Preterm Nutrition Consensus

Lactation Recommendations

Children's Hospital of Philadelphia®

Division of Neonatology

Title: Preterm Nutrition Consensus, Lactation Recommendations Brief Synopsis

Date of Initial Publication: May 2022
Revision Date:
Contact Author: Sarvin Ghavam MD
Contributing Authors: Donna More; MSN, IBCLC; Pam Britland BSN, RNC-NIC, IBCLC; Lori Carpenter BSN, RN, IBCLC

Abstract

Lactation and breastmilk are an integral part of preterm nutrition. A team approach to encouraging mothers of preterm neonates to initiate and maintain breastmilk supply is key, along with appropriate IBCLC staffing ratios for NICUs. Identifying women at risk for failure in lactogenesis, appropriate initiation of pumping and addressing pumping problems are crucial in successful lactogenesis. Colostrum oral care has important immune-protective properties and should be initiated early. Milk production has a U-shaped curve early on, with initial volumes during early sessions and then dropping to extremely little supply prior to surging between day 2-5. By day 14, maternal milk production should be approximately 750-1000 mls/24 hour period. Promotion of non-nutritive breast feeding can lead to successful breastfeeding when neonates show clinical stability and are able to transfer milk. Infant driven feeding is a method to achieve successful feeding by using physiological signs from the neonate and has been shown to decrease length of hospital stay. Appropriate milk delivery by only using the exact amount of breastmilk needed decreases waste, while using appropriate syringe orientation can ensure delivery of nutrients.

Consensus Goals

Provide guidelines for appropriate lactation support in the NICU
Provide guidelines for pumping, colostrum, and breastmilk use

Background

Lactation is an important part of neonatal ICU care. Maternal breastmilk, with its immune-protective components, is known to be protective for neonates, especially in the prevention of NEC. Establishing, supporting and troubleshooting breastfeeding in the NICU is ultimately a team approach but relies heavily on an appropriately staffed IBCLC team within the NICU. Guidelines to promote pumping, utilize appropriate breastmilk feeding techniques and provide support of both non-nutritive and nutritive breastfeeding are essential for success in the NICU & beyond.

Previous Consensus Statement or Data from Division of Neonatology (if applicable)
None

Consensus Statement and Clinical Recommendations

- Pump early, pump often – start within 1 hour of delivery. Continue 8 times a day. Ensure mom is meeting target volumes of 750-1000ml/24hrs by day 14
- Colostrum oral care within 6 hours
- Dedicated team to support moms get a strong start.
- Early skin to skin holding.
- Non-nutritive suck (NNS) as soon as cues present & infant is medically stable even on CPAP, high flow, & NC
- Dedicated period of time for breastfeeding only before introduction of bottles
- IDF protocol to promote safe and positive oral feedings especially for the fragile feeder
- Bar code scanning and have a dedicated space for milk preparation
- FIFO (First in First out): fresh colostrum, frozen colostrum, fresh milk, frozen milk
- Use of eccentric syringes and silicone feeding tubes. No extension sets. Follow feeding with priming volume of air.
- Condense feeds whenever possible
- Separate foremilk from hindmilk for higher caloric feeds for weight gain.
- Consider other human milk-based products for growth.
- If ample colostrum, consider saving a bottle for future use in the event of NPO status to restart feeds.

Further Goals

- Continue the inter-hospital collaboration between Lactation Specialists
- Consider further guideline development to improve breastfeeding rates across the CHOP Network

QI Metrics

- Evaluate use of maternal breastmilk across Network sites
- Evaluate use of maternal breastmilk and NEC rates across Network sites

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Literature Search

Title	Author	Level of Evidence	Primary Outcomes & Results	Key Findings/Conclusions
Optimizing Delivery of Breast Milk for Premature Infants: Comparison of Current Enteral Feeding Systems. *Nutrition in Clinical Practice*	Abdelrahman K, Jarjour J., et al	Level IV	The percent of fat delivery from EBM was significantly higher for the eccentric syringe system than the concentric system (P = 0.036) but did not vary significantly across infusion rates (P = 0.081). Silicone tubing had a significantly higher percent of fat delivery than polyurethane tubing within the eccentric syringe system (P = 0.039) but did not vary significantly across infusion rates (P = 0.105). There was no significant difference between ENFit and Legacy connectors using eccentric syringes with silicone tubing (P = 0.360)	The eccentric syringe marginally improves fat delivery in comparison with the concentric syringe, and silicone tubing significantly improves fat delivery compared with polyurethane tubing.
Proactive Lactation Care is Associated with Improved Outcomes in a Referral NICU	Hoban R, McLean L, Sullivan S, Currie C. *J Human Lactation*	Level IV	This retrospective, longitudinal, two-group comparison study utilized medical record individual feeding data for infants admitted at ≤ Day 7 of age and milk room storage records from reactive and proactive care model time periods. A proactive lactation approach was associated with an increase in the receipt of any mother's milk from 74.3% to 80.2% (p = .03) among participants in the proactive model group. Additionally, their milk room mean monthly bottle storage increased from 5153 (*SD* 788) to 6620 (*SD* 1314) bottles (p < .01)	In this retrospective study at a tertiary referral neonatal intensive care unit, significant improvement inhuman milk outcomes suggests that increased resources for proactive lactation care may improve mother's milk provision for a high-risk population.
Evidence-based methods that promote human milk feeding of preterm infants	Meier, P. P., Johnson, T. J., Patel, A. L., & Rossman, B. *Clinics in Perinatology2017*	Level VII	Although the rates of any HM feeding have increased over the last decade, efforts to help mothers maintain HM provision through to NICU discharge have remained problematic.	Special emphasis should be placed on prioritizing the early lactation period of coming to volume so that mothers have sufficient HM volume to achieve their personal HM feeding goals. In multiple instances, these best practices have been identified and tested, but are not adopted because of economical and ideological constraints. The early postbirth periods of maternal secretory activation and coming to volume appear to comprise a critical window for the protection of maternal HM provision through to NICU discharge. Lactation technologies that improve the use of HM during the NICU hospitalization have been

Title	Author	Level of Evidence	Primary Outcomes & Results	Key Findings/Conclusions
				detailed in the scientific literature, but not widely implemented.
Promoting human milk and breastfeeding for the very low birth weight infant	Parker, M. G., Stellwagen, L. M., Noble, L., Kim, J. H., Poindexter, B. B., & Puopolo, K. M. *Pediatrics 2021*	Level VII	Provision of mother's own milk for hospitalized very low birth weight (VLBW) (≤1500 g) infants in the NICU provides short- and long-term health benefits. Mother's own milk, appropriately fortified, is the optimal nutrition source for VLBW infants. Every mother should receive information about the critical importance of mother's own milk to the health of a VLBW infant. Pasteurized human donor milk is recommended when mother's own milk is not available or sufficient. Neonatal health care providers can support lactation in the NICU and potentially reduce disparities in the provision of mother's own milk by providing institutional supports for early and frequent milk expression and by promoting skin-to-skin contact and direct breastfeeding, when appropriate.	Promotion of human milk and breastfeeding for VLBW infants requires multidisciplinary and system-wide adoption of lactation support practices.

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