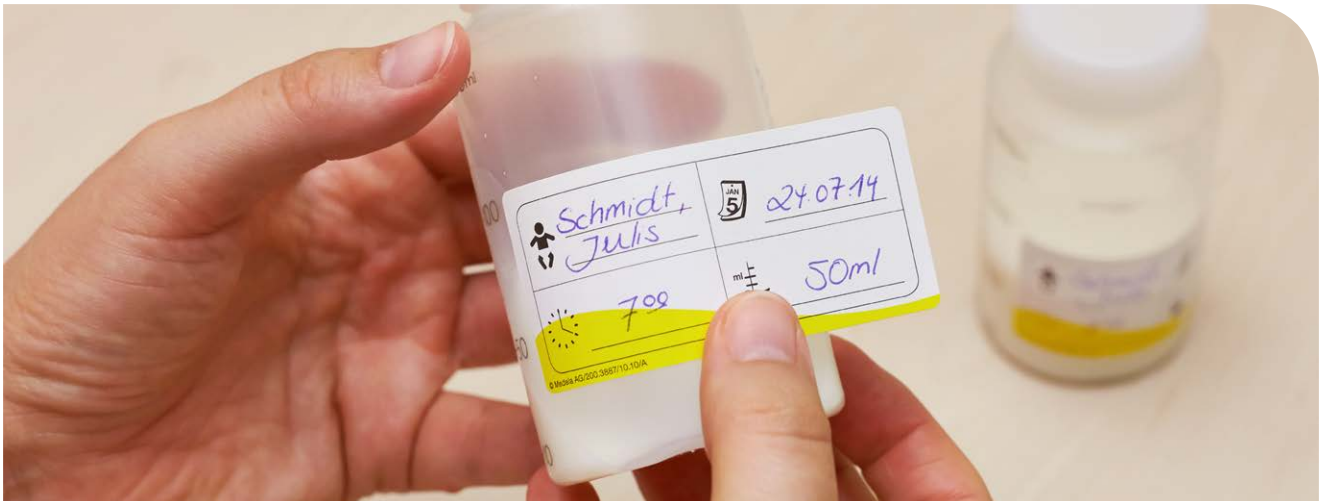


Logistic solutions for human milk in the NICU

Logistical processes in the NICU aim to protect the quantity and quality of human milk. Medela provides comprehensive and evidence-based solutions that focus on these processes and their integration into hospital practice.





Logistic solutions for human milk in the NICU

The NICU (Neonatal Intensive Care Unit) aims to provide preterm infants with a high dose of their own mother's milk. To preserve the quantity and quality of the milk, the NICU must optimise the entire human milk pathway, starting from milk collection at the breast, to feeding the infant. It is important that the principal goal when not feeding at the breast is to receive the benefits of human milk while learning to oral feed. Medela has taken into consideration the potential risks and logistical challenges that NICUs face.

This brochure aims to give professional caregivers an overview of evidence-based logistical procedures for handling human milk in the NICU, and of how Medela's solutions can support and help to standardise this human milk pathway. It is the entry point to more detailed materials and initiatives dedicated to the logistics of human milk, and breastfeeding in the NICU.

Medela: Comprehensive solutions for human milk and breastfeeding

For more than 50 years Medela has strived to enhance mother and baby health through the life-giving benefits of breastmilk. During this time, the company has focussed on understanding mothers' needs and infants' behaviour. The health of both mothers and their infants during the precious breastfeeding period is at the centre of all activities. Medela continues to support exploratory research into human milk and breastfeeding, and incorporates the outcomes into innovative breastfeeding solutions.

Through new discoveries surrounding the components of human milk, the anatomy of the lactating breast and how the infant removes milk from the breast, Medela has developed a set of solutions to support NICUs in providing human milk and improving breastfeeding.

Medela understands the difficulties of providing human milk in the NICU. There are challenges from the mother's side to reach an adequate milk supply and from the infant's side to ingest the milk; plus there are issues of hygiene and logistics when meeting these challenges. The portfolio Medela offers is directed towards obtaining human milk, promoting human milk feeding, and supporting all infants in achieving breastfeeding as early as possible.

