



Amadea NIDCAP team, Austria

At the heart of NIDCAP is a fundamental regard for individually understanding how to support a parent so they can support their child.

—Michael van Manen

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## AN ETHICAL LENS

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# From Initiative to Intimacy: Ethical Reflections on Kangaroo Care

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Undoubtedly, the word “ethical” is one of the most abused terms in healthcare. People invoke it to voice care, concern, or objection: “It is ethical!” or “It is not ethical!” Perhaps it is because we need a word like ethical to identify, label, or otherwise point out those healthcare practices of which we have strong feelings. For example, aggressive resuscitation at 22 weeks gestation, complex congenital heart surgery for infants with life-limiting conditions, and tracheostomy for those with severe brain injury are all newborn intensive care situations where people may exchange strong perspectives on what is

ethical. Similarly, we may speak of those important practices that have an aim we value: relief of pain, valuable experiences, developing relationships, or some other good as reflective of ethical. But, is it enough to say that we believe in something, that it resonates with our values, or that it somehow seems good as meeting a criterion for ethical?

There exist many different definitions for ethics. Different traditions—deontology, consequentialism, virtue ethics, relational ethics, care ethics, contractualism, narrative ethics, casuistry, and so forth—locate questions of morality differently to offer varying ways of exploring questions of ethics.<sup>1-6</sup> Across them, ethics may be understood as expressive of concern for how we ought to act in life situations whereby

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## Is it ethical to not provide infant and family centred developmental care initiatives?

our actions impact those beyond ourselves. In other words, ethics is other regarding; and, it is also normative in the sense that how we act is expressive of notions of good, value, meaning, and so forth. For this paper, let us consider the question: “Is it ethical to not provide infant and family centred developmental care initiatives?” These initiatives can be understood broadly as those activities designed to support the medical and developmental needs of infants, especially preterm or critically ill newborns, while also involving their families as essential partners in care. Let us take kangaroo care as an example.

Kangaroo care, the practice of skin-to-skin contact between a newborn and their parent, generally raises few ethical concerns.<sup>7,8</sup> We could say it is expressive of a fundamental human encounter. Consider a mother’s words,

*Kangaroo care, holding him skin-to-skin, is our time. It’s so settling to feel his warm skin against mine. I get him nestled in, on my chest, and just lay my hands over him. His breathing steadies. He holds a breath, I hold a breath. I find myself sighing without even meaning to just as he exhales. It’s like my body senses his and harmonizes with his. I do not normally even give it any thought. We just are together sensing each other’s heart beat. Sometimes I will read a book with my free hand. Other times, a friend will be there and we talk quietly. I don’t really need to concentrate on him; I am feeling him as he is feeling me. To have him close – it just feels so good, so calm. Sometimes we just need to lie there together and let the day pass by. (from van Manen, 2021, p. 59)<sup>9</sup>*

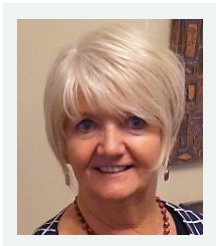
Reading this mother’s words, we may hear how all of the wires and tubes, the pumps and monitors, the nurses and doctors may fade into the background to reveal a mother who is in touch with and touches her child in a moment of bodily presence. They lie attached in touch. They breathe in touch. They are touched by each other’s touch. And from this attached being of touching emerges the being of mother with child. Do we dare question its ethics? Well, if we regard kangaroo care as an initiative, if we think of it as a healthcare practice, we recognize that its ethics may be valued based on how it meets principled considerations.

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## Editorial

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## Families at the Heart of NIDCAP



In this issue, we highlight the exciting initiatives taking place within a developmental care framework using the NIDCAP model. Each contribution reminds us that families are central to the care of their newborns and that supporting them is at the heart of everything we do.

Michael van Manen invites us to reflect on important ethical questions as

we support parents providing kangaroo care in a busy NICU environment. Katie Reginato Cascamo explores the vital role of parental intuition, showing how clinicians can recognize and build upon it to strengthen parents’ involvement in their baby’s care. From Doha in Qatar, Bindu George and her team describe their innovative family-integrated model, offering insight into how developmental care can be embraced within a culturally diverse setting. We also hear directly from families themselves, as Stephanie Ernst shares her story and deeply personal journey through the NICU.

From Salzburg, Austria, the Amadea NIDCAP Training Centre shares their own journey and new initiatives, while Joy

Browne and the team from Ghent provide thoughtful questions for reflection as they mentor trainers-in-training. Together, these accounts highlight how nurturing those who teach and learn NIDCAP strengthens the training process—and ultimately benefits babies and their families.

We also hear from Marjorie Palmer, who provides an insightful perspective on recognizing early signs of Autistic Spectrum Disorder through infant sucking cues, reminding us of the subtle ways infants communicate their needs.

Finally, I extend an invitation: would you like to be part of the Developmental Observer team? We are seeking members to join our review group. No prior reviewing experience is necessary—our team will support and guide you through the process. If you are interested, please send an email with your expression of interest.

Kaye Spence AM FACNN

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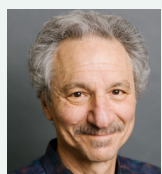
- **Does it have a sound evidence basis?** We can respond affirmatively that there is a large volume of research evidencing the value of kangaroo care for newborns, and also their families. Whether we are talking about something specific like apnea, breastfeeding, hypoglycemia, jaundice, sleep, growth, respiratory distress, infections, or broader issues like survival or long-term health outcomes, kangaroo care has a sound evidential basis promoting its use.<sup>10-17</sup>
- **Does it give consideration for proportionality?** We recognize that in most situations, the potential benefits of kangaroo care offset risks,<sup>7,8</sup> and yet, the potential for harm does exist. For example, if kangaroo care is promoted to the exclusion of necessary medical interventions (e.g., delay placing a needed intravenous line), it could lead to harm. Alternatively, there may be particular medical issues that may be complicated by kangaroo care (e.g., post-operative care of infant receiving tracheostomy).
- **Does it place the child at the centre of concern?** When we consider the value of kangaroo care, we recognize its ethics reflect the interests of the child (i.e., it is the child's "best interest" that compels its use). For kangaroo care, such interests generally align with those of others, given that

their parents too may derive benefits.<sup>18-20</sup> And yet, we may recognize there are potential ethical tensions relating to cultural sensitivity and respect for beliefs. For example, in some cultures, close physical contact or exposing the chest publicly may be uncomfortable or inappropriate, especially for mothers.

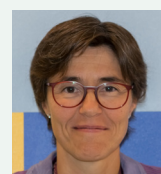
So, we may be tempted to consider kangaroo care as inherently ethical based on the above criteria. But conceptual ethical reflections on kangaroo care need more than the above to get at the ethics of kangaroo care in a fundamental sense. What if a parent is very anxious about holding their child? So anxious that no manner of platitude alleviates their worry. What if the last time they held their child, things did not go well? Perhaps a breathing tube was obstructed or dislodged. What if a parent is not well resourced to support their child's needs during kangaroo care? Perhaps their clothing smells of cigarette smoke or they can only engage in kangaroo care for very short periods of time. It is not just a question of "whether" kangaroo care is ethical, it is also a question of "how" we approach kangaroo care. So, in addition to reflecting on "Is it ethical to not provide infant and family centred developmental care initiatives?"

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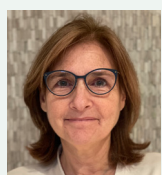
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we should also ask, “How do we ethically provide infant and family centred developmental care initiatives?” This includes navigating those concrete, particular, or otherwise specific real-life moments of supporting babies and their families.

**Ethics exists as a discipline, perhaps precisely because there are areas in healthcare that cannot be simply reduced to general reasoning or deliberation.**

Perhaps the answer to “how” is found in Newborn Individualized Developmental Care and Assessment Program (NIDCAP)? It is not just that we can answer affirmatively that NIDCAP has a sound medical basis, aspires for a good end, gives consideration for proportionality, or even places the child at the centre of concern.<sup>21-29</sup> Instead, at the heart of NIDCAP is a fundamental regard for individually understanding how to support a parent so that they can best support their child. Such a model of care goes beyond seeing kangaroo care as simply an initiative. Instead, kangaroo care is expressive of one way of caring for a particular child by a particular family. We could even say more abstractly that NIDCAP is expressive of a living ethics: a relational context for approaching each newborn as they are and as they are becoming a child. Without such, we risk kangaroo being viewed instrumentally, something we just adopt as an initiative, which can be distressing for children and their parents if not approached with regards to its ethics. Even the most seemingly non-invasive or benign practices may be associated with harms if imposed on others.<sup>30</sup> It is also worth acknowledging that some clinicians may only “allow” kangaroo care in particular situations. This is challenging when individual and institutional practices are informed by ideology and ideals, or the perceived lack of sufficient evidence in specific contexts (e.g., the safety of providing kangaroo care in postoperative period). In such situations, it is vital to closely attend to infant’s individually: their behavior, their strengths, and also their vulnerabilities.

This is perhaps also where the notion of equity is particularly relevant. While kangaroo care itself requires little resources, in complex care settings positioning a medically fragile infant with multiple lines, tubes, and monitoring devices into skin-to-skin care requires specialized training, staffing, and interprofessional coordination. More so, providing individualized care through NIDCAP requires ongoing program

investment in all of these in addition to other domains. So, if resources are limited, we risk considerations of equity. If an institution is lacking in resources, how do we decide where to devote our resources? Is it allocation based on ease—those infants and families who are most familiar, we assist? Or is it based on need—those infants and families who are struggling, we concentrate support? We know how important equity considerations are when we look back to the COVID-19 pandemic where kangaroo care and other parent activities were disrupted<sup>30</sup>. And clearly, equity considerations relate to a willingness and commitment of societal investment. But really, what is more important than investing in our children?

Ethics exists as a discipline, perhaps precisely because there are areas in healthcare that cannot be simply reduced to general reasoning or deliberation. And, at times, rather than aim to answer the question about “whether something is ethical or not?” it may be more helpful to turn to questions that help to look at a situation from different perspectives. Here, I close with the following questions: What are the ethics of reducing a profoundly meaningful activity like holding a child skin-to-skin in so-called kangaroo care as merely a clinical intervention? Do we risk passing over its significance by talking about it as an initiative? What does it say about us when we question the ethics of human contact expressed in kangaroo care?

