapes the synaptic connections and the very architecture of the highest cortical regions of the brain. On every level, such movements within a developing nervous system are vital to its growth, differentiation, and adaptive functioning.

We can better understand the value of positioning and swaddling when it provides a supportive surround, so the baby is "held" within its environment and thus receives continuous cutaneous stimulation. Providing opportunities for the baby to move her hands to her face – to self-regulate, to calm herself should also facilitate tactile stimulation to both face and hands that should contribute to establishing or reinforcing the neural maps in the developing brain.

It's truly amazing to know that when we observe a newborn's behavior, we are actually witnessing a process of transformative development, in which the brain's "motor cortex" is working as a purely *sensory* field. M1 is operating by completely different, yet vitally important rules. It is *receiving* and integrating the kinds of impulses that it will soon (by about three months of postnatal age) *produce*, when it essentially reverses its function and transforms from sensory function to motor function!

We are, I believe, entering a new era of comprehension of neurobehavioral developmental care. Systems such as NIDCAP have rested on a foundation of basic description of neural immaturity and susceptibility to change. We now have some important fundamentals, including previously unimaginable findings, that give us deeper insight into developmental processes. Next steps include more precise understanding of how to manage these processes as part of caregiving and supporting families to carry forward their baby's healthy growth and development.

The interested reader is encouraged to read the paper by Blumberg and Adolph⁹ portions of which inspired the writing of this column.

References

1. Als H. Toward a synactive theory of development: Promise for the assessment and support of infant individuality. *Infant Mental Health Journal*, 1982. 3(4): 229-243.
2. Als H. A synactive model of neonatal behavioral organization: Framework for the assessment of neurobehavioral development in the premature infant and for the support of infants and parents in the neonatal intensive care environment. *Physical & Occupational Therapy in Pediatrics*. 1986;6(3-4): 3-53.
3. Grillner S, El Manira A. Current principles of motor control with special reference to vertebrate locomotion. *Physiological Reviews*, 2020;100: 271-320. doi:10.1152/physrev.00015.2019
4. Blumberg MS, Marques HG, Iida F. Twitching in sensorimotor development from sleeping rats to robots. *Current Biology* 2013. 23, R532 -R537. doi:10.1016/j.smr.2015.12.002
5. Tiriac A, Del Rio-Bermudez C, Blumberg MS. Self-generated movements with "unexpected" sensory consequences. *Current Biology*, 2014. 24:2136-2141. doi.org/10.1016/j.cub.2014.07.053
6. Blumberg MS, Dooley JC, Sokoloff G. The developing brain revealed during sleep. *Current Opinion in Physiology*, 2020;15:14-22. doi.org/10.1016/j.cub.2014.07.053.
7. Jamann N, Jordan M, Engelhardt M. Activity-dependent axonal plasticity in sensory systems. *Neuroscience*. 2018;368: 268-282. doi: 10.1016/j.neuroscience.2017.07.035.
8. Katz LC, Shatz CJ. Synaptic connectivity and the construction of cortical circuits. *Science*, 1996;274(5290): 1133-1138. doi: 10.1126/science.274.5290.1133.
9. Blumberg MS, Adolph KE. Protracted development of motor cortex constrains rich interpretations of infant cognition. *Trends in Cognitive Science*, 2023. 27(3): 233-245. doi.org/10.1016/j.tics.2022.12.014.

Rhyme & Reflect

Diane Ballweg, MSN, Developmental Specialist at WakeMed Hospital in Raleigh, North Carolina, USA

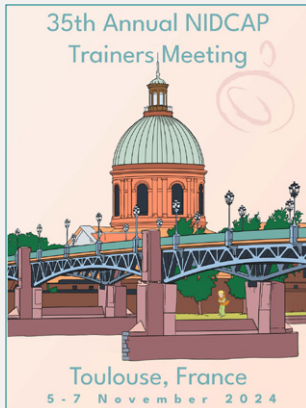
Affection Connection

*Skin-to-skin contact
is great – it's a fact.
Instead of you there and here me,
when together, we are we.*

*Family, father, mother,
you are like no other.
Nothing compares
with our kangaroo cares.*

*Your scent, words, and warm loving touch
help me oh so very, very much.
When you have worries, fears or feel blue,
I hope my snuggles help you heal, too.*

*Tell the staff, the town, the whole world!
I grow best with your arms curled
around me all day long.
I feel calm and preemie strong!*



The 35th Annual NIDCAP Trainers Meeting

NIDCAP: Systems Integration at Local, Regional and National Levels

November 5-7, 2024

Centre de Congrès Pierre Baudis
11 Esplanade Compans Caffarelli
Toulouse, France

Hosted by the French NIDCAP Center, Toulouse
(By invitation only)

Annual NFI Membership Meeting

November 5, 2024

15:25 CET

Centre de Congrès Pierre Baudis

11 Esplanade Compans Caffarelli

Toulouse, France

(Members may also attend via Zoom)



**Thursday
November 7
2024**

OPEN ONE-DAY CONFERENCE

Thursday, November 7, 08:00-18:30 CET

**Centre de Congrès Pierre Baudis
Toulouse, France**
Hybrid Meeting

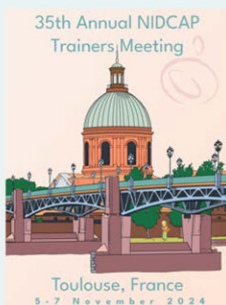
SPEAKERS

Deborah Buehler, PhD
Adrien Tacquet
Naïs Baschet, MD
Delphine Druart, RN
Monique Flierman, MSc
Aurélien Guillou, RN
Peggy Laurant, RN
Kelly Janssens, RN, RM, LC
Pierre Kuhn, MD
Charlotte Bouvard
Debra Paul, OTR
Charlotte Tscherning, MD
Dorothy Vittner, PhD, RN, FAAN

This conference is being held on the last day of the 35th Annual NIDCAP Trainers Meeting and the first day of the 12^{èmes} Journées Francophones NIDCAP. The purpose of the meeting is to equip the learner with the knowledge to provide high level and evidence-based, developmentally supportive care to hospitalized infants and their families.