Medela aims to provide the most recent, evidence-based knowledge to support breastfeeding and human milk use in the NICU. The goal of the innovative, research-based products, together with the educational materials, is to overcome the difficulties associated with human milk provision in the NICU.



Scientific research

Medela strives for excellence in scientific research – an attitude that has enabled the company to develop advanced breastpump and breastmilk feeding technologies. Medela works with experienced medical professionals and seeks collaboration with universities, hospitals and research institutions worldwide.



Products

Helping mothers to express milk is Medela's core competency. This includes careful and hygienic collecting of breastmilk in BPA-free containers. Easy solutions for labelling, storing, transporting, warming and thawing – all help to safely manage precious human milk. And for human milk to reach the infant, Medela has developed a range of innovative products for different feeding situations.



Education

Within Medela, research and education are closely linked. Medela connects clinicians and educators in ways that lead to professional growth, exchange of knowledge and interaction with the broader scientific community.



Passionate about human milk

Few interventions rival breastfeeding in promoting the health of a mother and her infant. Breastfeeding is universally recognised as the optimal feeding choice for every infant. International health bodies, including the World Health Organization (WHO), recommend breastfeeding as the exclusive nutritional source for infants for the first six months of life^{1–3}.

Breastfeeding is natural

Breastfeeding is clearly the most natural way to provide the benefits of human milk to the growing and developing infant. It ensures that infants receive the complete nutritional, immunological and developmental benefits of human milk^{4,5}, in addition to the physical and psychological benefits that breastfeeding provides to the mother and her infant². During the early post-partum period, close body contact between the mother and infant helps regulate the newborn's temperature, respiration, energy conservation⁶, crying, and nursing behaviours^{7,8}. During breastfeeding, the close body contact helps prolong the lactation period, and helps the mother to adapt to meet increased energy demands during lactation⁹. In particular, breastfeeding facilitates a bond between the mother-infant pair¹⁰.

Human milk is liquid gold

Human milk is especially important to the preterm infant. It reduces the incidence, severity and risk of debilitating morbidities in a dose-response manner, with higher doses of human milk leading to the greatest protection^{11,12}. High doses of human milk are particularly significant in the first months of life¹³. The positive impact of human milk

appears to be linked to precise exposure in the early post-birth period, during which the exclusive use of human milk and the avoidance of formula are most vital¹¹. Premature infants who receive human milk have a reduced risk of necrotising enterocolitis (NEC), chronic lung disease, retinopathy of prematurity, sepsis, nosocomial infection, cognitive and neurological impairments, sudden infant death syndrome (SIDS) and rehospitalisation after NICU discharge^{14–23}. The compelling benefits of human milk are such that all preterm infants should receive it^{24,25}.

Despite the benefits of human milk feeding, it is well known that many mothers of preterm infants experience difficulty initiating and maintaining lactation. Similarly, a large proportion of preterm infants are unable to feed orally, often not progressing to breastfeeding until late into the NICU stay. The provision of human milk is of utmost importance in this scenario. By the time milk is ready to be fed to the infant, it has gone through a series of procedures and processes that may jeopardise its quantity and quality. Therefore, providing human milk in a form that is closest to freshly expressed milk represents a significant logistical challenge for the NICU.

Breastfeeding is the most convenient, safe and hygienic method of feeding. A NICU must optimise the logistical pathway to ensure that sufficient human milk is provided to the preterm infant in a way that preserves its quantity and quality.



