

Evolution of National Guidelines to Support the Development of Preterm Infants' Feeding Competencies and Breastfeeding

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Background

In 1998, under the leadership of Professor Dominique Hau-mont, the first NIDCAP training started at Saint-Pierre Uni-versity Hospital. Thanks to the coaching of Dr. Joy Browne, Senior NIDCAP Master Trainer, two staff members obtained their NIDCAP certificate. NIDCAP observations were regularly performed and became a part of the routine practice of modifying the environment, positioning infants in the incubator and adapting the organization and delivery of caregiving. All of this was achieved in the framework of a personalised approach, with the parents' collaboration. Local workgroups, including the multidisciplinary team and the Heads of the Unit helped in the implementation of NIDCAP.

In 2005, a newly designed neonatology ward consisting of 16 rooms, 3 three-bed, 5 two-bed and 8 single rooms was inaugurated. The single room design included special spaces for the parents. The environment was adapted to best support the baby's optimal development. Progressively, as we observed the infants' feeding behaviours, we started to reflect on our practices. At that time, babies were fed every three hours, at set times based on the caregivers' schedules. Oral feedings were supplemented by tube-feedings until discharge. Infants were gradually given feedings every four hours in preparation for going home. Parents were not involved in tube-feeding and, when they were not present, bottle feeding was used regularly even for breastfeeding infants. Full breastfeeding rates by the time of discharge were low, around 20%.

Through our observations of infant behaviour, we realised babies were often fed when they were not ready or emotionally available. We also understood we were not attentive enough to some of the infant's early and subtle attempts at eating. When we did notice their rooting behaviour and tried to meet their oral needs, it was mostly late towards the end of caregiving, when the infant had already spent a lot of energy.

The information we reported on and shared among care-givers only concerned feeding methods and volumes of intake. There was no communication about the infant's behaviour during the feeding, the quality and success of the feeding itself, the parents' involvement in feeding, or what suited each baby best.

Aims

The NIDCAP observations gave us details on some infants' individual behaviours during feedings, suggesting the need for individual practice changes. Because these findings were recur-rent, we became aware of the necessity to modify the unit's general feeding practices. In 2006, with this aim, we formed a multi-disciplinary work group including the unit's leaders and reviewed relevant literature on the topic of feeding competence in preterm infants.

The issues we wanted to address were the following:

- How to reduce negative oral stimuli and encourage natural, positive experiences.
- When to introduce the premature infant to their first feeding experience.
- What is a successful feeding and how to provide a consistent and relaxing environment to support the baby's developing competency?
- How to manage tube feedings whilst facilitating the develop-ment of the parent-infant bond and their nurturing relation-ship.
- How to adapt feeding schedules to phase in semi-demand feedings without systematically supplementing them by tube feeding.
- How to increase full breastfeeding rates at discharge from the NICU.
- How to convey information related to an infants' feeding including but also going beyond the notion of volumes of intake.

Methodology

Review of the literature, visits to other units, and dialogue with experts in preterm infant feeding competencies enabled us to:

- Develop new work objectives and a new feeding protocol based on each infant's individual behaviour and competence, which, in turn, enabled us to phase in semi-demand feeding.
- Stop using bottle feeding instead of breastfeeding and consider the use of alternative methods when parents were absent.
- Develop new monitoring forms detailing observations of sucking, swallowing, and breathing coordination. The notes also documented any modification of the infant's physiologic parameters recorded during feedings, information about their behavioural state during feeding, the quality of the feeding, the infant's distal and proximal environment, feeding meth-odology, and who fed the infant.
- Create an educational feeding brochure and organise weekly information meetings focussed on the parents.
- Work on the environment to facilitate the infant's tucked position and offer them the opportunity to access and explore their fingers orally.
- Stop the practice of stimulating sucking during feeding by moving and pushing the bottle into the baby's mouth.

The whole team received theoretical information and training in the use of the new feeding protocol, the observation sheets and adapting the infant's environment.

Results

Following implementation of the changes previously discussed and of the new protocol, we observed that:

- Infants started their feeding experiences earlier.
- The quality of the feedings was addressed.
- Gradually involving parents in tube feeding was encouraged and facilitated interaction between the nurse, the parents, and the infant.
- Full breastfeeding rates at discharge increased.
- Instead of fewer feedings with larger volumes which were difficult for infants to manage, up to 8 - 12 smaller feedings were provided until discharge.
- Infants were developing their feeding competencies at their own pace without spending all their energy. This, in turn, enabled them to keep on developing their other competencies until discharge.

Continued Integration of Developmentally Supportive Feeding Practices

In 2007, we became a NIDCAP training centre and continued trying to maintain good practices for feeding preterm infants. We also advocated promoting the feeding protocol through our NIDCAP training sessions in other Belgian and French hospitals, in nursing schools, and at conferences.