Visit our conference page for details:

nidcap.org/7nov2024



**SAVE
the
DATE**

12^{èmes}
Journées
Francophones
NIDCAP

Open One-Day Conference
*NIDCAP: Systems Integration at
Local, Regional and National Levels*

Maria Lopez Maestro and Kaye Spence

Editorial Team

DOI:10.14434/do.v17i3.39759

Search – 'NIDCAP' in all languages in Google Scholar 2024, verified in Pub-Med. If no Pub-Med field left blank.

1. Abad MS, Villa S, Aemmi SZ, Behbood H. **How can we improve the experience of mothers whose baby is hospitalized in the NICU?** *Journal of Neonatal Nursing*. 2024 Apr doi:10.1016/j.jnn.2023.08.001.
2. Asiri A, Ahmed FA, Almowafy AA, Mohamed RA, Nouh WG, Abdelrahman AS, Kafli RH, Mohamed MF, Moursy SM. **Instructional guidelines and group discussion effects on new nurses' competency regarding nursing care of preterm infants.** *Heliyon*. 2024 Jun 6;10(11):e32586. doi: 10.1016/j.heliyon.2024.e32586. PMID: 38961993; PMCID: PMC11219499. Free article <https://www.cell.com/heliyon/fulltext/S2405-8440%2824%2908617-1>
3. Atilano RP, Valeriano TB. **Conocimiento y cuidado de enfermería en el neurodesarrollo del neonato prematuro.** *Sciéndo*. 2024 Apr 12. DOI:10.17268/sciendo.2024.019 NO PUB MED
4. Bater ML, Gould JF, Collins CT, Anderson PJ, Stark MJ. **Child development education in the Neonatal Unit: Understanding parent developmental literacy needs, priorities and preferences.** *Patient Educ Couns*. 2024 Feb;119:108058. doi: 10.1016/j.pec.2023.108058. Epub 2023 Nov 10. PMID: 37976667. Free article <https://www.sciencedirect.com/science/article/pii/S0738399123004391>
5. Browne JV. **Fragile Infant Forums for Implementation of IFCDC Standards: Insights from the 37th Annual Gravens Meeting.** *Neonatology Today*. 2024 Mar 1;19(3). on-line:www.NeonatologyToday.
6. Buil A, Thomas N, Chevalier B, Devouche E. **Effects of skin-to-skin contact in supported diagonal flexion positioning on movement quality in very preterm infants at term age.** *Early Hum Dev*. 2024 Mar;190:105954. doi: 10.1016/j.earlhumdev.2024.105954. Epub 2024 Feb 6. PMID: 38340687.
7. Butler SC, Rofeberg V, Smith-Parrish M, LaRonde M, Vittner DJ, Goldberg S, Bailey V, Weeks MM, McCowan S, Severtson K, Glowick K, Rachwal CM. **Caring for hearts and minds: a quality improvement approach to individualized developmental care in the cardiac intensive care unit.** *Front Pediatr*. 2024 Apr 9;12:1384615. doi: 10.3389/fped.2024.1384615. PMID: 38655280; PMCID: PMC11037267. Free article <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11037267/>
8. Carvalho MES, Justo JMRM. **Maternal Humming during Kangaroo Care: Effects on Preterm Dyads' Physiological Parameters.** *Children* (Basel). 2024 Mar 21;11(3):373. doi: 10.3390/children11030373. PMID: 38539408; PMCID: PMC10969544. Free article <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10969544/>
9. Castello C. « **Le Nidcap m'a donné l'impression d'avoir une perception plus juste et plus objective de l'enfant** » ["The Nidcap gave me the impression of having a fairer and more objective perception of the child"]. *Soins Pédiatr Pueric*. 2024 Jan-Feb;45(336):25-27. French. doi: 10.1016/j.spp.2023.12.006. Epub 2024 Feb 6. PMID: 38365392.
10. Culbreth R, Self-Brown S, Spratling R, Spears CA, Osborne MC, Melnyk BM. **Adaptation of Safe Care, an evidence-based parenting program, for caregivers of infants in the neonatal intensive care unit.** *Appl Nurs Res*. 2024 Aug;78:151817. doi: 10.1016/j.apnr.2024.151817. Epub 2024 Jun 27. PMID: 39053997.
11. Darilek U, Finley E, McGrath J. **A Narrative Review of NICU Implementation of Evidence-Based Early Relational Health Interventions.** *Adv Neonatal Care*. 2024 Jun 1;24(3):253-267. doi: 10.1097/ANC.0000000000001151. Epub 2024 May 30. PMID: 38815279.
12. de Bijl-Marcus K, Benders MJNL, Dudink J, Ahaus K, Kahlmann M, Groenendaal F. **Morbidity and trends in length of hospitalisation of very and extremely preterm infants born between 2008 and 2021 in the Netherlands: a cohort study.** *BMJ Open*. 2024 Jun 4;14(6):e078842. doi: 10.1136/bmjopen-2023-078842. PMID: 38834326; PMCID: PMC11163635. Free article <https://pubmed.ncbi.nlm.nih.gov/38834326/>
13. Detollenaere J, Benahmed N, Costa E, Van den Heede K, Christiaens W. **Barriers to the Implementation of Infant- and Family-Centered Developmental Care From Focus Groups With Neonatal Care Providers.** *J Perinat Neonatal Nurs*. 2024 Apr-Jun 01;38(2):221-226. doi: 10.1097/JPN.0000000000000730. Epub 2024 May 13. PMID: 38758277.
14. Duffy N, Hickey L, Treyvaud K, Delany C. **360-degree phenomenology: A qualitative approach to exploring the infant experience of hospitalisation in neonatal intensive care.** *Early Hum Dev*. 2024 Mar;190:105963. doi: 10.1016/j.earlhumdev.2024.105963. Epub 2024 Feb 4. PMID: 38377880.
15. Elliot-Smith A, Sammut A, Hutchon B, Merchant N, O'Brien F, Huertas-Ceballos A. **Early intervention to improve neurodevelopmental outcomes for high-risk infants.** *Paediatrics and Child Health*. 2024 Jan 9. DOI: 10.1111/dmcn.14187
16. Engel V, Mauron Papadimitriou V, Buehrer L, Ebner L, Keller L, Gosteli M, Siegfried S, Latal B, Kiechl-Kohlendorfer U, Held U. **Swiss-Austrian Very Preterm Infant Transition Systematic Review (SAVE-T): Transition to home: improving outcomes of children and families—a systematic review protocol.** *medRxiv*. 2024:2024-04. DOI:10.1101/2024.04.23.24306012.
17. Erdoğan Ç, Turan T. **Evaluation of the Effectiveness of Digital Game-Based Learning Given to Nursing Students for the Developmental Care of Infants in Neonatal Intensive Care Unit.** *Comput Inform Nurs*. 2023 May 1;41(5):300-308. doi: 10.1097/CIN.0000000000000920. PMID: 37145853.
18. Foster J, Pathrose SP, Briguglio L, Trajkovski S, Lowe P, Muirhead R, Jyoti J, Ng L, Blay N, Spence K, Chetty N, Broom M. **Scoping review of systematic reviews of nursing interventions in a neonatal intensive care unit or special care nursery.** *J Clin Nurs*. 2024 Jun;33(6):2123-2137. doi: 10.1111/jocn.17053. Epub 2024 Feb 9. PMID: 38339771.