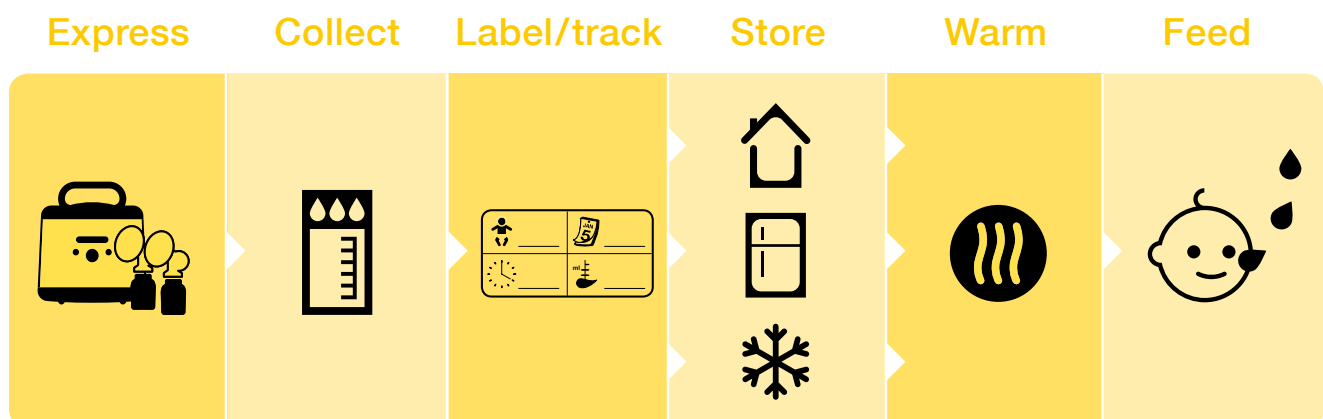
Bridging the gap: Standardising the logistic pathway of human milk in the NICU

When infants are unable to breastfeed, the NICU must ensure logistical processes are in place to

- I provide sufficient human milk for each infant
- I in the highest possible quality
- I with the goal to achieve breastfeeding at discharge

Careful attention is required to make certain that hygienic practices, logging, correct labelling, and appropriate storage conditions are used when handling human milk. These steps impact the logistical processes of the NICU. To support family involvement, it is important that parents are educated on the hospital's procedures and guidelines so that they can perform them whenever they are handling milk in the hospital and at home.

The following graphic describes the pathway of human milk through the NICU. The human milk path is complex. Milk may be exposed to a range of temperatures, stored for different durations, and fed according to various nutritional requirements. It is clear that logistical management of the milk is required, and where possible, procedures should be standardised.





Medela's logistic solutions for human milk management in the NICU

Human milk feeding in the NICU has commonly lacked standardised processes. Protocols for handling of human milk vary between institutions, and are dependent on regulatory policies and the hospital's resources. Since the benefits of human milk are so profound, Medela strives to develop evidence-based solutions that add consistency and efficiency to the handling of human milk in the NICU.

Medela understands the difficulties of human milk management and provides a range of research-based, process-optimised product innovations. To support informed decision-making, Medela also offers a range of dedicated education materials.

Express

When the infant cannot be fed at the breast or cannot effectively remove milk from the breast, the mother requires assistance to initiate, build and maintain a sufficient milk supply^{26, 27}. The physiological and emotional challenges associated with maternal-infant separation, in addition to inadequate breast stimulation, can interfere with the establishment of breastfeeding and increase the likelihood of complications^{26–30}. As a result, for many mothers of preterm infants, the milk pathway begins with expression, rather than breastfeeding, to initiate, build and maintain lactation. Expressing milk may pose significant challenges for mothers of preterm infants²⁸.

If the initiation of lactation is delayed and the mother does not express consistently from the very beginning, it is difficult to ensure an adequate long-term milk production. Therefore, access to appropriate equipment and timely support is essential. Mothers' knowledge about the protective properties of their milk is a motivating factor for sustaining lactation while coping with the stress and anxiety inherent during the infant's NICU hospitalisation. It is important to acknowledge that the development of the mother's milk supply will require a mother to initiate, build and maintain her lactation. Along this journey mothers need to be informed that their milk supply will increase over time, setting the correct expectations. The following interventions are very important for the mother's ability to produce adequate volumes of milk in the coming weeks:

- I Teaching mothers how to use their hands for breast massage^{31, 32, 33}.
- I Removing milk early^{34–36}. Pumping in the first hour after birth helps to remove more milk than pumping in the first 6 hours, and increases milk production in the next weeks³⁷.
- I Initiating lactation using the specifically designed, research-based initiation technology of Symphony PLUS⁴⁶.
- I Expressing frequently. Pump-dependent mothers who express their milk more than 6 times a day have greater milk production than mothers who pump less frequently^{34, 38}. Container sizes that reflect the volume of milk the mother will be expressing can help manage expectations in the early days.