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Further Readings

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NIDCAP Care in the Moment

Comfort

The Developmental Observer relies on the time and expertise of reviewers to ensure the content is a high standard. In the 2025 issues we acknowledge the following reviewers:

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Inga Warren, PhD

Column Editors: Livia Nagy-Bonnard and Debra Paul

*This powerful story is more than just a birth narrative – it is a journey through fear, uncertainty, and ultimately transformation. What began as a pregnancy marked by high-risk diagnoses, prematurity, and the challenges of giving birth far from home became the foundation for a new mission.*

*Stephanie's experience – filled with worry, NICU alarms, and the constant weight of "what if" – shaped her into something more than a survivor. Today, she is a guiding force in improving care for infants born too soon: a passionate parent advocate for monochorionic twin pregnancies, a researcher advancing our understanding of rare complications like TTTS and TAPS, and a voice for families navigating the NICU.*

*Her story reminds us that empowering parents, during one of the most vulnerable times in their lives, can inspire change well beyond the walls of the hospital.*

## Two Tiny Heartbeats: A Journey Through a Twin Pregnancy and Care In a Dutch NICU

Stephanie Ernst

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Lessons I learned from a rare twin pregnancy and a Dutch NICU. To be honest, when I became pregnant, the chance of having twins wasn't even remotely a factor in my head. In fact, when the ultrasound technician told me there were two babies in there (after a previous scan had definitely only found one), I might have accused her of lying in rather colourful language.

Twins had never, ever been on my radar, and there were none in my immediate family, and the fact that we had been warned at our first OB/GYN appointment that we were now high risk, catapulted us into a new world. We started to learn more about multiples, and a whole new language evolved. Our twins were monochorionic, diamniotic, sharing a single placenta but having their own amniotic sacs. From the first conversation with our doctors, we were educated about the possibility of a premature delivery, because this was indeed probable with our babies. However, when prematurity is accompanied by a rare complication, and coupled with being a foreigner in the country you are giving birth in, the situation becomes a confusing, and sometimes terrifying place.

Twins with a rare disease, born at 31 weeks, in a hospital 16,000 kilometres from my family and friends in a country where I didn't speak the language. This is my story.

### A difficult diagnosis

At 24 weeks, we went for a routine scan. We'd been scanned routinely every two weeks, and things had been going fine. But this appointment was different – the ultrasound technician called the doctor in to take a look. "We think you have developed twin-twin transfusion syndrome (TTTS) and need to send you to a specialty hospital."

We'd heard of TTTS, but had not expected to be diagnosed so late (or even at all, given that there was only a small chance



With the girls in the NICU

of it happening), and yet here we were, driving down to the National Referral Center for twins in the Netherlands, as fast as was legal, and terrified of the "what next".

When we arrived, our diagnosis was confirmed, along with a secondary diagnosis, something even rarer called Twin Anemia Polycythemia Sequence (TAPS). This disease came with additional worries and fears – it had only been recently described, and there was not a lot to know about it. Our care team were excellent though and explained everything carefully. Again, it was reinforced to us that the girls would be born prematurely, but the waiting game was in full swing.

For us, we were fortunate that the TTTS resolved spontaneously. This happens in rare cases, however our TAPS

progressed steadily. Each appointment was just a waiting game, and then at 31 weeks, we were admitted as the ultrasound showed grim signs for our recipient twin. I was admitted, had my first round of steroids, and was told within 48 hours, we would have our babies.

One of the things that was reassuring at the time was the opportunity to visit the NICU the night before the girls were scheduled to arrive. It gave a sense of control – that things were already being planned and we could meet some of the team that would be waiting for us. I will never forget seeing those two empty incubators, side by side, and the sounds and smells of the environment.

### And then they were here

The girls were born on a cold December morning, I remember the rush of people into our room, the monitoring, the chatter and the building anticipation and anxiety over the “what next?.” The conversations, the lights, the smell of the operating theatre, this all added more feelings of being overwhelmed and worried. The moment they lost my husband somewhere in the hospital, and had to find him to bring him back, the moment the drapes went up, the tugging, the pulling, and then, the first twin was born. It’s a girl! She didn’t cry. They popped her over the curtain to say hello, and I remember hearing someone singing happy birthday in the background. Next thing I knew, our twin’s sister was born. She was very displeased with the early delivery, loudly protesting her change of environment. They popped her little red face over the curtain, before whisking her away.

Then, they brought our twin that was delivered first back to me to say “hello.” A little, pale face resembling a troll doll looked grumpily at me. I cried and told anyone who’d listen she looked like a potato. But she was safe and stable, although needed a blood transfusion. Both girls were whisked off to recovery, with my husband following, leaving me alone in the operating room, processing everything that I’d just been through. It wasn’t until three hours later that I was reunited with my girls in the NICU. I was still unable to move, still very much in shock, but when they placed both girls on my chest for kangaroo care, somehow, this all didn’t matter. That moment was a milestone for me – everything that I had been through over the past couple of months no longer mattered. This was a moment which didn’t erase the past, but it made it easier to live with. This is the moment where I became a firm, fast supporter of kangaroo care, especially for multiples, and that there were no barriers when it comes to supporting two babies or more.

### Life in the NICU

Our first NICU was attached to the hospital that had monitored us from our initial diagnosis. This was an academic hospital, and everything was on a schedule. It wasn’t that we weren’t involved in their care, but rather we were vulnerable first-time parents who had been through a tense pregnancy,



A collection of items showing our complex journey through my pregnancy

and we felt more hands off. What was wonderful was that kangaroo care was encouraged, and our team kept us updated and informed.

What was also amazing was the use of video cameras, where my family could log in from the other side of the world and see the girls. When we couldn’t be there, it was reassuring to be able to tune in and see them on the screen. We were given a phone number too, and told it was ok to go out and call in anytime – something that I needed to be reminded to do. I remember the day one of the nurses in the unit told me – you need to go out and see the city. Go have a cup of coffee, it’s ok, we will call you if you’re needed here. I went out and went to the baby store and bought two outfits for the girls. The outfits were miles too big, but it was a sense of accomplishment to buy something for them after so much uncertainty.

We had conversations with the team about their futures, about what would the future hold, and the answers were always “We’re not sure, but we’re going to look after them.” It was refreshing honesty, but at the same time, not always reassuring. But we knew we were getting good care.

And then the day came, where we had the conversation about transporting them to another hospital which was closer to home. If all were going well, this would happen in the next few days. On Christmas eve morning, we got the call. One of our twins was already on her way in the ambulance to our hometown, and the other would follow her in a few hours. Our girls came “home” for Christmas.

### Being closer to home

You would think after the emotional climax of the last section that this would be an inspirational and moving moment ... it wasn’t. You see, while we knew one baby was on the move, we did not know if she made it. Or if her sister made it. No one had called us to let us know they had arrived. So, after lunch,



Stephanie with her daughters today

I went down to the hospital and asked at the desk of the children's ward if our daughter's had arrived.

The shock and embarrassment were evident when they realised that no one had called me. I was taken to the NICU immediately and reunited with my girls – who were indeed there, in one piece, and had already been visited by Santa! A small gift was on their cabinets, and the team were very quick to fill us in, tell us the routines, and make us feel at “home.” What was a huge relief was the fact they were so close by. What we were not prepared for was the shift in responsibilities.

At the bigger hospital, it was a lot more hands off. While we could do things like diaper changes, etc, the daily weigh checks and temperatures were always handled by staff. Procedures – and there were many due to the nature of TAPS – were always done when we were out of the room. Here, we were encouraged to be in the room, and to do more and more of our daughters' care-giving activities. We became part of the routine, temperatures, feedings, bathing, even holding and comforting the girls during painful procedures. It felt amazing to be hands on parents.

Of course, things are never quite straightforward, and we knew that it was highly likely that one twin would come home before the other. But when this happened, the staff were amazing and made accommodations that we could still bring our daughter that had been discharged into the unit when we were there for her sister. Small moments like this meant the world. And finally, both girls came home.

### Twins in the NICU

What is interesting is the difference in having multiples in the NICU, as opposed to having a singleton. You have days when there are ups, downs, and a whole rollercoaster of emotions just like everyone else – but add in days where ups are happening simultaneously with downs, and you are experiencing worry, and amazing milestones all at once. We were fortunate that our babies were always placed side by side, meaning that we could spend time with them together, shifting our focus between them with ease, but sometimes this is not always the case.

It is also important to recognise the twin bond, but to treat the babies as individuals. This might not sound clear, but giving them time together, but also, when it comes to updates, ensuring that you speak about them as individuals. Another interesting thing is visitor rules. Many NICUs have a one parent/baby rule, but multiples are sometimes treated as a unit with only one parent for both babies. This does not carry forward to the real world and it can make the stay stressful as one parent tries to do the work of two.

It takes a little out of the box thinking, as twins are not the rule in the NICU, but they are more likely to end up there.

### When you do not speak the language

Adding to all this was the fact that I did not speak Dutch confidently. In fact, I spent half of my Dutch classes in the throes of hyperemesis (Surprise! Did not mention that one previously) and still to this day do not remember how I passed my B1 exams (language proficiency). I did, however know exactly where each and every rubbish bin was along the route to my class.

Navigating a complicated pregnancy is hard enough, but then the additional stress of prematurity and NICU in your second language is a challenge.

Parents who are not confident in the local language have an additional stress – they are already scared and worried and adding in the fact they have to translate everything in their heads, and concentrate on asking questions confidently to be understood adds to what is already a tough situation. I was fortunate, as most Dutch people speak English well and my husband is a native speaker. There were occasional language barriers and tough situations arose like the night one nurse told me that I'd lived in the Netherlands for 18 months, therefore I should speak Dutch and refused to speak with me in English. I was processing everything that was around me, and trying to translate in my head was not really on my list of priorities. I wanted to be there for my children, and this caused me additional stress. The space in my head for translations was taken up by their needs, their care, and their progression (and rubbish bin locations from Dutch school days!), and this created additional stress.

The one point I think that I need to share here, is that when you realise a patient is navigating things in a second language is to take the time to check they understand you, that they have the space to process information, and that resources are available in their own language – or if someone is able to translate. It makes a world of difference and lightens what can be an additional burden.

