

Impact of Donor Milk Availability on Breast Milk Use and Necrotizing Enterocolitis Rates

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Abstract

OBJECTIVES: To examine the availability of donor human milk (DHM) in a population-based cohort and assess whether the availability of DHM was associated with rates of breast milk feeding at NICU discharge and rates of necrotizing enterocolitis (NEC).

METHODS: Individual patient clinical data for very low birth weight infants from the California Perinatal Quality Care Collaborative were linked to hospital-level data on DHM availability from the Mothers' Milk Bank of San José for 2007 to 2013. Trends of DHM availability were examined by level of NICU care. Hospitals that transitioned from not having DHM to having DHM availability during the study period were examined to assess changes in rates of breast milk feeding at NICU discharge and NEC.

RESULTS: The availability of DHM increased from 27 to 55 hospitals during the study period. The availability increased for all levels of care including regional, community, and intermediate NICUs, with the highest increase occurring in regional NICUs. By 2013, 81.3% of premature infants cared for in regional NICUs had access to DHM. Of the 22 hospitals that had a clear transition to having availability of DHM, there was a 10% increase in breast milk feeding at NICU discharge and a concomitant 2.6% decrease in NEC rates.

CONCLUSIONS: The availability of DHM has increased over time and has been associated with positive changes including increased breast milk feeding at NICU discharge and decrease in NEC rates.

What's Known on This Subject:

Human milk is the preferred nutrition for premature infants in the NICU, but mothers may face challenges in having an adequate supply during the hospital course. Donor milk banks can provide supplemental human milk for this purpose.

What This Study Adds:

Donor milk availability via a human milk bank has increased over time. Donor milk availability is associated with increased likelihood of breast milk feeding at discharge for very low birth weight infants and lower rates of necrotizing enterocolitis.

Human milk is considered the optimal form of nutrition for all infants, but it is especially important for infants born prematurely. In preterm infants, human milk feeding is associated with lower risks of necrotizing enterocolitis (NEC), retinopathy of prematurity, and sepsis.¹⁻⁴ Human milk has been established as a protective agent against NEC.⁵ Enteral feeding containing at least 50% human milk in the first 14 days of life is associated with a sixfold decrease in the odds of NEC.¹ Unfortunately, breastfeeding can be quite challenging within the NICU.⁶ Mothers of very low birth weight (VLBW) infants are less likely to initiate milk expression, and a significant proportion of them

wean their infants off of breast milk relatively soon after birth.^{6,7} Practices such as lactation counseling can influence breastfeeding rates in the NICU.⁸ Ultimately, when challenges prevent exclusive feedings of mothers' own milk for preterm infants in the NICU, donor human milk (DHM) is the recommended substitute.^{9,10}

Although DHM banks have become more prevalent in the United States, we do not yet have a clear picture of the implications of this availability for VLBW infant outcomes.⁹⁻¹¹ Some of our current knowledge on DHM and NEC rates in preterm infants come from studies conducted >30 years ago.¹² There has been debate about whether access to DHM could lead to decreased breastfeeding, the idea being that the availability of an alternate human milk source could lead to attenuated efforts to promote lactation among mothers of preterm infants.¹³ A study by the Italian Association of Human Milk Banks showed that access to DHM was actually associated with an increased rate of exclusive breastfeeding in VLBW infants,¹³ but data from US NICUs have been lacking. Data from human milk banks in the United States are not standardized, and there is a lack of a central depository.⁹ The Human Milk Banking Association of North America (HMBANA) has stated that this situation could be hindering research, quality improvement initiatives, and implementation of NICU donor milk programs.⁹

The California Perinatal Quality Care Collaborative (CPQCC) gathers information on the care of >90% of California's NICU admissions of VLBW infants. The Mothers' Milk Bank of San José (MMB) is the largest HMBANA human milk bank in the United States in terms of distribution and supplies DHM to California NICUs. We linked data from these 2 organizations to get a clear picture of DHM availability and its impact on VLBW infants. Our goal was to examine whether DHM availability affects breastfeeding rates among VLBW infants and rates of NEC. Although interest is growing in evaluating DHM usage and its effects on breastfeeding, previous studies have given only a partial picture of the current status of DHM in US NICUs, examining either NICUs of only a certain level or DHM effects in a few hospitals.^{10,14} According to the final birth data collected by the Centers for Disease Control and Prevention in 2012, California is currently the state with the highest number of births per year.¹⁵ We used data from 2007 to 2013 to examine if and how DHM availability has been changing across NICUs and the clinical implications for VLBW infants.

Conclusions

Our results suggest that the availability of DHM in a hospital is linked to better outcomes for the VLBW infants treated at that NICU. The acquisition of DHM should be considered a worthwhile quality improvement initiative that NICUs can undertake as part of broad strategies to improve nutrition for preterm neonates.

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