- I Double pumping increases milk output ^{32, 39, 40}. Expressing at the bedside ⁴¹ directly after, or even during skin-to-skin contact ^{42–45} also results in increased milk volumes.

Maximising volumes: Symphony breastpump system



The Symphony breastpump system with its Symphony PLUS program card, containing the INITIATE and MAINTAIN programs, is often the starting point of the human milk journey in the hospital. One aim of using a hospital-grade breastpump is to maximise milk output in order to enable the NICU infant to benefit from an exclusive human milk diet. A second aim is to ensure that the mother achieves an adequate milk supply that can nourish her infant once they return home and transition to exclusive breastfeeding. The Symphony breastpump with its technical features, its accessories, and research base, is an excellent partner for supporting a mother and her individual needs throughout the milk production journey.

Supporting the first days of lactation: Medela's initiation technology

The INITIATE program supports pump-dependent mothers to successfully initiate milk production. The key features of the program are that over a 15 minute session, the frequency of the patterns varies, and pauses are included. This irregular sucking pattern intends to mimic that of a term born infant in the first days after birth, before secretory activation ('milk coming in') has occurred. The INITIATE program should therefore be used until the mother pumps 20 mL or more in three consecutive pumping sessions; then the mother can progress to the MAINTAIN program, which is designed to efficiently extract milk after secretory activation.

Research has shown that

- I the INITIATE program is effective for mothers of preterm and term infants ^{46, 47}
- I mothers using the INITIATE program followed by the MAINTAIN program achieved significantly higher daily milk volumes over the first two weeks ⁴⁶
- I pump-dependent mothers express enough milk to support an exclusive human milk diet for their infant ^{46, 47}



Mimicking nature to optimise milk output: The MAINTAIN program with 2-Phase Expression technology

At the beginning of a breastfeed prior to milk ejection, infants suck rapidly; this changes to a less frequent sucking pattern after milk starts flowing during established lactation ⁴⁸. The MAINTAIN program is designed to mimic these two phases of infant sucking. In Symphony, this research-based 2-Phase Expression technology starts with a higher frequency stimulation phase of 120 cycles per minute to elicit milk ejection. When milk begins to flow, the mother can switch to the expression phase, which uses around 60 cycles per minute, to comfortably and efficiently remove milk ^{49–51}. It is important that the mother switches from the stimulation to the expression phase as soon as milk flows, and that she adjusts the vacuum of the expression phase to the highest possible vacuum that still feels comfortable. When used under these conditions, the Symphony breastpump system has been shown to

- I be comfortable ^{49, 51}
- I be efficient ⁵⁰



- I feel like the baby ⁴⁹
- I deliver more milk in less time ^{50, 52–54}
- I help maintain lactation ^{39, 50, 55, 56}

Double pumping

Double pumping with electric breastpumps has been consistently demonstrated to be more effective at removing milk in a shorter time than single pumping in mothers of preterm ^{32, 40} and term infants ³⁹. The Symphony pump is designed to support double pumping. While it is clear that pumping both breasts simultaneously saves time, research has also shown that mothers can obtain 18 % more milk volume when they double-pump with 2-Phase Expression technology compared to single pumping ³⁹. In addition to the increased volume, it was also found that double pumping drained the breasts better as it stimulated an additional milk ejection, and the pumped milk had higher energy content ³⁹.

- I Time saving ^{32, 39}
- I 18 % more milk volume ³⁹
- I Milk with a higher energy content ³⁹
- I An additional milk ejection ³⁹



Collect

Unlike during breastfeeding, after pumping there is a subsequent requirement of handling and storing human milk. This comes with concomitant risks of nutrient loss and milk contamination ⁵⁹. Therefore, consideration of best practices for the management of human milk are essential to ensure that optimal nutrients are available to the infant.