### Rare is an additional burden

On top of everything else, having a rare disease diagnosis added an extra layer to our days in the NICU. The academic hospital understood the disease and were experienced to a degree with treating it. However, at the local hospital, we were an oddity and

felt like we had to repeat everything over and over and found ourselves frequently reminding people of the right diagnosis.

The fact that so little was known about the disease, and that there was a lot of uncertainty around long term outcomes which added to our stress. To this day, there are still a lot of unknowns, but we face those with the attitude of veteran rare disease parents. But back in the NICU, we were dealing with an additional layer of stress and unknown.

Parents in this situation need support when they are dealing with a rare diagnosis. While specific information is not always available, listening to parent concerns and helping them learn more about their infant's diagnosis will always be of benefit.

And parents, if you are in this situation, I urge you to find communities and support networks. Peer support, particularly regarding rare diseases, connects you with people who understand and have been down the same path. It is essential complementary health care.

**And all the other things I want to say, but cannot fit into a heading...**

I do not look back on my NICU experience as a negative time in my life. It helped shape the direction I took in my life and who I am today – a parent of twins, a parent advocate for monochorionic twin pregnancies, a researcher, and a charity founder.

Involving parents in the care of their NICU babies empowers them. It shapes how they remember their situation, and it gives them the feeling of control over a situation that sometimes feels out of control.

Kangaroo care has all the scientific benefits we know about, but what it also offers is something that is not peer reviewed – the feeling that no matter what we have been through, that right now, in this moment, things are going to be ok.

Multiples are not scary. They need some additional considerations, but the reality is, it is just about taking a few additional steps to ensure that the needs of these babies and their parent are met.

For family and friends – do not forget to ask how the parents are as well. Everyone is asking about the babies, but that small question of “How are YOU?” can make a world of difference. Take them out for coffee. Bring them cake. Talk about the normal thing. WE need to hear about the outside world as well, as our lives are just a room full of beds, babies, machines, and routines.

And as a parent that has experienced life in the NICU, you never, ever forget the smell of the hand sanitizer. It comes back and there are moments where you are transported back to the darkest days, the sounds, and those feelings are overwhelming. But you learn that this passes, and that life goes on. You remember things in different ways...you have an experience that shapes who you are, and how you navigate the world for the years to come.

*There are two things in life for which we are never truly prepared: twins.* The quote from humourist Josh Billings could not be any more accurate. I was definitely not prepared for twins, but I'm grateful for the lessons they taught me.

**Mission**

To improve the future for all infants in hospitals and their families with individualized, developmental, family-centered, research-based NIDCAP\* care by providing and assuring the quality of NIDCAP education, training and certification for professionals and hospital systems.



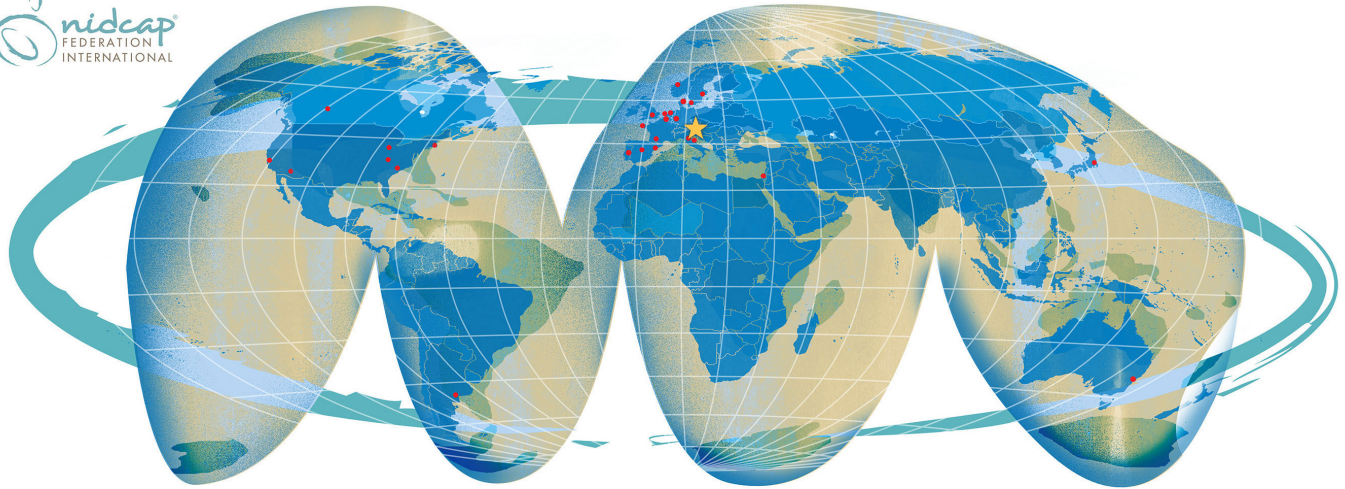
**Vision**

A global society in which all hospitalized infants and their families receive care in the evidenced-based NIDCAP\* model.

\*The Newborn Individualized Developmental Care and Assessment Program (NIDCAP) Model:

- Infants are considered individuals, persons, collaborators in care, supported and nurtured by their parents, enhancing their healthy overall development, well-being, and full potential.
- Families are considered infants' key nurturers, advocates, and primary caregivers as well as collaborators in care decisions.
- Infants, families and professionals are integral partners of the Health Care team.
- Hospital environments and culture support and nurture infant and family relationships, and promote individualized strengths, health, growth, and development.
- The NFI provides the framework for NIDCAP care with educational resources, formal training and mentoring to healthcare professionals and families.

*Adopted by the NFI Board, May, 2025*



## Amadea NIDCAP Training Center Salzburg, Austria

Teresa Garzuly-Rieser, RN, NIDCAP Trainer, Amadea NIDCAP Training Center Salzburg

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The Division of Neonatology, at the University Clinic for Children and Adolescent Medicine in Salzburg has been striving since the 1970s to stay ahead of its time through innovative medical and nursing measures. From the very beginning, a core team started to work on implementing different basic strategies to support prematurely born babies and their families.

### NIDCAP Training Center in Development

The development of the Amadea NIDCAP Training Center in Salzburg began back in 2000, when Dr. Erna Hattinger-Jürgenssen heard Professor Heidelise Als speak at a conference in Heidelberg. The NIDCAP approach presented by Dr. Als, was for Dr. Hattinger-Jürgenssen the missing piece required to optimize the care for all preterm and newborn babies on our ward. On reflection, it became clear that the concept of care that we considered standard care had not taken into account something important: the child as an individual personality with great development potential.

In the meantime, the planning of a new parent-child center (EBZ) was gradually taking shape, so everything seemed to be coming together at the right time and place. However, it was a long journey from the idea to implementation. As it was a revolutionary concept, everyone involved had to support the model. The goal was to plan an environment characterized by architectural forms, surface materials, wall design as well as light and color choice to minimize stress, for the babies, families and staff. Developmentally supportive and family-centered care in this environment would promote well-being, familiarity and intimacy. However, our efforts remain an ongoing process



Parent-child center in Salzburg

where we question practices, adjust to scientific findings and monitor our outcomes. To promote this model, in 2010, Teresa Garzuly-Rieser RN and Johann Binter RN started their NIDCAP training with Dr. Nikk Conneman from The Sophia NIDCAP Training Center. This was after the Neonatology Department moved into a new, developmentally supportive environment (The EBZ), with eight two-bedded rooms and five family and child rooms. The ward was now situated on the same floor as the delivery room and the maternity ward and offered four additional rooms for parents to stay close to their infants. The Newborn Intensive Care Unit in Salzburg has 18 beds for preterm infants and newborns, 12 intensive care beds, and six intermediate care beds.

### On-going NIDCAP Training

In 2013 and 2015, five colleagues, Silvia Wörndle RN, Barbara Perner RN, Verena Linecker RN, Dr. Erna Hattinger-Jürgenssen and Dr. Silke Häusler started their NIDCAP training and the NIDCAP team grew.

In 2013, Johann Binter RN and Teresa Garzuly-Rieser RN were certified as NIDCAP Professionals. A part-time position

was dedicated to NIDCAP, so the NIDCAP implementation process started and was strongly supported through the amazing team and leadership. Implementation is still an ongoing process; with every infant and their family we learn and grow what it means to implement individualized developmentally supportive pathways.

The whole team continues to develop their knowledge and skills in infant family-centered developmental care (IFCDC) with programs such as FINE 1 and 2 (Family and Infant Neurodevelopmental Education) to improve the support for infants and their families. FINE 1 and 2 are going to be an obligatory part of the basic development and training program for staff in the unit. The aim is to reach out to all the wards in the clinic (SALK – Salzburger Landeskliniken) who care for newborns to be trained in this approach. It calls for a rethink and a reorientation in the traditional practices and understanding of the profession. The infant in the context of their family would now be the focus of professional action. The change from task-oriented to relationship-oriented care fundamentally changes the understanding of the profession and requires support in implementation. Outside of daily work, team-building processes helped us to get to know each other better, to think constructively about changes and to master tasks together.

### NIDCAP Trainers in Training

In 2018, Teresa and Johann were able to embark on a new NIDCAP level; they started the NIDCAP Trainer-in-Training process. We had the honor to welcome Professor Heidelise Als (NIDCAP and APIB Senior Master Trainer) and Nikk Conneman, MD (NIDCAP and APIB Senior Trainer) as our teachers, mentors and inspirers. Dr. Conneman, as our trainer, always helped us to take a new perspective, to think more deeply about ourselves, and above all not to stand still and not to lose focus even in difficult times.

Even the pandemic could not stop our aim to deepen our knowledge and understanding of the preterm infants' behavior, to improve the wellbeing and the outcomes for the infants and families in our care. All the online training was challenging but brought us closer together in a different way and showed us new ways of communication against all spatial and physical distances.

The whole NIDCAP path would not have been possible without the huge support of our head nurse and Training Center Director Mrs. Elke Gruber RN, Erna Hattinger-Jürgenssen MD and the hospital leadership. Mrs. Gruber is the main force behind the NIDCAP work with trust and support on-going.