19. Franco F, Chifa M, Politimou N. **Home Musical Activities Boost Premature Infants' Language Development.** *Children* (Basel). 2024 May 1;11(5):542. doi: 10.3390/children11050542. PMID: 38790537; PMCID: PMC11120229. <https://pubmed.ncbi.nlm.nih.gov/38790537/>
20. Franco Fuenmayor ME, Fawcett A, Schwartz KE, Horner S, Balasundaram M, Burke BL, Bean KA, Russell LN, Simonton E, Machut KZ, Fry JT. **Understanding family-centered care in the NICU: a scoping review protocol.** *JBI Evid Synth.* 2024 Jul 1;22(7):1379-1386. doi: 10.11124/JBIES-23-00252. PMID: 38385497.
21. Fujimoto, T. 藤本智久, 皮居達彦, 田中正道, 石本麻衣子, 大谷悠帆, 船曳幸代, 久吳真章. 「超低出生体重児に対する NIDCAP (Newborn Individualized Developmental Care & Assessment Program) の効果~ 修正 1 歳 6 か月および修正 3 歳での発達指数の検討~」
22. Griffiths N, Laing S, Spence K, Foureur M, Popat H, Hickey L, Sinclair L. **Developmental care education in Australian surgical neonatal intensive care units: A cross-sectional study of nurses' perceptions.** *Heliyon.* 2024 May 7;10(10):e30572. doi: 10.1016/j.heliyon.2024.e30572. PMID: 38799751; PMCID: PMC11126797. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11126797/>
23. Guittard C, Eutrope J, Caillies S, Loron G. **Effect of tactile and/or kinesthetic stimulation therapy of preterm infants on their parents' anxiety and depressive symptoms: A systematic review.** *BMC Psychol.* 2024 Jan 2;12(1):3. doi: 10.1186/s40359-023-01510-x. PMID: 38167522; PMCID: PMC10759426. Free article <https://pubmed.ncbi.nlm.nih.gov/38167522/>
24. Heyns B, Downing C. **Validation of a care model in neonatal intensive care units: A mixed method study.** *Journal of Neonatal Nursing.* 2024 Jan 19. DOI:10.1016/j.jnn.2024.01.00
25. Hollund IMH, Aakvik KAD, Benum SD, Ingvaldsen SH, Lydersen S, Tikanmäki M, Hovi P, Räikkönen K, Kajantie E, Johnson S, Marlow N, Baumann N, Wolke D, Indredavik MS, Evensen KAI. **Mental health, pain and tiredness in adults born very preterm or with very low birthweight.** *Acta Paediatr.* 2024 Jan;113(1):72-80. doi: 10.1111/apa.16982. Epub 2023 Oct 3. PMID: 37787099.
26. Incekar MÇ, Çeçen E, Kazmacı VK, Selalmaz M, Oğut NU. **Individualized Developmental Care Practices of Nurses Working in Neonatal Intensive Care Units: A Qualitative Study.** *Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi.* 11(1):35-45. DOI:10.31125/hunhemsire.1248470
27. Ismail A, Salaghor SM, Alshomrani SA, Almodallal H. **The Impact of Using Nesting Care on Heart Rate, Oxygen Saturation, and Pain Among Premature Neonates in Neonatal Intensive Care Units in Saudi Arabia: A Quasi-Experimental Study.** *Cureus.* 2024 Jun 6;16(6):e61775. doi: 10.7759/cureus.61775. PMID: 38975484; PMCID: PMC11227033. Free article <https://pubmed.ncbi.nlm.nih.gov/38975484/>
28. Jaeger CB. **Baby and Family-Centered Care in the Neonatal Intensive Care Unit: Changing Perspective.** *Crit Care Nurs Clin North Am.* 2024 Jun;36(2):185-192. doi: 10.1016/j.cnc.2024.01.005. Epub 2024 Feb 7. PMID: 38705687.
29. Jimenez-Fernández L, Serrano-Gutierrez A, Martínez-Pérez P, Melchor-Muñoz P, Fernández-Carvajal A, Campos-Martínez B, Piris-Borregas S, Pont-Vilalta M, Collados-Gómez L. **Lateral kangaroo position for thermal stability of extremely preterm: Non-inferiority randomized controlled trial.** *Nurs Crit Care.* 2024 Jun 8. doi: 10.1111/nicc.13102. Epub ahead of print. PMID: 38850068.
30. Johnson LC, McManus B, Blanchard Y, Nugent JK. **The newborn behavioural observations system: A relationship-building intervention to support families in the neonatal intensive care unit.** *Acta Paediatr.* 2024 Jun 8. doi: 10.1111/apa.17314. Epub ahead of print. PMID: 38850088.
31. Kaçar N, Özcan H. **Midwives' Knowledge Level About Newborn Individualized Development Care and Assessments Program.** *Ebelik ve Sağlık Bilimleri Dergisi.* 7(1):30-8. DOI:10.5281/zenodo.10926585
32. Kocakabak C, van den Hoogen A, Rothfus M, Campbell-Yeo M, Kostenzer J, Axelin A, Schofield P, Latour JM. **Identifying outcomes and outcome measures in neonatal family-centered care trials: a systematic review.** *Pediatr Res.* 2024 Jun 7. doi: 10.1038/s41390-024-03293-2. Epub ahead of print. PMID: 38849484.
33. Köse S, Ayran G. **The effect of social support and optimism on depression in mothers of premature babies hospitalized in neonatal intensive care unit.** *Journal of Neonatal Nursing.* 2024 Jun 26. DOI:10.1016/j.jnn.2011.11.001
34. Kumar A. **Neonatal physiotherapy among neonates admitted in neonatal intensive care unit (NICU): A scoping review.** *Journal of Neonatal Nursing.* 2024 Apr 24. DOI:10.1016/j.jnn.2024.04.012
35. Landsem IP, Handegård BH. **Parental reports of hospital- and community-based follow-up services, self-efficacy, and symptoms of depression a few months after discharge of a prematurely born child.** *BMC Public Health.* 2024 Jun 19;24(1):1630. doi: 10.1186/s12889-024-19079-4. PMID: 38898436; PMCID: PMC11186226. <https://pubmed.ncbi.nlm.nih.gov/38898436/>
36. Latour JM, Rennick JE, van den Hoogen A. **Editorial: Family-centered care in pediatric and neonatal critical care settings.** *Front Pediatr.* 2024 Mar 28;12:1402948. doi: 10.3389/fped.2024.1402948. PMID: 38606367; PMCID: PMC11007701. Free article <https://pubmed.ncbi.nlm.nih.gov/38606367/>
37. Lee J, Choi S. **The experience of fathers whose infants were hospitalized in Neonatal Intensive Care Unit in South Korea: A scoping review.** *J Pediatr Nurs.* 2023 Sep-Oct;72:36-44. doi: 10.1016/j.pedn.2023.03.015. Epub 2023 Apr 8. PMID: 37037103. Free article [https://www.pediatricnursing.org/article/S0882-5963\(2023\)2900070-2/fulltext](https://www.pediatricnursing.org/article/S0882-5963(2023)2900070-2/fulltext)
38. Lee J. **Neonatal family-centered care: evidence and practice models.** *Clin Exp Pediatr.* 2024 Apr;67(4):171-177. doi: 10.3345/cep.2023.00367. Epub 2023 Jun 14. PMID: 37321589; PMCID: PMC10990654. Free article <https://pubmed.ncbi.nlm.nih.gov/37321589/>
39. Research Group of Developmental Care for Very Low Birth Weight Infants in China; Lyu T, Ye R, Li LL, Zhang LL, Xiao J, Ma YL, Li F, Rong H, Liu D, Wang H, Wang Y, Gu WW, Xuan Y, Chen X, Fan QL, Tang YF, Huang XH, Qin A, Zhang YL, Dou Y, Hu XJ. **The effect of developmental care on the length of hospital stay and family centered care practice for very low birth weight infants in neonatal intensive care units: A cluster randomized controlled**