The sometimes complex and time-intensive procedures required when handling human milk need to be streamlined for efficiency. Facilities should standardise milk handling procedures with the aim of minimising

- I loss of milk through unnecessary transfer between containers
- I loss of quality or integrity of components in the milk



- I contamination of milk
- I risk of mix-ups between patients

Medela's pump sets and range of collection containers aim to facilitate the standardisation and streamlining of processes for human milk management.

Adaptable for all needs and processes: Medela pump sets and bottles

Each hospital is unique and requires a different approach. Medela is able to offer integral product solutions that fit each situation. Medela pump sets and bottles are available as both reusable and disposable products, to meet the various NICU needs and hospital policies.

For hospitals using sterilisation/disinfection processes, Medela reusable products are autoclavable and designed for use by multiple mothers.

The expanding number of hospital procedures, coupled with the upgrading and enforcement of infection prevention standards, are placing increasing pressure on hospital processes. Medela disposable consumables have been developed specifically to provide a hygienic solution, while eliminating disinfection or sterilisation processes in the hospital.

Medela disposable products are available as Ready-to-Use or EO sterile. They are intended for single- or one-day-use in hospitals, without a need for cleaning prior to first use.



Medela Ready-to-Use products are hygienically safe* to use without prior cleaning.



Medela sterile products are validated according to the applicable EN/ISO** standards for sterile medical devices.



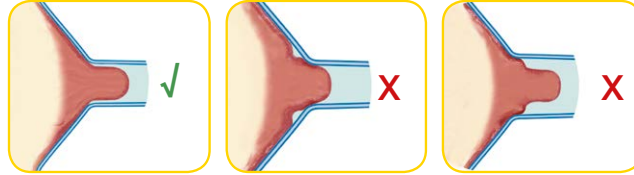
Medela breastmilk bottles, breastshields and all Medela products that come in contact with human milk are made from food-grade material and without BPA.

Pump sets

An essential part of expressing is ensuring that the mother has the right-sized breastshield. An incorrect size can lead to discomfort, friction and may even restrict the flow of milk⁶⁰. These issues are of particular importance for the pump-dependent mother. By observing a pumping session, health professionals can help the mother to find the right size. It is important to know that the size a mother needs may vary over time, but pumping should always be comfortable.

* Deutsches Beratungszentrum für Hygiene. Conclusion of the Risk Assessment of the Production Method for Ready-to-Use Products (2014).

** ISO 11607-1, ISO 11607-2, ISO 11135-1



When the fit of the breastshield is right:

- I The nipple moves freely in the tunnel
- I There is minimal or no areolar tissue being pulled into the tunnel
- I A gentle, rhythmical motion can be seen in the breast with each cycle of the pump
- I The mother feels the breast emptying all over
- I The mother's nipples are pain-free



Medela's breastshields are available in sizes S (21 mm), M (24 mm), L (27 mm), XL (30mm) and XXL (36mm) to cater to the needs of all mothers. Thanks to the milk overflow protection system of the pump sets, Symphony is a hygienic multi-user breastpump. This media separation system prevents any expressed milk from flowing into the pump. The mother can simply take her complete pump set, including tubing and membrane cap, directly from the Symphony, leaving it ready for the next mother to utilise with her pump set.

Colostrum Container and bottles

Medela collection containers have grading in small and precise volume increments to accurately and easily check and record the quantity of milk that has been expressed. They are available in a range of different sizes, from 35 mL to 250 mL. The smaller range covers the majority of the pumping, storing and feeding requirements in the NICU. The larger bottles help to cover the more specific needs of a paediatric ward, a centralised milk kitchen or a milk bank.



Wherever possible, milk should be stored in a container that is appropriate in size. This may be the size that is relevant for the volume the mother is pumping, or for the volume the infant is being fed per day or even per session. Either way, processes should aim to minimise the number of times milk needs to be transferred between containers. This lowers hygienic risks, reduces loss of milk and saves time, storage space and material.



The Medela disposable Colostrum Container has been developed with health-care professionals and mothers in mind. The curved bottom is designed to minimise the loss of colostrum and human milk when being drawn into a syringe. The small size of the 35 mL container is intended to make sure that mothers remain motivated while pumping, by putting their expectations regarding the initial milk production into perspective.