### Supporting the Training Process

Hosting an annual symposium – “The Salzburger Frühlingssymposium“, which was launched through Elke Gruber, head nurse and Johann Binter RN, helped us to raise funds for further education and strengthen the awareness for developmental care in Austria and beyond our borders in Germany and Switzerland. There were 80 registrants in person with an additional 300 online.



Amadea Team - from left Teresa Garzuly-Rieser RN, Dr. Edda Hofstätter, Elke Gruber RN, Dr. Erna Hattinger, Silvia Wörndle RN, apl. Prof. Martin Wald

On March 20, 2025, World NIDCAP Day, we were able to host the “8th Salzburger Frühlingssymposium“ promoting developmentally supportive care. This was attended by a lot of interested people, both live and online. Monique Oude Reimer from Sophia NIDCAP & APIB Training Center greatly contributed to our program.

### The Amadea NIDCAP Training Center

The Amadea NIDCAP Training Center is the first NIDCAP Training Center in Austria. It was certified in 2024, and will offer NIDCAP Professional education. Our team also offers FINE 1 and 2 courses all over Austria. We are looking forward to collaborating with other units and hospitals in the future and share our vision to support and empower families on one hand and strengthen the multidisciplinary teams on the other hand.

NIDCAP has brought far reaching changes in how we think as a team and interact with premature and newborn babies and their families, furthermore it has been a journey with ups and downs, growing and letting go. We gained new people and had to say goodbye to some but today we can be proud of ourselves. We no longer send babies home to their parents, instead our families go home feeling strengthened as a family despite or because of their stay in Neonatology Salzburg.

Our daily NIDCAP work on the ward is strongly supported through a multidisciplinary team, Gruber Elke RN, Silvia Wörndle RN, Barbara Perner RN, Verena Linecker RN, apl. Prof. Martin Wald, Dr. Edda Hofstätter, Dr. Franziska Dankl-Thieme, Dr. Silke Häusler, Dr. Erna Hattinger-Jürgenssen, also physiotherapists, speech therapists, lactation consultants, case and care managers, social workers and psychologists contribute their valuable work.

Thank you to all the work of each one of the Neonatology Salzburg Team. We now have parents who cuddle with their children, feel recognized and allowed to be competent and be families even though the start in life was different than expected.



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

What does this image tell you?



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# Reflections on the Nurturing of NIDCAP Trainers-In-Training: Creating Safe Relationships, Safe Spaces and Using Reflective Process to Enhance Self-Expansion

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## Introduction

Working with NIDCAP Trainers-in-Training has offered an unparalleled learning experience and an opportunity for enhancing the more traditional NIDCAP training approach. Commitment to the NIDCAP model as well as to what the trainees have brought to the process has been enlightening, energizing and thought provoking.

Typically, NIDCAP Trainers-in-Training are accomplished NIDCAP Professionals who wish to further promote NIDCAP with other learners. They bring their own experience and clinical acumen to the process as well as their own adult learning styles and a sense of responsibility for using appropriate mentoring strategies.

The NIDCAP training model focuses on reliable observation and interpretation of the baby's behavioral communication taught in a dyadic and structured supervision model. Trainers-in-training become NIDCAP Professionals as their stepping-stone to become trainers. Achievement of proficiency to become a NIDCAP Professional has been described as a daunting process, often taking months or years, given that their training may have been intermittent with feedback from their trainer delayed. Regardless of the challenges with their initial training, many have the desire to replicate with others the training they receive.

It may be opportune to consider an augmented model of training, given that those who have achieved proficiency in their professional lives and have functioned as NIDCAP Professionals have suggested other models for learning, especially when dealing with human interactions and relationships.

## Self-expansion as a theoretical perspective for relationship-based learning.

Here we describe a theoretical perspective that applies to how individuals strive to expand their capacity--not only for their own learning, but also for how they might bring along others to the integration of NIDCAP into their clinical repertoire. It centers around relationship-based learning, the importance of providing safe spaces for learners, and the effective use of reflective process to support those who will be responsible for training the next generation of NIDCAP Professionals.

Self-expansion is a model developed by Arthur and Elaine Alon<sup>1,2</sup> which articulates a framework for experience and behavior in close relationships. Although their initial studies were done for dyadic intimate relationships, it can be applied to the relationship-based work with babies, families and professionals.

Promoting relationship-based learning is at the heart of the NIDCAP model and is arguably one of the more difficult aspects to "teach" to new trainees. The self-expansion model could be an important perspective to incorporate into the training of NIDCAP Trainers-in-Training so they can better understand their role in relationship development, modeling and mentoring.

The self-expansion model has two core principles: (1) **The motivation principle** refers to an inherent desire to improve oneself and produce others of like thinking around them. Self-expansion perspectives posit that individuals wishing to expand their capacities and competencies reflect a need for social approval and acceptance<sup>1,3</sup> even if they do not have the foundational skills for achievement at a more complex level. Often learners strive to embody the spirit, knowledge base and persona of trainers whom they respect and admire. In this manner, they emulate similar training approaches as their trainer and demonstrate the parallel process of training approaches, from Master Trainer to trainer-in-training to the trainees. Training approaches thus become evident in practice as well as in ongoing policies.

Striving for self-expansion reflects a conscious effort, however it is typically an unconscious motivation. In the context of NIDCAP Trainers-in-Training, those who are motivated to become trainers often underestimate their current skillset and what they can use to meet the rigors of engaging in training others, adapt to a more complex and comprehensive view of the work, and develop effective approaches to systems change.

(2) **The inclusion-of-other-in-self** addresses close relationships as the most effective way to expand a sense of self. Individuals who take on perspectives, identities and experiences of others do so through relationships.<sup>2,3</sup> As it relates to trainers-in-training, those who take on this next step in the NIDCAP

**TABLE 1** .....

**Examples of reflective questions for trainees:**

- How do you think the baby experienced this?
- How do you think the nurse experienced it?
- What would you like to say to this baby?
- How was it for you? What did you feel or think?
- What do you think the baby wanted to tell us?
- What do you think the nurse felt when the baby's oxygen saturation dropped?
- The feelings that came up for you – where do you think they came from?

process are not only motivated to effect change in themselves, but also in others whom they wish to take on as trainees.

Those who take on the trainer-in-training role commit to a rigorous process of learning with a master trainer who has a focused skill set that includes effective mentoring. Active listening, empathy, providing encouragement and practical support are some of the strategies master trainers use. They also involve insuring a safe and encouraging environment for learners to explore individual personal growth. As each person's learning process and achievements are individual, making room for their own learning and coping styles is important. Celebration of their individual small and large achievements provide encouragement and reinforcement for growth.

*"She consistently confirmed her belief in us and frequently acknowledged our good work. I felt truly seen for who I was – and that was enough. She recognized my insecurities, which made them discussable, and I found the courage to work on them and accept support." –AP*

### Creation of trusting relationships

Establishment of a trusting and encouraging environment for individuals is necessary and may not be limited to professional aspects of individuals' lives. Individuals' abilities to learn and be productive include revealing personal information regarding areas such as learning new skills, hobbies, family dynamics, or other personal activities that can contribute to a broader sense of self. Aron's research into self-expansion is about generating intimacy in relationships, including mutual information sharing, vulnerability and responsiveness of those engaged in the relationship.

*"Because NIDCAP is not just about observing well, understanding the baby's communication, and writing reports –*

*but also involves personal growth – I believe that a trusting relationship is essential for optimal development...creating a safe space for questions and doubts." –AP*

Checking in with trainers-in-training to be sure that they are managing self-care and personal family situations allows them to feel it is safe to express concerns other than in the training relationship. However, awareness and respect for the trainees' boundaries and assurance of confidentiality is essential. Care should be taken when personal or mental health issues are addressed and referral to other specialized professionals should be suggested when appropriate.

Sharing personal and professional experiences with a master trainer provides a model for trusting relationships with others whom they are training. For trainers-in-training, developing trusting relationships with their trainees can sometimes be complex, as trainees bring their own background, learning styles and mental health issues, creating a potential challenge for trainers-in-training to establish open communication and trusting relationships with their trainees. Disorganizing conversations and/or interactions can challenge their self-confidence and lead to feelings of vulnerability and incompetence in nurturing others. Often providing solutions to training challenges is less effective than exploration of strengths and opportunities for problem solving that occur within a safe relationship.

*"By nature, I tend to be an 'overthinker', but through the guidance and support I received, I have grown in applying self-reflection in a more conscious and balanced way. The safe environment and the trust our Master Trainer provided helped me feel comfortable being vulnerable and allowed me to look at myself with greater compassion — embracing challenges as part of the learning process." –EVD*

### Creating safe spaces for learning and training others

A safe space is a supportive and safe environment that encourages open-mindedness, respect, a willingness to learn from others as well as physical, mental, and social safety. In a safe space, the power structures and privileges affecting our everyday lives are consciously considered.

*"Since this learning process is so different from what we know from our medical training, it can bring out feelings of insecurity. And then it is important that you have a trainer where you feel safe with to share those feelings of insecurity without being judged." –AK*

How one creates a safe environment includes respect for an individual's pace and boundaries, as well as measurement of self-expansion. Individualized, sensitive, strengths based, thoughtful and relationship-based feedback is essential for growth. Active listening, empathy, encouragement, practical support and celebrating trainees' achievements are foundation-

al components to establishing safe spaces for self-expansion. It's also important to respect individual journeys and processes, allowing them space for self-discovery.

The importance of trainers-in-training having a safe space in which to express their vulnerability when facing the challenges of training others cannot be underestimated. NIDCAP work values the establishment of safe spaces for growth, especially in emerging trainers, as they are responsible for passing on these values to their trainees, the next generation of NIDCAP Professionals.

*“I do believe that feeling safe with your trainer is a must to be able to reflect on yourself, the baby and the process and feeling confident and secure enough to share this with your trainer. I have had a really good example on how to support your trainees in the best way by my own trainer.” –AK*

### Using the reflective process in safe spaces to enhance self-expansion with trainees

The process of self-expansion is often enhanced through encouragement to engage in the use of the reflective process. Use of reflective questions allow for self-examination of strengths, vulnerabilities and successes and can lead to more insightful and successful professional and personal growth.