- trial. *Int J Nurs Stud*. 2024 Aug;156:104784. doi: 10.1016/j.ijnurstu.2024.104784. Epub 2024 May 5. PMID: 38788261. Free article <https://pubmed.ncbi.nlm.nih.gov/38788261/>
40. Mann P, Schmied V, Psaila K, Foster J. **Integrative Review of Cobedding of Infant Twins**. *J Obstet Gynecol Neonatal Nurs*. 2023 Mar;52(2):128–138. doi: 10.1016/j.jogn.2022.12.004. Epub 2023 Jan 23. PMID: 36702163.
41. Markkula A, Pyhälä-Neuvonen R, Stolt S. **Interventions and their efficacy in supporting language development among preterm children aged 0–3 years – A systematic review**. *Early Hum Dev*. 2024 Aug;195:106057. doi: 10.1016/j.earlhumdev.2024.106057. Epub 2024 Jun 9. PMID: 38901388. Free article <https://doi.org/10.1016/j.earlhumdev.2024.106057>
42. Marret S, Chadie A, Muller JB, Chollat C. **Le neurodéveloppement et la neuroprotection du jeune enfant [Neurodevelopment and neuroprotection in young children]**. *Gynecol Obstet Fertil Senol*. 2024 Jul–Aug;52(7–8):481–489. French. doi: 10.1016/j.gofs.2024.03.003. Epub 2024 Mar 16. PMID: 38492741.
43. McAlinden B, Pool N, Harnischfeger J, Waak M, Campbell M. **'Baby Liberation' – Developing and implementing an individualised, developmentally-supportive care bundle to critically unwell infants in an Australian Paediatric Intensive Care Unit**. *Early Hum Dev*. 2024 Mar;190:105944. doi: 10.1016/j.earlhumdev.2024.105944. Epub 2024 Jan 23. PMID: 38290275.
44. McCarty DB, Clary-Williams E, LeBlond KD, Liu T, Zbornik-Thompson T, Ulrich JN, Go MS. **Interdisciplinary collaborative eye examinations to protect preterm infant neurodevelopment: a quality improvement project**. *Front Psychol*. 2024 May 6;15:1354033. doi: 10.3389/fpsyg.2024.1354033. PMID: 38770256; PMCID: PMC11102993. Free article <https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2024.1354033/full>
45. Mohagheghi P, Razavinia F, Khosravi A, Mousavi SS. **Effect of a Multifaceted Approach on Perceived Support Among Mothers of Preterm Infants: A Quasi-Experimental Study**. *SAGE Open Nurs*. 2024 Mar 24;10:23779608241231193. doi: 10.1177/23779608241231193. PMID: 38529052; PMCID: PMC10962032. Free article <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10962032/>
46. Moreno-Sanz B, Alferink MT, O'Brien K, Franck LS. **Family integrated care: State of art and future perspectives**. *Acta Paediatr*. 2024 May 13. doi: 10.1111/apa.17272. Epub ahead of print. PMID: 38738866.
47. Núñez-López I, Cid-Expósito MG, Abalo R, Serrano-Gutiérrez A, Jiménez-Fernández L, Collados-Gómez L. **Content Validity of the Spanish Adaptation of the Premature Infant Pain Profile Revised**. *Pain Manag Nurs*. 2024 Feb;25(1):e50–e57. Doi: 10.1016/j.pmn.2023.06.012. Epub 2023 Jul 28. PMID: 37517874. [https://www.painmanagementnursing.org/article/S1524-9042\(2023\)2900129-7/fulltext](https://www.painmanagementnursing.org/article/S1524-9042(2023)2900129-7/fulltext)
48. Oliveira FA, Brandão MT. **Participação de pais nos cuidados precoces em Unidades de Cuidados Intensivos Neonatais: Uma revisão sistemática de literatura**. *Research, Society and Development*. 2024 Mar 4. DOI:10.33448/rsd-v13i3.45174 NO PUB MED
49. Olgun AB, Yüksel D, Yardımcı F. **The Effect of a Light-Dark Cycle on Premature Infants in the Neonatal Intensive Care Unit: A Randomized Controlled Study**. *J Pediatr Nurs*. 2024 Jul–Aug;77:e343–e349. doi: 10.1016/j.pedn.2024.04.050. Epub 2024 May 9. PMID: 38724313.
50. Orton J, Doyle LW, Tripathi T, Boyd R, Anderson PJ, Spittle A. **Early developmental intervention programmes provided post hospital discharge to prevent motor and cognitive impairment in preterm infants**. *Cochrane Database Syst Rev*. 2024 Feb 13;2(2):CD005495. doi: 10.1002/14651858.CD005495.pub5. PMID: 38348930; PMCID: PMC10862558. Free article <https://pubmed.ncbi.nlm.nih.gov/38348930/>
51. Padilla-Muñoz EM, Barbancho-Morant MM, Lanzarote-Fernández MD, Sanduvete-Chaves S, Chacón-Moscoso S. **Psycho-emotional intervention with parents of very preterm babies during the first year: A single-arm pilot study**. *Fam Process*. 2024 Apr 24. doi: 10.1111/famp.13002. Epub ahead of print. PMID: 38659149.
52. Pallás-Alonso C, Montealegre A, Hernández-Aguilar MT, Muñoz-Amat B, Collados-Gómez L, Jiménez-Fernández L, García-Lara N, Cabrera-Lafuente M, Moral-Pumarega MT, López-Maestro M, Charpak N. **XIII International Conference on Kangaroo Mother Care – Different opinions, experiences and related KMC issues: Good practices, stabilisation concept, nutrition and basic respiratory support**. *Acta Paediatr*. 2023 Dec;112(12):2478–2485. doi: 10.1111/apa.16960. Epub 2023 Sep 5. PMID: 37667990.
53. Palomo AM, Caba JC, Camprubí MC, Díez EB, Gil JS, Veciana AR. **Implementing palliative care, based on family-centered care, in a highly complex neonatal unit**. *Jornal de Pediatria*. 2024 May 13. DOI: 10.1016/j.jped.2023.09.009
54. Pineda R, Kellner P, Gruskin BA, Smith J. **Organizational Barriers to and Facilitators of the Successful Implementation and Sustainability of the Supporting and Enhancing NICU Sensory Experiences (SENSE) Program**. *Am J Occup Ther*. 2024 Jan 1;78(1):7801205180. doi: 10.5014/ajot.2024.050450. PMID: 38271664.
55. Powlesland J. **Fragile Infant Forums for Implementation of IFCDC Standards: Key Cornerstone of Interventions for Pain and Stress in the Baby**. *Neonatology Today*. 2024 Jan 1;19(1).
56. Prout C. **L'observation comportementale Nidcap [Nidcap behavioral observation]**. *Soins Pédiatr Pueric*. 2024 Jan–Feb;45(336):19–21. French. doi: 10.1016/j.spp.2023.12.004. Epub 2024 Feb 1. PMID: 38365390.
57. Rahlin M. **Therapy Settings and Service Delivery Models**. *Physical Therapy for Children With Cerebral Palsy*. 2024 Jun 1. <https://doi.org/10.4324/9781003525721NO>
58. Abdel Razeq NM, Arabiat DH, Ali RA, Al-Motlaq M. **Nurses' beliefs and perceptions regarding family-centered care services in acute pediatric healthcare settings**. *J Pediatr Nurs*. 2024 Mar–Apr;75:16–22. doi: 10.1016/j.pedn.2023.11.025. Epub 2023 Dec 14. PMID: 38096759.
59. Reynolds K, Urbanowicz A, Mayston M, Foley S. **Kids+ Parent Infant Program (PIP): a community model for supporting partnerships in early**