Label/track

Establishing specific protocols to minimise expressed milk feeding errors is of high importance. Feeding a mother's expressed milk to the wrong infant may have consequences for the NICU infant. In addition, milk administration errors may produce significant stress to the mother whose infant received the milk of another woman⁶¹.



Following the milk

Monitoring the mothers' supply and tracking the expressed milk is crucial. This aims to ensure that each patient has enough volume available and is fed the correct milk according to the time of expression and nutritional content, for every feed.

Checking the vital signs of lactation: Pumping Log

The Pumping Log is especially designed for pump-dependent mothers. It helps to establish appropriate pumping expectations, explains the benefits of providing human milk, and gives tips and hints. Additionally, this log can support healthcare professionals to keep track of and solve potential milk production issues before they become serious.

Keeping track: Pre-printed labels

After pumping, safe storage of milk in the NICU is essential to ensure optimal nutrition for the infant. This includes appropriate labelling, which assists in minimising milk mix-ups ^{59, 61, 62}.

Medela's pre-printed labels help to ensure traceability. With this in mind, Medela labels request the following data:

- I Name of the infant
- I Date of expression
- I Time of expression
- I Quantity of expressed milk

This information helps to bring the milk from the mother to her own infant in the correct order. Additionally, if milk is frozen in a container that was not held upright, it can be difficult to assess how much milk the container holds. Using the label to record the volume of milk will aid the logistics of preparing and providing the prescribed milk volumes ⁶¹.





Maintaining the cold chain

For the mother pumping at home while her infant is still in the NICU, there are some important steps that must be in place to maintain milk quality:

- I Milk should be cooled right after pumping
- I The cold chain should not be interrupted
- I Whether the milk should be frozen or just cooled is based on criteria like distance from home to hospital, the amount of milk the mother has already stored at the NICU, and hospital policies



Cooler Bag

The transportation of human milk from home to the NICU may be the biggest challenge for an uninterrupted cold chain. The milk bottles should be transported in a secure way that maintains the temperature. For that purpose, Medela developed the Cooler Bag. The special insulating material of the bag, together with a pre-frozen cooling element, maintains the cold climate necessary for the milk to remain cool or frozen. The shape of the cooling element partially wraps around the Medela bottles to maximise the cooling effect while holding them in place at the same time.

Store

Establishing refrigeration and freezing guidelines that ensure minimal loss of nutrients, growth factors, and many other protective components in milk ¹ is critical. The following recommendations are research-based and cover the human milk pathway in the NICU ⁵⁹:

Storage guidelines for human milk in the NICU

Freshly expressed milk



Room temperature
use within 4 hours



Refrigerate
use within 4 days



Freeze
optimal:
use within 3 months

Thaw to room T°
use within 4 hours

Thaw to fridge T°
use within 24 hours

Fortified or thawed pasteurised milk



Do not leave at room temperature



Refrigerate immediately
use within 24 hours



Do not freeze



Freezing, while a necessary tool in the NICU, alters the integrity of components in human milk. Though most of these changes are currently considered harmless, milk still loses some of the value that exists when it is fresh. For example, term infants ingest millions of live cells from their mother's milk each day⁶³. Unfortunately these cells do not survive the process of freezing⁶⁴.

Dedicated space in refrigerators and freezers, along with individually labelled trays, can help to maintain order and avoid mix-ups or confusion. Guidelines for storing and thawing milk will differ according to the environment (home, maternity ward or NICU) and the state of the infant (NICU, high risk, healthy term infant or older). In all instances, and especially for the NICU, storage times should be as short as possible⁵⁹.