*“The safe environment and the trust our Master Trainer provided helped me feel comfortable being vulnerable and allowed me to look at myself with greater compassion — embracing challenges as part of the learning process.” –EVD*

A reflective approach encourages the trainee to understand the experience of the baby, the family and other professionals. It typically does not come naturally, nor is it typically included in professional education. Although the reflective approach is key to understanding the NIDCAP work, how to “teach” this aspect of training takes development of a trusting, nurturing relationship between trainer and trainee. Without this reflective approach, learning typically is slow, task oriented and filled with misunderstandings. Just as the NIDCAP work encourages observers to interpret the baby’s communication and to infer their goals, reflective questions allow for understanding the baby’s experience from the learner’s point of view.

For the trainer-in-training, it is helpful to first appreciate reflective questions about their own observations as NIDCAP Professionals (Table 1). As they incorporate these questions into their own approach to understanding the baby’s communication, they then can pass on the perspective of the baby’s point of view to their trainees. Similarly, they can see the NIDCAP observation from the caregiver’s point of view without judgment of how the care was provided.

*“A large part of this learning process is the reflective work. This didn’t always come natural for me to do. But during the process, I grew to appreciate what reflection could achieve: for me as a person during my process as trainer-in-training but also for my trainees and their own process.” –AK*

*“These questions really helped my trainees progress. And I, too, grew, partly thanks to reflection. My Master Trainer provided us with reflective questions and invited us to brainstorm together. I think this offers a valuable framework for supporting trainers-in-training in their self-reflection. You naturally reflect spontaneously once you graduate from NIDCAP training, but there are always aspects you don’t automatically think about or write down. That’s precisely why those targeted questions were so helpful in tracking my own growth.” AP*

Using reflective questions, rather than being offered solutions or assignments, allows the learner to use their own capacity to think deeply about their experience, reveal feelings of vulnerability, create solutions to problems, feel successful and celebrate successes. In essence, it has the capacity for confirmation and expansion of their professional role.

*“I’ve found that inviting someone to reflect is much more meaningful and impactful than simply “giving feedback”. When you encourage others to reflect on the experience of the baby, the family, the caregiver, their own thoughts, actions, and emotions... it creates a much deeper learning process and insight. One that often doesn’t end when the conversation ends, but continues in the hours, days, and experiences that follow.” –EVD*

### Using the reflective process in safe spaces to enhance self-expansion with trainees-in-training

Although the reflective approach is key to understanding the NIDCAP work, how to “teach” this aspect of training takes development of a trusting, nurturing relationship between NIDCAP Master Trainer and NIDCAP Trainer-in-Training. Without this relationship-based approach, learning typically is slow, task oriented and filled with misunderstandings.

*“In a way, being offered reflective questions helps you grow a lot because you feel space for learning and trust from your trainer. It would be easier to get responses on our questions that would enlarge our knowledge but with reflective questions we enlarge our knowledge and our self-confidence!” AP*

Trainers-in-training who have had the opportunity to experience the reflective process with a trusted mentor then have the capacity to provide aspects of the reflective process when working with their trainees.

*“What I noticed is that people often reflected on how care moments had gone, but much less on how it affected them personally. For me as a trainer, that personal layer was the most interesting, because it offers a window into the trainee’s personal development. For many, reflecting on their own emotions in specific situations is not easy or natural. That’s why offering reflective questions has been a major step forward.” –AP*

As the reflective process for trainers-in-training is just that... a process, it is important to provide reflective questions

**TABLE 2** .....

**Reflective questions for trainers-in-training:**

- What strengths have I demonstrated in supporting trainees?
- What tailored recommendations have I made, and how have they contributed to their growth?
- What did I miss in my trainees' abilities or challenges?
- How did I create and maintain a safe space for open dialogue about successes and difficulties?
- Which interactions with trainees would I have handled differently or sooner?
- What does my own reflection teach me about my trainees' progress?
- What have I learned about my own development as a trainer?
- What frustrates me most about being a trainer or trainer-in-training?
- What gives me the most energy in this process?
- How do I score myself (1 = most organized, 9 = least) as a trainer within my trainees' trajectory?

before, during and as they progress in their capacity to mentor others. Several questions (Table 2) can be used for self-reflection with the trainers-in-training as they develop their skills.

*“I believe that being aware of one’s own emotions, strengths, and challenges is essential to fulfilling the role of a NIDCAP Professional and trainer effectively.” –EVD*

A safe space for using reflective questions provides a sense of trust that allows them to safely talk about their own experiences with training others. Creating safe spaces where individuals feel comfortable sharing their strengths and vulnerabilities through reflective questions can then lead to growth of the individual and influence how they see themselves fostering others' growth.

*“I would have found it very valuable to receive these reflective questions from the very beginning of the trajectory. Reflecting on each interaction and examining your own role in it helps you grow. Sometimes it feels like something you don't feel like doing but in retrospect, it always provides learning opportunities.” –AP*

## Evaluation of the continuum of self-expansion

Evaluation of an individual's self-expansion assesses how the individual perceives their own change and growth within the relationship. In the context of NIDCAP, self and Master trainer generated reflective evaluations can provide the trainer-in-training with valuable insight into their own individualized professional and personal growth as well as what encouragement and support they need to further their training effectiveness.

*“Having felt the importance of the ‘safe haven’ your trainer should be, I have tried to provide this safe space for my own trainees. Not judging, a lot of listening and using reflective questions during feedback, has proven to create a safe atmosphere for both me and my trainees. It has opened my eyes on how reflection should be part of any training program, not only NIDCAP and I notice that I have started to use reflective questions in my daily work as trainer of pediatricians-in-training.” –AK*

## Conclusion

An individual striving for self-expansion is evident in those who wish to become NIDCAP Trainers. Application of the self-expansion model to NIDCAP training emphasizes the need for a trusting relationship with a NIDCAP Master Trainer, a safe space within which to share vulnerabilities, challenges and training successes, and the use of a reflective process to enhance their capacity for training others in the NIDCAP approach. In contrast to a stringent pass/fail and policy driven approach, application of these approaches can result in optimization of personal and professional development. As such, it encourages parallel process from Master Trainer to trainers in training to their trainees so that all can successfully emulate the vision for NIDCAP care and thinking. The parallel process would then influence the care provided by NICU professionals and ultimately affect the care of babies and families.

*“Because this approach supports learning that comes from within, it feels less judgmental or hierarchical. You’re not evaluating or assessing — you’re supporting a process. And that brings so much more than just a sense of ‘right’ or ‘wrong’.” –EVD*

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# Parental Intuition and Discerning Cues

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## Introduction

From the earliest days of my pregnancy, I felt an unshakable, embodied certainty that my child would be born prematurely. This intuition defied biomedical categorization: I was 31 years, healthy, with no underlying conditions or risk markers. Yet my visceral sense of vulnerability guided every decision I made. This paper examines how such embodied knowing—often dismissed as anecdotal—can play a critical, clinically relevant role in neonatal care.

## Parental Intuition as Multidimensional Knowing

Parental intuition often presents as pre-reflective and bodily, a “gut knowing” that emerges before conscious articulation.<sup>1</sup> Far from mystical, this form of knowledge synthesizes subtle cues and lived relational context, allowing parents to detect changes in their child’s condition that may precede clinical markers.<sup>2,3</sup>

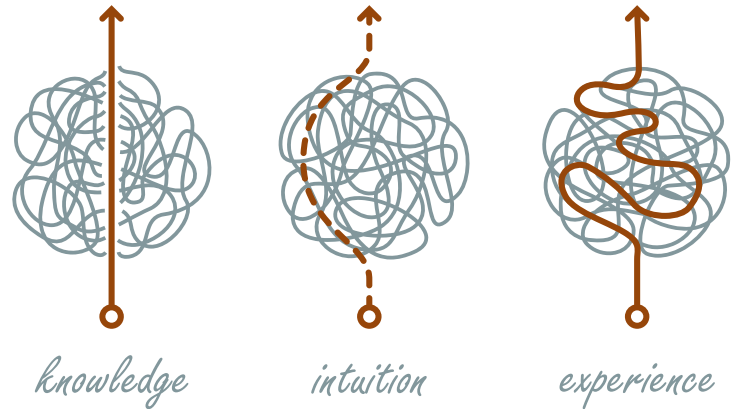
This intuitive knowing is also deeply relational, shaped by close observation and attunement to a specific child’s patterns of behavior, breathing, or demeanor. Parents develop what is often described as tacit knowledge—an embodied, context-sensitive awareness that can alert them to signs of distress invisible to others. Research confirms that parents sometimes detect early signs of deterioration before clinical metrics register concern.<sup>1</sup> In this way, parental intuition acts as both a psychosocial and clinical resource. It enhances caregiving efficacy, informs communication with providers, and serves as a protective factor in moments of ambiguity or risk.

## Clinical Intuition and the NIDCAP Model

Clinicians, too, rely on intuition—especially in high-stakes, data-sparse environments like the NICU. The Newborn Individualized Developmental Care and Assessment Program (NIDCAP) offers a structured framework for training providers to interpret behavioral cues—such as posture, facial expression, to self-regulation—as indicators of an infant’s internal state.<sup>4</sup>

In the NIDCAP model, intuition is neither incidental nor unscientific. Instead, it is treated as a skill that can be cultivated through observation, reflection, and embodied clinical learning.<sup>2</sup> Clinicians are taught to recognize subtle, non-verbal signs of stress or stability in the infant, reinforcing that clinical excellence is as much about sensory acuity and presence as it is about technical skill.

This alignment of intuition with structured clinical training helps bridge the epistemological gap between empirical and experiential ways of knowing, allowing for a more holistic model of newborn care.



## Case Context: Stress, Vulnerability, and Embodied Knowing

My own pregnancy unfolded within a convergence of destabilizing stressors—what some might call a “life quake.” After disclosing my pregnancy, I was terminated from employment, severing financial security and professional identity at a critical time. Our home sustained significant environmental damage from flooding, necessitating partial displacement. A fracture caused by an undiagnosed bone cyst introduced prolonged physical pain. I also experienced Vanishing Twin Syndrome, mourning the intrauterine loss of one twin while continuing to carry the surviving fetus.

These events were compounded by a severe case of H1N1 influenza contracted during the height of the H1N1 pandemic. Living in a rural, resource-constrained community further magnified risk, as access to emergency care was limited. The stress continued with an unexpected jury summons during my recovery, adding legal obligation and physical exhaustion to an already strained system.