- developmental follow-up and support. *Front Pediatr*. 2024 May 2;12:1354971. doi: 10.3389/fped.2024.1354971. PMID: 38756970; PMCID: PMC11096506. Free article <https://pubmed.ncbi.nlm.nih.gov/38756970/>
60. Ribeiro AL, Costa MFP, Silva PYF, Lima RO, Bezerra RB, Bezerra IFD, Torres VB, Alvarez CDL, Azevedo IG, Pereira SA. **Effects of the use of a cocoon on the autonomic, motor, and regulatory systems in preterm newborns: Randomized clinical trial.** *Arch Pediatr*. 2024 May;31(4):250–255. doi: 10.1016/j.arcped.2024.01.005. Epub 2024 Mar 26. PMID: 38538471.
61. Rodrigues MG, Rodrigues JD, Moreira JA, Clemente F, Dias CC, Azevedo LF, Rodrigues PP, Areias JC, Areias ME. **A randomized controlled trial to assess the impact of psychoeducation on the quality of life of parents with children with congenital heart defects-Quantitative component.** *Child Care Health Dev*. 2024 Jan;50(1):e13199. doi: 10.1111/cch.13199. Epub 2023 Nov 15. PMID: 37967565.
62. Sabagh K, Ghaljaei F. **The Interventional Effect of Quiet Time Protocol on the Sleep Status of Premature Neonates Admitted to the NICU.** *Iranian Journal of Neonatology*. 2024 Apr 1. DOI: 10.22038/IJN.2023.73016.2414
63. Schneider J, Harari MM, Faure N, Lacroix A, Borghini A, Tolsa JF, Horsch A; JOIN Research Consortium. **Joint observation in NICU (JOIN): A randomized controlled trial testing an early, one-session intervention during preterm care to improve perceived maternal self-efficacy and other mental health outcomes.** *PLoS One*. 2024 Apr 25;19(4):e0301594. doi: 10.1371/journal.pone.0301594. PMID: 38662661; PMCID: PMC11045081. Free article <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11045081/>
64. Selvanathan T, Ufkes S, Guo T, Chau V, Branson HM, Ibrahim GM, Ly LG, Kelly EN, Grunau RE, Miller SP. **Pain Exposure and Brain Connectivity in Preterm Infants.** *JAMA Netw Open*. 2024 Mar 4;7(3):e242551. doi: 10.1001/jamanetworkopen.2024.2551. PMID: 38488791; PMCID: PMC10943417. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10943417/>
65. Shao YJ, Lee CH, Lee PY. **Effect of intervention of music-assisted therapy on physiological parameters of premature babies-A randomized trial.** *Journal of Neonatal Nursing*. 2024 Jun 1;30(3):243–50.
66. Sheldon RE, Kosta SM, Buehler DM. Heidelise Als, PhD, 1940–2022: A **Visionary Voice for Infants and Families.** *NeoReviews*. 2024 Jun 1;25(6):e319–24.
67. Sibrecht G, Wróblewska-Seniuk K, Bruschetti M. **Noise or sound management in the neonatal intensive care unit for preterm or very low birth weight infants.** *Cochrane Database Syst Rev*. 2024 May 30;5(5):CD010333. doi: 10.1002/14651858.CD010333.pub4. PMID: 38813836; PMCID: PMC11137833. Free article <https://pubmed.ncbi.nlm.nih.gov/38813836/>
68. Solís-García G, Cambra-Rufino L, Piris Borregas S, Carrasco Pérez A, López Maestro M, De la Cruz Bértolo J, Moral Pumarega MT, Pallás Alonso CR. **Architectural design, facilities and family participation in neonatal units in Spain: A multicentre study.** *Acta Paediatr*. 2024 Apr;113(4):716–721. doi: 10.1111/apa.17085. Epub 2024 Jan 7. PMID: 38186235.
69. Smith LM, Harrison TM. **Neurodevelopment in the Congenital Heart Disease Population as Framed by the Life Course Health Development Framework.** *J Cardiovasc Nurs*. 2024 Mar–Apr 01;39(2):160–169. doi: 10.1097/JCN.0000000000000977. Epub 2023 Feb 8. PMID: 36752754; PMCID: PMC10406968.
70. Smith M, Marx W, Anand KS, Haunschild R, Bornmann L, Sizun J, Roue JM. **Bibliometric analysis with reference publication year spectroscopy showed how key programmes drove developmental care in newborn infants.** *Acta Paediatr*. 2024 Jan;113(1):28–38. doi: 10.1111/apa.16996. Epub 2023 Oct 17. PMID: 37849411.
71. Sobrinho Valet CO, Albuquerque A, Luiz Ferreira EA. **Empathic Care of Neonates: A Critical Literature Review.** *Perm J*. 2024 Mar 15;28(1):46–54. doi: 10.7812/TPP/23.107. Epub 2024 Feb 9. PMID: 38332703; PMCID: PMC10940244. Free article <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10940244/>
72. Vittner D, Butler S, Lawhon G, Buehler D. **The newborn individualised developmental care and assessment program: A model of care for infants and families in hospital settings.** *Acta Paediatr*. 2024 May 30. doi: 10.1111/apa.17300. Epub ahead of print. PMID: 38816927.
74. Vittner D, Buehler D. **Gravens By Design: NIDCAP Nursery Program: Implementation of the NIDCAP model of care.** *Neonatology Today*. 2023 Aug 1;18(8).
75. Zivaljevic J, Jovandaric MZ, Babic S, Raus M. **Complications of Preterm Birth-The Importance of Care for the Outcome: A Narrative Review.** *Medicina (Kaunas)*. 2024 Jun 20;60(6):1014. doi: 10.3390/medicina60061014. PMID: 38929631; PMCID: PMC11205595. Free article <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11205595/>
76. Zores C, Gibier C, Haumesser L, Meyer N, Poirot S, Briot C, Langlet C, Dillenseger L, Kuhn P. **Evaluation of a new tool – "Step by step with my baby" – to support parental involvement in the care of preterm infants.** *Arch Pediatr*. 2024 Jul;31(5):306–314. doi: 10.1016/j.arcped.2023.11.004. Epub 2024 Apr 22. PMID: 38653616.