Progressively, we worked at reinforcing parental presence and their stay within the unit, which led to increased parental involvement in tube feeding. This was made easier through skin-to-skin holding and skin-to-breast feedings. It was also facilitated by the opportunity for parents to sleep next to their baby.

Expansion to a National Focus

From 2014 to 2016, Saint-Pierre CHU supported the transfer of Delphine Druart, NIDCAP Trainer, to the Public Health Ministry to assume the role of developmental care coordinator. Her task was to promote NIDCAP and developmental care at the national level, in collaboration with Kelly Janssens, RN (currently a NIDCAP Trainer-in-Training at UZ Leuven, Belgium). Study days for staff at Belgian Hospitals were organised. Meetings with teams occurred to inform and help them assess their practices and identify possible areas for change. Within this context, the Public Health Ministry decided in 2015 to set up an inter-hospital multidisciplinary workgroup to establish national premature infant feeding guidelines.

Many paediatricians, nurses, speech therapists, NIDCAP experts and breastfeeding advisors from different hospitals took part in the project. In 2018, the guidelines were completed and translated from French into Dutch because national guidelines can only be published if they are in both country languages. The guidelines were sent to all Belgian hospitals and made available on the Public Health Ministry's website.

At the same time, we observed that many babies continued to receive feedings infused by a feeding pump every 1-2 hours as volumes of intake progressively increased. We then decided, together with Dr. Marie Tackoen, head doctor of the NICU since 2015, and Dr. Inge Van Herreweghe, head of the clinic and the NIDCAP Training Centre since 2015, to allow pump feedings only on medical advice and after having first tried split and/or paced tube feedings, based on the infant's behaviour. To achieve this, we involved parents by helping them provide tube feedings for their baby while monitoring the infant's breathing and behaviour, interspersing the feeding with breathing breaks as needed. As a result, most babies who are tube fed receive parental skin-to-skin during a tube feeding by gravity flow instead of administered by a feeding pump.

We also acquired more portable breast pumps, trained two breastfeeding advisors, and updated a breastfeeding brochure enabling mothers to monitor their daily milk production volume. All staff members in our unit were invited to attend free ongoing four-day breastfeeding training within the hospital.

Supporting Breastfeeding

In 2019, we developed a programme enabling us to transfer the mother and baby from the delivery room to the maternity and neonatal wards whilst keeping them skin-to-skin. The programme also allowed us to prolong the skin-to-skin time to at least 10 hours a day. In fact, this scheme had first been set up in the framework of a pilot project in our non-intensive neonatal unit (Koala unit), where parents have been able to stay with their baby 24 hours a day since 2017.

In the context of this program, we developed a new feeding method no longer based on the infant's weight gain after a breastfeeding. We now assess the quality of the breastfeeding by using the Fleur de Lait¹, a breastfeeding scale derived from the Premature Infant Breastfeeding Behaviour Scale (PIBBS).² To proceed safely and cautiously, we tested this new protocol first on stable late preterm infants. Of course, we help parents acquire progressive autonomy in the use of this method which works as follows:

- The doctor prescribes a minimum daily volume of intake for the baby.
- The nurse then calculates an hourly amount.
- A maximal lapse of time between two feedings is defined by the team.
- If the baby does not wake up at the end of the maximal lapse of time, the baby is fed by tube. If the baby breastfeeds, the Fleur de Lait score is calculated. If the score is less than 12, the baby's intake is supplemented by a tube-feeding. The volume of this supplemental feeding is calculated according to the number of hours elapsed since the latest feeding deemed efficient (i.e., the score was higher than 12). This way, the baby is fed at their own pace as soon as they show signs of wanting to be fed.

At the beginning of 2020, we extended this practice to infants in the neonatal intensive care unit. The whole team at-

tended an information workshop. Depending on the evaluation of this project, we hope to extend this protocol to even younger infants less than 34 weeks.

The infants who experience this feeding regimen and longer skin-to-skin periods, reach the full breastfeeding phase earlier and are discharged sooner. We are assessing the impact of this approach on infant stability, age of autonomous feeding, age of discharge, and on the parents' and team's satisfaction. We hope to share these results in the future.

As a part of the previous developmental feeding project, we set up a peer-to-peer breastfeeding support programme. We developed it with the help of volunteers who are parents of babies who stayed in our unit. The parents first benefited from an interview with the team's psychologist, followed by training in breastfeeding, developmental care, and premature infant feeding. This project will also be evaluated as to the parents' and volunteers' satisfaction. We hope to also share these results soon.

Summary

Our goal is to make feeding a time of pleasure and bonding for babies and their parents. We are pleased that now 75% of pre-term babies are receiving their mother's milk on discharge from the neonatal unit. We are proud that these projects could go on even in COVID-19 times.

References:

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2. Lober A, Dodgeson JE, Kelly L. Using the Preterm Infant Breastfeeding Behavior Scale (PI-BBS) with late preterm infants. 2020, *Clinical Lactation* 11(3), DOI: 10.1891/CLINLACT-D-20-00001

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