These intersecting domains—medical, economic, legal, and environmental—collectively shaped my physiological development. Chronic maternal stress, as articulated by Cousins-Read,<sup>5</sup> alters immune and endocrine function, thereby contributing to adverse birth outcomes. McEwen<sup>6</sup> conceptualizes this phenomenon as allostatic load: the cumulative “wear and tear” on the body resulting from prolonged stress activation, which disrupts neuroendocrine, immune, and cardiovascular systems.

These embodied disruptions heightened my reliance on intuition as a navigational tool. Consistent with Shaw et al.,<sup>1</sup> this intuition may be best understood not as abstract instinct but as a form of practical, embodied knowledge—developed through constant relational attunement to fetal cues, emotional

**It was a moment in which my intuition, the clinicians' responsiveness, and the high-stakes context converged into a lived experience of care that was at once clinical, emotional, and existential.**

states, and subtle physiological changes. In contexts where clinical metrics were delayed, ambiguous, or insufficient, intuition emerged as both a psychological and physiological anchor. At seven weeks gestation, my spouse and I debated whether to seek care from a trusted obstetrician located 100 miles from our rural home or to remain within the local rural healthcare system. In deference to my husband, I opted for the local provider—an experienced clinician operating within a system that, at the time, was ill-equipped to fully support his clinical judgment.

Throughout the pregnancy, I frequently expressed intuitive insights, which were often met with responsiveness, even when they diverged from conventional timelines. At twenty-one weeks, when my son's future godmother offered to host a baby shower, I instinctively replied, "at twenty-three weeks." At twenty-four weeks, I purchased Emergency Airlift Insurance, compelled by a strong premonition of imminent complications. A second baby shower was held at twenty-six weeks. Upon returning home, my parents and husband assisted in completing our son's nursery by twenty-eight weeks. By twenty-nine weeks, I had the birthing bag packed and positioned by the door.

### **The Night of the Airlift: A Clinical and Existential Turning Point**

The night I was airlifted—amidst a blizzard and subzero temperatures—marked a defining moment in my life. The fixed wing plane was not merely transport but a threshold. Upon arrival, a coordinated team of clinicians moved in attuned silence. Their actions, while technical, carried an unmistakable presence—a relational synchrony that communicated urgency, respect, and care without words.

This moment of embodied coordination echoed what Jaworski<sup>7</sup> calls the "Source"—a generative field of collective awareness that lies beneath cognition. It was a moment in

which my intuition, the clinicians' responsiveness, and the high-stakes context converged into a lived experience of care that was at once clinical, emotional, and existential.

This experience did not just change my trajectory—it became the foundation of my future scholar-practitioner inquiry.

### **Intuition as a Source of Clinical and Systemic Learning**

Intuition, as Jaworski<sup>7</sup> notes, is not merely a private insight but can operate at a collective level—informing leadership, systems thinking, and organizational learning. In NICU and maternal care settings, decisions often must be made rapidly, under conditions of incomplete data. In these contexts, intuitive discernment complements empirical reasoning.

Moreover, integrating intuitive knowledge into clinical systems enhances not only decision-making but also trust and relational safety between families and providers. Validating parental intuition can foster stronger partnerships and reduce missed warning signs, especially for infants who present atypically or whose conditions escalate suddenly.

### **Extending Intuitive Listening Across the Continuum of Care**

To maximize the potential of intuitive practices, we must extend them across the perinatal continuum:

1. **Prenatal Care:** Collaborations with obstetricians, midwives, doulas, and community health workers can integrate intuitive listening into prenatal visits, especially when patients report embodied concerns that defy clinical prediction.
2. **NICU Practice:** Embedding trust-building conversations that validate parental intuition as credible can improve responsiveness and foster a more inclusive clinical culture.
3. **Post-Discharge Support:** Supporting parents to continue trusting their embodied insights equips them to navigate caregiving responsibilities for medically fragile children over time.

These extensions position intuitive listening not as a soft skill but as a sustained, relational practice that supports resilience, improves safety, and enhances outcomes.<sup>1,2,3</sup>

### **Developing Intuitive Listening Skills**

Mothers can develop intuitive listening with their infants through practices that blend embodied awareness, reflective attention, and responsive caregiving. During pregnancy, tuning into physical and emotional changes helps mothers recognize embodied signals that often precede clinical evidence, particularly in the context of prenatal stress and its effects on development.<sup>5,6</sup> Intuition should be acknowledged as a form of tacit knowledge, arising from experience and guiding decision-making under uncertainty.<sup>2,3</sup> Early caregiving interactions, such as holding, mirroring expressions, and observing subtle cues, not only foster attachment but also shape brain pathways

that strengthen intuitive perception.<sup>4</sup> Reflection further deepens this process, as mothers integrate rational and experiential knowledge into an inner path of knowing that reinforces confidence in their gut responses.<sup>7</sup> Research demonstrates that parental intuition can detect child illness before clinical signs are apparent, underscoring the value of trusting and articulating these insights in healthcare contexts.<sup>1</sup> Together, these practices illustrate that intuitive listening is not mystical, but rather a cultivated skill grounded in embodied experience, neurobiological adaptation, and relational attunement.

## Conclusion

Parental and clinical intuition must be repositioned from the periphery of healthcare to its center—not as anecdotal evidence but as legitimate, embodied knowledge. In maternal and neonatal care, where uncertainty is frequent and stakes are high, intuition is not a luxury—it is a necessity.

By cultivating intuitive competence among clinicians and validating it in parents, we enhance both technical perfor-

mance and relational care. The integration of intuitive insight into clinical systems has the potential to reduce harm, strengthen trust, and rehumanize care at every level.

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## Honoring Kathleen A Vandenberg (1945–2025)



During the 36th Annual NIDCAP Trainers Meeting, Emeritus NFI Member and Master NIDCAP Trainer Kathleen (Kathy) Vandenberg, PhD, was honored for her significant contributions to the NFI, NIDCAP, and our community.

Kathy was one of NIDCAP's early pioneers and her contributions have significantly shaped the landscape of newborn intensive care. Kathy was among the first NICU Developmental Specialists, breaking ground in other various roles, including serving as a NIDCAP and APiB Professional, Director of the third NIDCAP Training Center, and Master NIDCAP Trainer. Her commitment to NIDCAP led her to become a founding board member of the NIDCAP Federation International, where she helped develop practices that are now integral to our work.

Beyond her impressive professional accomplishments, Kathy was an extraordinary friend. She offered unwavering support, encouragement, and thoughtfulness to those around her. Here are message excerpts from individuals whom Kathy touched with her warmth and wisdom.

*I have never met a more-warm hearted, generous spirit. The energy and wisdom she brought to her work was outstanding and is sprinkled like stardust through*

*everything worthwhile that I have achieved in my own work. (Inga Warren)*

*It didn't matter if you were a conference participant, a mentee, a trainee, a collaborator, or another master trainer—your perspectives were welcomed with a gracious smile, a listening ear, and an unreserved encouragement. (Joy Brown)*

*With Kathy's teaching close to my heart, I will continue to dedicate myself to nurturing the next generation. (Noriko Moriguchi)*

*Kathy was a dynamic force in the world, who positively influenced those who were fortunate to know her. I am a far better person for knowing Kathy. And will always treasure her in my heart and mind with much appreciation. (gretchen Lawhon)*

*When our son was born, at just 26 weeks, we didn't know what the future would look like. Everything felt so overwhelming. Then this amazing woman, Kathy Vandenberg, introduced us to the NIDCAP program. She gave us hope and strength when we needed it most. And her impact on our family is something we will carry in our hearts forever. (Vicki Batkin Bjornson)*

Kathy's inspirational presence and dedication paved the way for advancements in newborn developmental care, leaving a lasting impact on the colleagues and families she touched. She has created an extraordinary legacy developing our compassionate developmental caregiving model and approach.

# SNUGS: Bridging Cultures and Languages Through A Culturally Sensitive Family Support Program

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## Introduction

Qatar, located in the Middle East, is home to nearly three million people from over 100 nationalities. Approximately 15% are Qatari citizens; the remainder are expatriates from diverse cultural, linguistic, and socioeconomic backgrounds. Islam is the state religion. Arabic is the official language and English is widely spoken. Cultural values around family, caregiving, and health are deeply rooted in tradition and religious beliefs.

Healthcare in Qatar has undergone rapid transformation in recent years, especially in maternal and child health. Public health care is delivered by Hamad Medical Corporation (HMC) and the Primary Health Care Corporation (PHCC) for about 70% of the population; private healthcare options are also widely available. Approximately 32,000 newborns are delivered across maternity hospitals per year, with 99.5% being institutional births. Preterm birth accounts for about 10% of deliveries. The neonatal mortality rate stands at 4.28 per 1000 live births. Consanguinity remains high at around 54%, contributing to a notable incidence of rare genetic conditions.

Despite high healthcare standards and growing awareness of neonatal developmental care, parent engagement in NICUs across the region remains inconsistent. Many parents rely on hired caregivers such as nannies or private nurses, and there remains a strong cultural expectation that medical professionals should provide all necessary care. Traditional hierarchies in healthcare continue to inadvertently sideline parental involvement. Additionally, many NICUs in the region do not provide 24-hour parental access, and formal staff training in developmental care remains limited.

## The Sidra NICU Context

Sidra Medicine, an academic women's and children's hospital in Qatar, opened a NICU in 2018 which serves as the only tertiary neonatal referral center in the country. The unit receives complex, high-acuity cases, including extremely preterm infants born as early as 23 weeks' gestation and critically ill out-born infants from across Qatar and the Gulf region. The average length of stay is 30 days.

The NICU has 42 single-family rooms spread over two floors and is staffed by a multidisciplinary team of over 200 professionals, including neonatologists, nurses, therapists, social workers, pharmacists, and trainees. The care model is



Figure 1. Cultural celebrations and themed event invite

designed to promote individualized, family-integrated care.

Given its multinational workforce representing over 95 nationalities, Sidra NICU faced early challenges in aligning developmental care practices across cultures, languages, and clinical training backgrounds. Parental involvement was highly variable. Emotional support infrastructure was limited. Additionally, many staff lacked formal developmental care education.