NIDCAP Training Centers – Facebook Pages

The NIDCAP Training Centers have been active promoting their work on Facebook. Celebrations shared include personal achievements, new training centers, read-a-thon, education sessions and World NIDCAP Day.

If your NIDCAP Training center has a facebook page please let the senior Editor know so we can include.

The Australasian Nidcap Training Centre
a day ago · 🌐

For those of you looking for resources to promote reading within and beyond the #NICU we have a flyer available on our website which describes reading from birth to four months of age including how the intervention can be adapted in response to infant cues. Head to our website and the information sheet tab to access this free resource.
<https://schneeducation.com.au/nidcap-australia>
#graceNICU #neurodevelopmentalcare #NIDCAPAustralia #littlereadersreadathon #readingmatters

Ages and stages

Birth → One month

- Sing, read and smile at your baby
- Respond to your baby's "ah" every time they make a sound
- Hold your baby in front of you and make eye contact
- Repeating the same book is a good thing. Babies love repetition!

One month → Two months

- Sing, read and smile at familiar stories
- Take turns talking with your baby and respond to their cues and smiles
- Watch your baby communicate through their movements, sounds and expressions
- Give your baby new sounds, words and experiences

Two months → Three months

- Help your baby to touch and feel books and toys
- Repeat words and phrases from your favourite books

How to get other siblings involved

If your other child or children are of school age, encourage them to practice their reading to their baby sibling. When is a time when the whole family can come together?

Ask your other children to choose some books to share from your local community library or school library services.

Extra story bags are available from local craft stores. Spend some time together as a family creating your own special story bags with craft supplies and favorite character cutouts.

Local resources to support reading to your baby

Your local community library is free to join and often you can borrow several books at a time. While you're there, check to see what story time sessions are available to join.

Why should I read to my baby?

Reading to babies has been shown to have a lasting effect on language, writing and early reading skills. Research has found that babies learn when you read with them and this has an effect four years later when they're about to begin school.

