

Evidence-Based Methods That Promote Human Milk Feeding of Preterm Infants

An Expert Review

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KEYWORDS

- Human milk • Neonatal intensive care unit • Breast pump • Preterm infants
- Lactation initiation and maintenance

KEY POINTS

- The evidence for the use of human milk (HM) feedings during the neonatal intensive care unit (NICU) hospitalization for preterm infants has been slowly adopted into clinical best practices.
- 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 detailed in the scientific literature, but not widely implemented.
- Donor HM feeding infrastructure costs can compete with costs for the acquisition of mother's own HM in the NICU, with implications for cost-effective prioritization of limited resources.

Human milk (HM, milk from the infant's own mother) feedings during the neonatal intensive care unit (NICU) hospitalization represent a cost-effective strategy to reduce disease burden and associated costs in preterm infants.¹⁻⁷ However, this evidence must be translated into NICU best practices that target barriers to high-dose HM feedings if preterm infants and their mothers are to receive the benefits of this knowledge. Although multiple studies have revealed effective interventions for modifying barriers to maternal lactation and HM feeding in this population, economic and ideological

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concerns have limited their wide-scale adaptation.⁸ As a result, many mothers of preterm infants fail to achieve their HM feeding goals, and infants receive either donor HM or formula, neither of which achieves similar reduction in disease burden and cost.⁹ This article

Reviews data on the initiation and maintenance of lactation for mothers of preterm infants

Summarizes best practices for protecting maternal HM volume during the NICU hospitalization

Delineates predictable, preventable problems in the feeding of HM

Details quality indicators that measure the effectiveness of NICU HM feeding programs

METHODOLOGY

The literature used to create this review spans multiple specialties, including preterm infants, nutrition, HM science, lactation physiology, breast pump dependency, NICU lactation support, and the economics of HM feeding for very low birthweight (VLBW, <1500 g birthweight) infants. These citations were accumulated over several years by the authors, who are primary researchers in this field. Thus, this expert review reflects current evidence, controversies, and implications for research and practice.

INITIATION AND MAINTENANCE OF LACTATION IN MOTHERS OF PRETERM INFANTS

Initiation of Lactation

The past decade is characterized by an increasing proportion of mothers who initiate lactation (begin providing HM) for their preterm infants,^{3,10,11} many because they change the decision from formula to HM because of information they received from NICU health care providers.^{12–14} Studies have confirmed that NICU messaging about the superiority of HM does not make mothers feel guilty or coerced, but instead is interpreted as needed information to make the best feeding decision for their infants.^{12,13} Although black and/or low-income mothers have been especially likely to change from formula to HM after speaking with their infant's care providers,^{12–14} black preterm infants in the United States remain less likely than their Caucasian counterparts to receive any HM, especially if their mothers have low income.^{5,15–17} Specific talking points for sharing the science of HM with families of preterm infants have been published, and can standardize evidence-based messaging about providing HM within the NICU.^{8,18,19}

Maintenance of Lactation

The maintenance of lactation, usually measured by whether the infant is still receiving partial or exclusive HM at the time of NICU discharge, (HM continuation through NICU discharge), remains a global problem, with only a handful of best practices demonstrated to be effective.^{20–27} In a prospective cohort study, Hoban and colleagues reported that mothers of VLBW infants changed their HM feeding goals over the course of the NICU hospitalization, and became increasingly unlikely to achieve their goals for exclusive or partial HM as the hospitalization progressed.¹⁴ It has been proposed that the profound dislike and inconvenience of long-term HM expression, maternal stress and fatigue, insufficient encouragement and assistance from family and friends, and inconsistent advice in the NICU all play a role in mothers' discontinuation of HM provision prior to NICU discharge.^{25–28} Furthermore, it is likely that some mothers, especially those whose initial prebirth intent was to formula feed, revert back to their

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