## Embracing Infant and Family Centered Developmental Care (IFCDC)

Over the last seven years, a core multidisciplinary team of physicians, nurses, allied health, health assistants, social workers, lactation consultants, administrative staff, and parent support

professionals worked together within the framework of ‘Family Integrated Care’ (FIC) to bridge gaps in developmental care. Multiple quality initiatives tackled staff knowledge gaps in developmental care, staff-parent cultural-linguistic barriers, organizational challenges of a newly established NICU, and the promotion and practice of evidence-based IFCDC. This work reduced the disparity between the intra-uterine environment and the NICU and optimized the potential for better outcome for patients and families.

The NICU has a 24-hour interpreter service and unrestricted parental access to promote care participation and skin-to-skin contact. Dedicated social workers, palliative care teams, and women’s mental health professionals are engaged to support parental well-being.

In 2022, Sidra NICU officially adopted the IFCDC framework and began implementing the FINE (Family and Infant Neurodevelopmental Education) program. All staff underwent FINE Level 1 training, and a core team completed Level 2 certification. Collaborations were initiated with international NIDCAP Professionals to guide training and mentoring. A number of structural changes were introduced to align with IFCDC principles, including inclusive developmental care rounds.

Family engagement is a cornerstone of IFCDC, yet in this multicultural, high-acuity NICU, consistent implementation remained a challenge. Families needed more than education; they needed emotional connection, peer support, and culturally resonant spaces to explore their experiences.

### The Birth and Growth of SNUGS

In response, the FIC team collectively launched ‘SNUGS’ (Sidra Neonatal Unit Group Support) in 2022. Designed through a quality improvement (QI) approach using Plan-Do-Study-Act (PDSA) cycles, SNUGS emerged as a culturally sensitive, multidisciplinary parent support initiative tailored to Sidra’s unique patient demographics. Rather than a one-size-fits-all support group, SNUGS was envisioned as an evolving platform grounded in IFCDC-aligned principles.

The four foundational pillars of SNUGS are:

1. Cultural Relevance: Respecting diverse family values, caregiving expectations, language needs.
2. Emotional Coping: Providing safe, non-judgmental spaces for parents to express emotions.
3. Peer Connection: Enabling shared learning and mutual support among parents.
4. Family Integration into Care: Strengthening parental involvement as primary caregivers.

Initial sessions were held in clinical spaces, promoted through bilingual flyers and an officially created SNUGS banner, and facilitated by clinical staff. One to four parents attended each of these early sessions and their valuable feedback guided growth and refinement through feedback-driven phases.

**2023:** SNUGS expanded under the guidance of a culturally attuned regional language speaking SNUGS lead facilitator and the core group of committed SNUGS drivers. NICU parents were invited to share their journeys and nursing and Allied health teams were encouraged to co-lead sessions thereby strengthening the staff multidisciplinary team-parent bond and nurse empowerment.

Sessions were moved to a non-clinical tranquil healing garden space with refreshments. Institutional funding was secured for refreshments and materials. Real-time translator support was offered. Active promotion occurred through NICU communication platforms. The hospital’s patient experience team supported logistical planning and promotion. Officially approved parent invite flyers were created to boost visibility. Attendance began to steadily rise.

**2024:** SNUGS became an integral part of NICU. The impact was vividly reflected in the wide array of themed events and informal parent support sessions held across 2023–2024. Themed events were organized around key NICU awareness weeks, such as World Breastfeeding Week, International Kangaroo Care Day, and Pain Awareness Week, highlighting best practices in these domains. Special celebrations, including Mother’s Day, Father’s Day, Ramadan, and World Prematurity Day–November 17th are well celebrated with in-patient and NICU graduate families every year, Figure 1.

The program expanded its inclusivity by welcoming extended family members and siblings into its sessions, fostering a stronger sense of community support. Sessions were maintained in an informal, approachable manner to encourage open dialogue, story and experience sharing, and parental engagement. SNUGS became visible across the hospital. The program was featured in the hospital newsletter, attended by Senior Hospital Leaders, and was also incorporated into IFCDC rounds.

These sessions were supported by a standardized template for staff introductions and every session’s content consistently emphasized parental involvement in caregiving, Figure 2.

Feedback mechanisms were formalized through a suggestion box, free text parent feedback, parent questionnaires, and recording of attendance and tracking of session content. Sessions were tailored based on suggestions, and ongoing feedback helped refine content and delivery.

From its modest beginnings, SNUGS demonstrated progressive growth. By late 2024, bi-monthly sessions regularly attracted 15-20 parents per meeting, and additional extended family members representing a wide range of nationalities, languages, and cultures.

**2025:** The ongoing phase of SNUGS focuses on sustainability, expanding educational content and promoting the use of family-centered tools, such as the NICU Mobile Library on Wheels, the Family-Centered Patient Care Board, and peer mentorship opportunities. Session topics now include recognizing infant cues, preparing for discharge-transition to home, and navigating

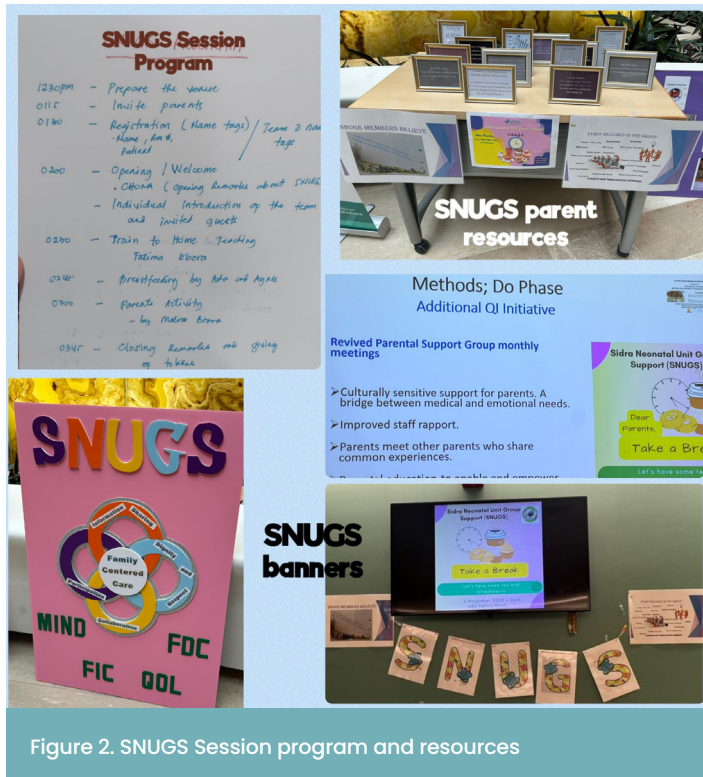


Figure 2. SNUGS Session program and resources

cultural expectations around newborn care. Staff members who actively support SNUGS are acknowledged, helping to cultivate a culture of teamwork, value and partnership.

### Outcomes

Although the initial SNUGS sessions saw low attendance, engagement steadily improved from 2023 onward following the QI interventions. By continuously monitoring our practices, data shows successful implementation of the quality improvements with a gradual increase in parental engagement and in the awareness of the benefits of parental caregiving. Staff-parental feedback and anecdotes from parents, ascertain improved experiences and satisfaction. Scores on post-discharge parental surveys also reflect improved satisfaction and awareness. Feedback from attendees highlighted several positive outcomes:

- Increased confidence in caregiving tasks and parent-infant interaction
- Improved understanding of parents' role in NICU care
- Decreased feelings of isolation and anxiety
- Emotional reassurance and increased peer connection
- Strengthened trust in staff and the NICU team
- High levels of satisfaction and gratitude expressed toward NICU staff indicating they felt more satisfied in their role as caregivers, enabling them to also connect better with NICU parents.

### Lessons Learned

Despite its growing success, the SNUGS journey was not without challenges. High patient acuity and the lack of protected time for staff to organize and facilitate sessions often posed logistical difficulties. Cultural taboos surrounding emotional expression sometimes limited open dialogue, prompting the team to adopt an even more culturally sensitive and respectful approach. Conflicting schedules also affected parent participation; in response, sessions were trialed at various times to better align with parent availability.

SNUGS taught us that cultural humility, and a respectful, flexible, and open-minded approach fosters trust and partnership. Successful strategies included use of linguistically and culturally matched facilitators, non-clinical environments, informal sessions for emotional expression, visible support from leadership and bedside teams, continuous collection of and response to parental feedback, and acknowledgement of the dedication of staff involved.

### Conclusion

In a multicultural high-acuity NICU, SNUGS represents more than a support group; it empowers families to not only cope, but to encourage active participation in their infant's care, an essential aspect of optimizing neurodevelopmental outcomes. As the SNUGS initiative matures, its vision is to ensure every family in the NICU feels seen, heard and supported.

### Future directions

Opportunities for virtual participation are to be explored for families unable to attend in person. There are plans to encourage veteran parents to attend sessions to support peers and to collaborate more closely with local and international parent networks to enable growth. Additional plans include exploring the development of a storytelling and parent education tool web page or App for NICU families.

### Acknowledgements

*This initiative is the result of immense collaboration across our clinical, administrative, and family teams.*

*We extend our heartfelt gratitude to Professor Samir Gupta, Division Chief of Neonatology, Neonatology Leadership & Nursing Managers, Professor Charlotte Tscherning-Former Division Chief SIDRA Neonatology, Dr. Ben Lee-Former Neonatologist, Dr Sanoj Ali-Neonatologist, NICU FIC Multidisciplinary team, SIDRA Patient Experience, Interpreter and catering Service teams, NICU Executive Assistant-Cyndy Visita, NICU Unit Clerks, and our NICU parents and families for their support and contribution.*

# Can Autistic Spectrum Disorder (ASD) Be Predicted From Early Reflexive Sucking?

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**P**rior to the first publication of the NOMAS® (Neonatal Oral-Motor Assessment Scale) in 1985, preterm infants and sick term infants in the NICU (Neonatal Intensive Care Unit) were described as “poor feeders” or “good feeders.” The poor feeders all received the same intervention strategies to improve their feeding, i.e., chin support, cheek support, and manual expression of the liquid into the mouth by the caregiver. In addition, the theory was that all premature infants were hypotonic and therefore, oral feeding was much more work for them. Consequently, the formula companies manufactured a very soft, fast flow nipple (teat) for these infants so they would find it easier to be successful at oral feeding. This hypothesis unfortunately was incorrect, and it was later demonstrated by the NOMAS® that these premature infants were unable to coordinate sucking/swallowing and breathing because they did not yet have the neurological maturation or the respiratory support to do so. Transferring more liquid into their mouth only made their effort to breathe that much harder. It has now been reported that infants who present with a disorganized suck and stress on the NOMAS® require 22 days longer to transition to full oral feeds than those infants who present with a disorganized suck based on the NOMAS®.<sup>1</sup> Stress signs have been well documented by Developmental Specialists, who are trained to recognize them, and many times they are caused by the infant’s inability to coordinate suck/swallow with respiration. Coordination of the pharyngeal swallow with respiration is required for successful and normal nutritive sucking. Stress may also be caused by esophageal dysmotility, constipation, allergies, and several other issues.