Your baby recognizes your voice and would rather listen to your voice than any other sound. Sharing books is a way for you to bond with your baby on the NICU. Hearing your voice brings your baby a sense of calm, comfort and familiarity.

Benefits of reading to my baby

Children who have been read to about on a regular basis from birth are more likely to readily learn to read once they start school.

Reading aloud is an opportunity for you to bond with your baby. Babies learn to talk through hearing sounds, words and stories. The amount of words spoken to premature babies between 18 weeks and 18 months correlated with their language and learning scores at school.

What should I read?

It doesn't really matter what you read to your baby, hearing your voice is what's important. Some ideas of what to read to your baby are listed below:

- Children's picture books
- Nursery rhymes and poems
- Simple story books

nidcap
the child's hospital at home
The Australian NIDCAP Training Centre



Nidcap Sweden
27 January · 🌐

Inauguration of the Danish NIDCAP Training and Development Center, Copenhagen at Rigshospitalet. Congratulations all involved for amazing achievements! What an amazing day! The world just became a little better for hospitalized newborns and their families. We are now 30 NIDCAP Centers in the world, and over 3000 NIDCAP professionals mentoring caregivers, changing hospitals, improving the future for newborns and their families!
#NIDCAP #NIDCAPFederationInternational #NFI

Many, many Congratulations to the Danish NIDCAP Training and Development Center, Copenhagen

Welcome Danish NIDCAP Training and Development Center, Copenhagen



Jannie Haaber, RN
Training Center Director
NIDCAP Trainer
APN Professional

Portiya Pootrisak, MD, PhD
Training Center Co-Director
APN Professional

Morten Brindahl, MD, PhD
Head of Department
Training Center Medical Director

Renee Aalrasmann Beck, RN
Head Nurse
Training Center Nursing Director





Congratulations Jannie Haaber, RN NIDCAP Trainer +13

Brussels Nidcap Training Center
26 May · 🌐

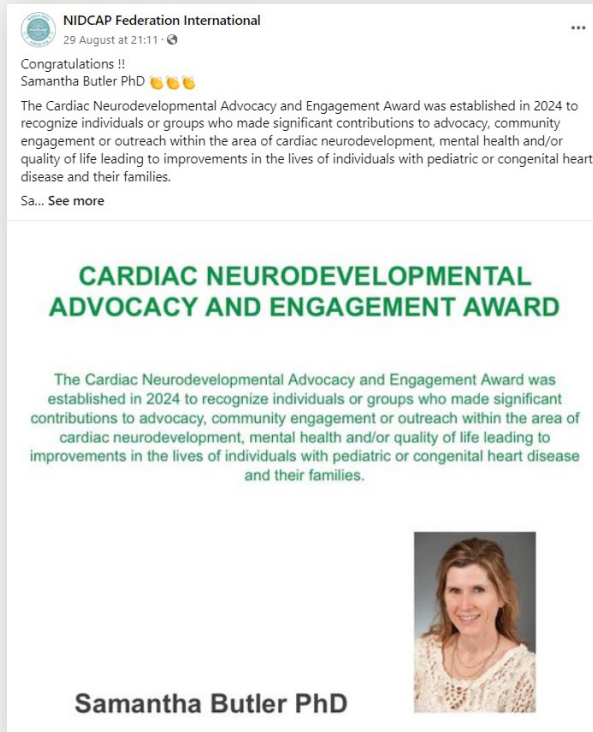
Getting ready for the Zero Separation Run @noahsarkbelgium @vvoc @cokoen @odisee

Michel Collart
26 May · 🌐


NIDCAP BLOG

NIDCAP.org



NIDCAP TRAINING CENTERS

AMERICAS

North America

CANADA

Edmonton NIDCAP Training Centre

Stollery Children's Hospital
Royal Alexandra Site
Edmonton, AB, Canada
Co-Directors: Andrea Nykipilo, RN
and Juzer Tyebkhan, MB
Contact: Juzer Tyebkhan, MB
email: Juzer.Tyebkhan@ahs.ca

UNITED STATES

St. Joseph's Hospital NIDCAP Training Center

St. Joseph's Hospital and Medical Center Phoenix, Arizona, USA
Co-Director: Bonni Moyer, MSPT
Contact: Annette Villaverde
email: Annette.Villaverde@commonspirit.org

West Coast NIDCAP and APIB Training Center

University of California San Francisco San Francisco, California, USA
Director and Contact:
Deborah Buehler, PhD
email: dmb@dmbuehler.com

Children's Hospital of University of Illinois (CHUI) NIDCAP Training Center

University of Illinois Medical Center at Chicago
Chicago, Illinois, USA
Co-Directors: Doreen Norris-Stojak MS, BSN, RN, NEA-BC and Jean Powlesland, RNC, MS
Contact: Jean Powlesland, RNC, MS
email: nidcapchicago@gmail.com

National NIDCAP Training Center

Boston Children's Hospital
Boston, Massachusetts, USA
Director: Samantha Butler, PhD
Contact: Sandra M. Kosta, BA
email: nidcap@childrens.harvard.edu

NIDCAP Cincinnati

Cincinnati Children's Hospital Medical Center
Cincinnati, Ohio, USA
Director: Michelle Shinkle, MSN, RN
Contact: Linda Lacina, MSN
email: lydialacina@me.com

South America

ARGENTINA

Centro Latinoamericano NIDCAP & APIB

Fernández Hospital
Fundación Dr. Miguel Margulies and Fundación Alumbarr, Buenos Aires, Argentina
Director and Contact: Graciela Basso, MD, PhD
email: basso.grace@gmail.com

OCEANIA

AUSTRALIA

Australasian NIDCAP Training Centre

The Sydney Children's Hospitals Network Westmead, Australia
Co-Directors: Nadine Griffiths, MN and Hannah Dalrymple, MBBS
Contact: Nadine Griffiths, NIDCAP trainer
email: SCHN-NIDCAPAustralia@health.nsw.gov.au

EUROPE

AUSTRIA

Amadea NIDCAP Training Center Salzburg

University Clinic of the Paracelsus Medical University, Salzburg, Austria
Director: Elke Gruber, DGKS
Co-Director: Erna Hattinger-Jürgenssen, MD
Contact: Elke Gruber, DGKS
email: elke.gruber@salk.at