Human milk is a living and dynamic fluid with some unique characteristics that can impact handling and storing processes. One which is quickly observed after expression is that the milk fat content will rise, usually forming a layer at the top of the collection container. If essential milk components like fat, are not well mixed, any partitioning and transfer of milk between containers may result in a differing nutrient content between containers⁵⁹. To maximise nutritional consistency between feedings and container transfers the following steps can be considered:

- I Milk should be swirled gently to redistribute the components before each handling step⁵⁹
- I Since fat is the most variable component of human milk, pooling a number of expressions for the day's feeding requirements may improve nutritional consistency⁶⁵
- I To preserve both quantity and quality, transferring milk between containers should be kept to a minimum



Each transfer of milk can lead to a loss, which is particularly impactful when dealing with small volumes such as colostrum. For infants who are not receiving feeds in the early days after birth, careful handling and use of colostrum is imperative due to its potent properties⁶⁶. Early exposure to human milk can be achieved through swabbing of freshly expressed colostrum upon the oropharyngeal regions^{67, 68}.



The rest of the colostrum can be frozen and should be labelled in the order it was pumped. In general, the order of the milk provided to the infant is:

- I Colostrum as early as possible after birth ⁶⁶
- I Fresh milk prioritised over frozen milk ⁶⁹
- I Frozen milk pumped in the first weeks prior to frozen milk of a later lactational stage ⁷⁰

Fresh milk, wherever possible, limits the risk of contamination and provides optimal function of the bioactive and living cell components of human milk that can be affected by the handling and storing process.

Recording the volume of milk in the container before freezing will help with later milk management steps ⁶¹. These include assessing which milk to use for feedings, calculating the required amount of fortifier, and ensuring that the container has adequate space available for the fortifier. These simple steps can reduce the number of times milk needs to be transferred between containers to reach the desired volume and space:

- I Recording milk volume on the container label prior to freezing ⁵⁹
- I Leaving enough space in the container to allow for milk expansion during freezing ⁵⁹ and for the addition of fortifier, particularly for liquid fortifiers
- I Following the manufacturer's guidelines when adding fortifier, some will suggest its addition at a specific temperature or time prior to feeding

Warm

Temperature does not only have a significant effect on the delicate components of human milk, but also on the fragile nature of the premature infant ^{71, 72}. Gentle warming is key to keeping the important, living, bioactive and essential components of stored human milk intact ⁵⁹, so that it remains as similar to fresh human milk as possible.

Premature infants are born with very little body fat, thin skin and underdeveloped thermoreceptors and sweat glands, resulting in inefficient thermoregulation ⁷³. These infants are neither able to sense if milk is too warm or too cool, nor can they respond appropriately to changes in temperature. It has been theorised that milk temperature can influence infant body temperature ⁷⁴. Research has shown that infant temperature decreases when room temperature intravenous fluids are administered; it has therefore been recommended that intravenous fluids such as blood and saline are warmed towards body temperature prior to infusion ^{73, 75}. In many NICUs warming of feeds is considered an important step of the milk pathway ^{59, 71, 72}.



Gentle thawing and warming of human milk: Calesca

Designed for individual care in the NICU, Calesca is a waterless warming and thawing device that helps optimise and standardise human milk processes. Calesca aims to maintain the integrity of human milk by warming it towards body temperature and not exposing it to high heat. The disposable insert hygienically holds the milk bottle or syringe in place.

Developed as a single bedside unit, Calesca can be placed on an IV pole beside each NICU bed or on the bench top for the preparation of feeds. This minimises the risk of mix-ups. Due to its easy handling, it can be operated by parents, thus supporting family integrated care and flexible feeding preparation times.

Calesca is able to warm milk from three different starting temperatures: room, refrigerator or freezer. The accuracy relies on careful pre-labelling to ensure the milk volume in the container is known. The volume should be recorded when the milk is fresh as expansion of the milk during freezing may also make it difficult to accurately assess the volume in the container.

In order to maintain flexibility around the milk pathway processes, Calesca keeps milk warm for up to 30 minutes after the completion of a warming cycle. This gives the caregiver more freedom and flexibility without compromising milk quality.