The NOMAS® was designed to evaluate and diagnose the reflexive infant suck pattern as normal, disorganized, or dysfunctional. It has been reported that when an infant presents with a dysfunctional suck on the NOMAS he/she has a developmental delay in one or more areas by two years of age.<sup>2</sup> These infants may be able to coordinate respiration with suck and swallow but demonstrate abnormal movements of the tongue and jaw during sucking.

Using the NOMAS®<sup>3</sup> (Figure 1), the trained professional examiner is also able to observe and diagnose such sensory processing disorders as habituation, perseveration, and poor adaptability in the newborn who demonstrates a reflexive non-nutritive (NNS) and nutritive (NS) suck pattern. It has been reported that the normal non-nutritive suck is a burst/pause pattern consisting of 5-20 sucks lasting less than seven

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seconds.<sup>4</sup> It is anticipated, therefore, that after the first pause the infant will re-initiate the second burst. When an infant demonstrates habituation there will be a NNS pause after which the infant will cease to re-initiate the second sucking burst unless a new stimulus is provided, such as: twisting, turning, pulling the nipple; stroking the head; moving the body, etc. Caregivers often kindly report that these infants “forgot the pacifier is in the mouth so you need to remind them”. So, when the first NNS burst, the first NNS pause, and the second NNS burst are observed, this sensory processing disorder can be ruled out. If an infant is transitioning to a lower state which has caused them to stop sucking on the pacifier most likely the provision of a new stimulus would be less successful. Frequently during bottle feeding, preterm infants may stop sucking. Much of the time this is for breathing but, when the infant fails to re-initiate the sucking activity after a reasonable amount of time, habituation may be suspected. Habituation may be confirmed when the introduction of a novel stimulus results in a re-initiation of the suck. If an infant has become fatigued and is transitioning into a sleep state, the new stimulus would be less effective. The caregiver may assume that the infant requires the introduction of a novel stimulus to re-initiate the suck, but should proceed with caution in case the infant has just paused to breathe. Interrupting respiration during feeding is inadvisable.

Habituation has a place in normal infant development and is referred to as “sensory integration.” An example of this would be that the first time a sleeping infant hears the vacuum cleaner

**Figure 1: Neonatal Oral-Motor Assessment Scale (NOMAS)**

**NOMAS®**

Neonatal Oral-Motor Assessment Scale (NOMAS)

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<b>Jaw</b>		
<u>Normal</u>	<u>Disorganization</u>	<u>Dysfunction</u>
<ul style="list-style-type: none"> <li>— consistent degree of jaw depression</li> <li>— rhythmic excursions</li> <li>— spontaneous jaw excursions occur upon tactile presentation of the nipple up to 30 minutes prior to a feed</li> <li>— jaw movement occurs at the rate of approximately one per second (1/2 the rate of NNS)</li> <li>— sufficient closure on the nipple during the expression phase to express fluid from the nipple</li> </ul>	<ul style="list-style-type: none"> <li>— inconsistent degree of jaw depression</li> <li>— arrhythmic jaw movements</li> <li>— difficulty initiating movements:                             <ul style="list-style-type: none"> <li>• inability to latch on</li> <li>• small, tremor-like start-up movements noted</li> <li>• does not respond to initial cue of nipple until jiggled</li> </ul> </li> <li>— persistence of immature suck pattern beyond appropriate age under 40 weeks PC (transitional suck)</li> </ul>	<ul style="list-style-type: none"> <li>— excessively wide excursion that interrupt the intra-oral seal on the nipple</li> <li>— minimal excursion; clenching</li> <li>— asymmetry; lateral jaw deviation</li> <li>— absence of movement (% of time)</li> <li>— lack of rate change between NNS and NS (NNS =2/sec; NS=1/sec)</li> </ul>
<b>Tongue</b>		
<u>Normal</u>	<u>Disorganization</u>	<u>Dysfunction</u>
<ul style="list-style-type: none"> <li>— cupped tongue configuration (tongue groove) maintained during sucking</li> <li>— extension-elevation-retraction movements occur in anterior-posterior direction</li> <li>— rhythmic movements</li> <li>— movements occur at the rate of one per second</li> <li>— liquid is sucked efficiently into the oro-pharynx for swallow</li> </ul>	<ul style="list-style-type: none"> <li>— excessive protrusion beyond labial border during extension phase of sucking without interrupting sucking rhythm</li> <li>— arrhythmic movements</li> <li>— unable to sustain suckle pattern for two minutes due to:                             <ul style="list-style-type: none"> <li>• habituation</li> <li>• poor respiration</li> <li>• fatigue</li> </ul> </li> <li>— incoordination of suck/swallow and respiration which results in nasal flaring, head turning, extraneous movement</li> </ul>	<ul style="list-style-type: none"> <li>— flaccid; flattened with absent tongue groove</li> <li>— retracted; humped and pulled back into oro-pharynx</li> <li>— asymmetry; lateral tongue deviation</li> <li>— excessive protrusion beyond labial border before/after nipple insertion <u>with</u> <u>out</u>/down movement</li> <li>— absence of movement (% of time)</li> </ul>

Summary and impression:

Recommendations:

\_\_\_\_\_  
Licensed Examiner

License # \_\_\_\_\_

they wake up crying; the second time they just stir in the crib; and by the third time sleeps through the stimulus. However, habituation to a nipple (teat) that is providing nutrition is never part of normal development and should not override the reflexive suck. Sensory integration is a framework that was conceptualized by Dr. A. Jean Ayers, Ph.D. in the 1970's and she reported that a "lack of sensory integration may be one of the underlying causes of the behavioral problems in children with autism."<sup>5</sup> Between 90-95% of children with autism are estimated to have sensory integration/processing difficulties.<sup>6</sup>

Perseveration is noted when the infant sucks on the pacifier continuously using the NNS sucking rate of two sucks/second without a pause.<sup>7</sup> In this case, the caregiver may kindly report "they are very hungry and trying to get milk out of the pacifier." Perseveration is an indication of a sensory processing disorder and is an abnormal response. During bottle feeding there are a number of preterm and sick term infants who are unable to stop their mouth from sucking in order to breathe. Some infants may even demonstrate over 150 sucks in the two-minute sucking sample required for the NOMAS® evaluation. Perseveration during nutritive sucking may put the

infant at risk for aspiration and should be carefully diagnosed, monitored, and treated.

Another indication of a sensory processing disorder that can be identified by using the NOMAS® is poor adaptability. This refers to those infants who are unable to transition easily from one nipple (teat) to another; one caregiver to another; or are unable to change positions or formula. This inability to transition is linked to the sensory system and infrequently observed in those infants whose sensory systems are within normal limits.<sup>8</sup> An infant may demonstrate a normal suck, based on the NOMAS® on one nipple, but a disorganized suck, based on the NOMAS® when the nipple (teat) is changed. Also, an infant may demonstrate a normal suck pattern with one type of formula, but when a different formula is offered, using the same nipple (teat) may demonstrate a disorganized suck.<sup>9</sup>

When the intra-oral sensory perception of the infant is severely impaired, the infant may be unable to differentiate between the NNS and NS and may fail to suck/second when the bottle is introduced. This infant may actually be transferring liquid but has no intra-oral sensory awareness of this. Infants such as these are also at risk for aspiration and attempts at oral feeding should proceed with caution.

Since habituation and perseveration have been defined in the literature as hypo- and hyperreactivity, prognostic symptoms of a sensory processing disorder, it is quite possible that, a professional who feeds infants in the NICU and who is trained in the Administration and Scoring of the NOMAS® would be able to diagnose these signs of a sensory processing disorder for infants prior to discharge.

Sensory processing disorders/sensory integrative dysfunction has been described in infants with autism who display differences in their sensory reactivity to caregiving, which is indicative of an inability to organize sensory input.<sup>10</sup> Autism is strongly associated with sensory processing difficulties, i.e., the ability to receive, organize, and interpret sensory stimuli, including but not limited to visual, tactile, vestibular, and auditory experiences.<sup>11</sup> Sensory impairments are a core characteristic of the neurobiology of Autistic Spectrum Disorder (ASD).<sup>12</sup>

These infants may demonstrate sensory hypo- or hyper-reactivity.<sup>13</sup> Such responses may be manifested as perseveration which is the occurrence of repetitive behaviors<sup>14</sup> or by habituation which refers to the progressive decrease of the frequency of a motor response to repeated sensory stimulation.<sup>15</sup>

The brain undergoes faster structural and functional maturation from birth to three months than at any other postnatal developmental window, as well as significant integration across functional domains. Research on infants under six months of age who may be predisposed to developing ASD later has primarily focused on the visual area, attention to objects and faces, and overall attention. It has been stated that primitive reflexes showed no differences for infants with ASD at this age (one month), with the primitive oral reflexes excluded from the analysis.<sup>16</sup>

Birth before 32 weeks gestation is associated with an increased risk of ASD.<sup>12</sup> Although the Center for Disease Control and Prevention (CDC) note that a baby can show signs of ASD at nine months of age, the Autistic Science Foundation states that early signs of ASD may appear in babies as young as two months of age. This newer evidence indicates that ASD can be diagnosed during infancy.<sup>12</sup>

Currently the NOMAS® is used by trained professionals in NICUs in 46 states of the United States of America and 40 countries around the world. A follow-up study is necessary and is long overdue to determine whether infants who demonstrate sensory processing disorders during sucking, based on the NOMAS®, are subsequently diagnosed with Autistic Spectrum Disorder.

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