BELGIUM

The Brussels NIDCAP Training Center

Saint-Pierre University Hospital
Free University of Brussels Brussels, Belgium
Director: Inge Van Herreweghe, MD
Co-Director: Marie Tackoen, MD
Contact: Delphine Druart, RN
email: delphine_druart@stpierre-bru.be

UZ Leuven NIDCAP Training Center

Leuven, Belgium
Director: Anne Debeer, MD, PhD
Co-Director: Chris Vanhole, MD, PhD
Contact: An Carmen
email: nidcaptrainingcenter@uzleuven.be

DENMARK

Danish NIDCAP Training and Development Center

Aarhus University Hospital, Aarhus N, Denmark
Director: Tine Brink Henriksen
Professor, MD, PhD
Co-Director: Tenna Gladbo Salmonsén, RN, MScN
Contact: Eva Jørgensen, RN
email: Nidcaptrainer@gmail.com

Danish NIDCAP Training and Development Center, Copenhagen

Copenhagen University Hospital, Rigshospitalet
Copenhagen, Denmark
Director: Jannie Haaber, RN
Co-Director: Porntiva Poorisrisak, MD, PhD
Contact: Jannie Haaber, RN, NIDCAP Trainer
email: nidcap.rigshospitalet@regionh.dk

FRANCE

French NIDCAP Center, Brest

Medical School, Université de Bretagne Occidentale and University Hospital, Brest, France
Director: Jean-Michel Roué, MD, PhD
Contact: Sylvie Minguy
email: sylvie.bleunven@chu-brest.fr

French NIDCAP Center, Toulouse

Hôpital des Enfants Toulouse, France
Director: Jacques Sizun, MD
Co-Director and Contact: Sandra Lescure, MD
email: lescur.s@chu-toulouse.fr

Saint-Brieuc NIDCAP Training Center

Saint-Brieuc – Paimpol – Tréguier Hospital Center
Saint-Brieuc, France
Director: Marie-Cécile Andro-Garçon, MD
Contact: Aurélie Guillou, RN
email: aurelie.guillou@armorsante.bzh

NIDCAP Training Centre Hospitalier de Valenciennes

Valenciennes, France
Director: Sabine Rethore, MD
Co-Director: Juliette Barois, MD
Contact: Peggy Laurant, RN
email: p.laurant@orehane.fr

GERMANY

NIDCAP Germany, Training Center Tübingen

Universitätsklinik für Kinder- und Jugendmedizin
Tübingen, Germany
Director: Christian Poets, MD, PhD
Contact: Natalie Wetzel, RN
email: natalie.wetzel@med.uni-tuebingen.de

ITALY

Italian Modena NIDCAP Training Center

Modena University Hospital,
Modena, Italy
Director: Alberto Berardi, MD
Contact: Natascia Bertoncelli, PT
email: natascia.bertoncelli@gmail.com

Rimini NIDCAP Training Center

AUSL Romagna, Infermi Hospital,
Rimini, Italy
Director and Contact: Gina Ancora, MD, PhD
Co-Director: Natascia Simeone, RN
email: gina.ancora@auslromagna.it

THE NETHERLANDS

Sophia NIDCAP and APIB Training Center

Erasmus MC-Sophia Children's Hospital
Rotterdam, The Netherlands
Director: Nikk Conneman, MD
Co-Director and Contact: Monique Oude Reimer, RN
email: nidcap@erasmusmc.nl

NORWAY

NIDCAP Norway, Ålesund Training Center

Ålesund Hospital, Ålesund, Norway
Director: Lutz Nietsch, MD
Contact: Unni Tomren, RN
email: nidcap@helse-mr.no

PORTUGAL

São João NIDCAP Training Center

Pediatric Hospital at São João Hospital
Porto, Portugal
Director: Hercília Guimarães, MD, PhD
Co-Director and Contact: Fátima Clemente, MD
email: nidcapportugal@gmail.com

SPAIN

Barcelona NIDCAP Training Center: Vall d'Hebron and Dr Josep Trueta Hospitals

Hospital Universitari Vall d'Hebron,
Barcelona, Spain
Director and Contact: Josep Perapoch, MD, PhD
email: jperapoch.girona.ics@gencat.cat

Hospital Universitario 12 de Octubre NIDCAP Training Center

Hospital Universitario 12 de Octubre,
Madrid, Spain
Director: Carmen Martinez de Pancorbo, MD
Contact: María López Maestro, MD
email: nidcap.hdoc@salud.madrid.org

Sant Joan de Déu Barcelona NIDCAP Training Center

Sant Joan de Déu Hospital
Barcelona, Spain
Director and Contact: Ana Riverola, MD
email: ariverola@hsjdbcn.org

SWEDEN

Karolinska NIDCAP Training and Research Center

Astrid Lindgren Children's Hospital at Karolinska University Hospital
Stockholm, Sweden
Director: Agnes Linnér, MD, PhD
Co-Director: Siri Lilliesköld, RN, MS
Contact: Ann-Sofie Ingman, RN, BSN
email: nidcap.karolinska@sl.se

Lund-Malmö NIDCAP Training and Research Center

Skane University Hospital
Malmö, Sweden
Director: Elisabeth Olhager, MD
Co-Director and Contact: Stina Klemming, MD
email: nidcap.sus@skane.se

UNITED KINGDOM

UK NIDCAP Centre

Department of Neonatology,
University College Hospital,
London, UK
Director: Giles Kendall, MBBS, FRCPCH, PhD
Contact: Beverley Hicks, OT
email: beverleyann.hicks@nhs.net

MIDDLE EAST

ISRAEL

Israel NIDCAP Training Center

Meir Medical Center
Kfar Saba, Israel
Co-Directors: Ita Litmanovitz, MD and Dalia Silberstein, RN, PhD
Contact: Dalia Silberstein, RN, PhD
email: daliasil1960@gmail.com

ASIA

JAPAN

Japan National NIDCAP Training Center

Seirei Christopher University,
Shizuoka, Japan
Director: Tomohisa Fujimoto, PT
Co-Directors: Kanako Uchiumi, RN, MW, Noriko Moriguchi, MSN, RN, PHN, IBCLC and Yoko Otake, RN
Contact: Tomohisa Fujimoto, PT
email: fusan.mail@gmail.com



www.nidcap.org