- | Process standardisation: Taking into account the milk volume and its initial state (frozen, refrigerated or room temperature) helps to standardise the thawing and warming process.
- | Gentle warming: Individual portions of human milk can be warmed to an ideal feeding temperature
- | Fast thawing: Human milk can be efficiently thawed, portioned and subsequently stored in the refrigerator until it is needed
- | Hygienic: The use of circulating warm air in an enclosed chamber eliminates the possibility of contamination from the use of water
- | Individual: The disposable inserts reduce the risk of cross-contamination and make the device easy to clean
- | Calesca has been developed as a single bedside unit. This helps to keep track of each infant's milk to minimise any mix-ups





Feed

The principal goal for infants, when not feeding at the breast, is to receive the benefits of human milk with minimal compromise, while developing natural oral feeding skills to facilitate exclusive breastfeeding upon discharge^{11, 28}. With this overall goal of breastfeeding in mind, great attention needs to be paid to the appropriate method of oral feeding. NICUs are increasingly aware of feeding development, in order to offer infant and mother the best chance of benefiting from breastfeeding.

Medela's NICU oral feeding portfolio

Medela supports NICUs with a comprehensive portfolio of feeding solutions tailored to the various challenges and developmental stages of the preterm and hospitalised infant to facilitate direct breastfeeding.

- I Comprehensive portfolio developed for NICU infants; consisting of products, education and knowledge
- I Supportive of the infants' feeding development
- I Aimed to achieve the goal of breastfeeding
- I Developed to encourage the infant to use vacuum for milk removal
- I Contains solutions for infants with special needs, e.g. cleft lip and palate



For more detailed information on feeding development solutions for the NICU, please ask your Medela representative for the research review and brochure dedicated to this topic and the respective products.



Education

NICU professionals know that products are only one part of the equation to successful breastfeeding in the NICU. It is as important for all stakeholders to receive consistent, accurate information in order to

- I achieve a full commitment to support human milk use and breastfeeding by all staff and parents
- I support evidence-based decision-making
- I develop efficient and effective best practices for human milk handling and feeding

Medela works together with experts around the world to tackle and remove the barriers to the use of human milk and breastfeeding in the NICU.

Beyond direct support of various basic and clinical research projects, Medela summarises existing knowledge on the various challenges and disseminates this knowledge through different materials, channels and events.





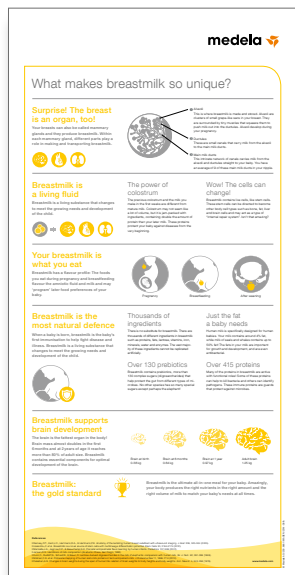
Research review: Human milk logistics in the NICU

Comprehensive examination of the published literature on handling and processing human milk for preterm infants has been carried out. The resulting review highlights up-to-date and evidence-based procedures to support the development of comprehensive and standardised logistical processes for human milk in the NICU.



Study abstract papers

The study abstract papers provide the scientific and clinical context to specific process- and product innovations. By summarising, analysing and explaining the clinical research, they help to set the right expectations when implementing a new procedure or technology.



Infographics

Infographics take a large amount of information and then condense it into a combination of images, text and numbers. This allows viewers to quickly grasp the essential insights the data contains. The visual representations of data sets and instructive materials are a quick way for audiences of all levels to learn about a topic.



Posters and DVDs

Medela supports numerous research projects. The most significant outcomes of these projects are described and visualised through posters and DVDs. These include topics such as the science of infant sucking and breast anatomy.



Online

For further and up-to-date information please visit <http://www.medela.com/nicu>.



Knowledge transfer events

Medela organises diverse symposia on different topics connected to human milk as regional stand-alone events or as part of national conferences. However, Medela's most important event is the annual International Breastfeeding and Lactation Symposium. Through this Symposium, Medela makes knowledge directly accessible to the practitioners. The Symposium is a platform for internationally renowned researchers to give insights into their latest research findings in three key areas: latest recommendations for research-based practice, the unique components of human milk and the value of human milk in the NICU.

Please contact your sales representative for more information on all the items above, or visit www.medela.com

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