

**Preventing NEC in Preterm Infants with Donor Breast Milk**

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## **Preventing NEC in Preterm Infants with Donor Breast Milk**

In the neonatal intensive care unit (NICU), even the smallest choices, like what to feed a baby, can have life-saving effects. Necrotizing enterocolitis (NEC) is one of the most serious and life-threatening gastrointestinal diseases affecting premature infants in NICUs. This condition causes inflammation and tissue death in the intestines, often leading to severe infection, surgery, or even death (Monzon et al., 2023). Since premature infants have immature digestive and immune systems, finding safe and effective nutrition is an important focus in neonatal care. Over the last few years, there has been growing evidence showing that donor breast milk provides unique protective benefits for preterm infants who cannot receive milk from their mothers. Unlike formula, donor breast milk contains essential immune and nutritional components that strengthen the gut, reduce inflammation, and improve feeding tolerance (Sami et al., 2023). Nurses help monitor infant progress, educate families, and advocate for donor breast milk as a vital part of neonatal care. Providing donor breast milk to premature NICU infants reduces necrotizing enterocolitis, increases feeding tolerance, and helps nurses support optimal health and development for premature NICU infants.

### **Body of Paper**

NEC remains one of the leading causes of illness and death among premature infants, making prevention a top priority in neonatal care. NEC is a severe inflammatory condition of the intestinal wall that can progress to necrosis, perforation, and sepsis (Altobelli et al., 2020). About 30% of infants who develop NEC need surgery, and 30–40% do not survive. (Monzon et al., 2023, p. 1). Research over the past two decades has consistently shown that feeding infants with human milk, particularly donor breast milk when maternal milk is unavailable, significantly

reduces the risk of NEC compared to formula feeding (Quigley et al., 2024). Additionally, Monzon et al. (2023) found that preterm infants weighing less than 1500 grams who are fed formula have a higher risk of developing NEC compared to those fed donor milk, emphasizing the importance of early and consistent donor milk use in neonatal care.

Donor breast milk offers a special mix of nutrients, immune factors, and growth-supporting elements that are important for the gut health of premature infants. Sami et al. (2023) explain that human milk contains several bioactive components, including lactoferrin, immunoglobulins, human milk oligosaccharides (HMOs), and long-chain fatty acids, which work together to support gut development. These compounds help strengthen the intestinal barrier and regulate inflammation, protecting the immature intestines of preterm infants (Sami et al., 2023). Human milk also promotes the growth of beneficial gut bacteria, supporting the development of a healthy microbiome (Altobelli et al., 2020). Even after pasteurization, donor breast milk retains many protective bioactive components, including growth factors and anti-inflammatory agents, that continue to reduce intestinal injury (Monzon et al., 2023). This biological protection helps explain the lower rates of NEC seen in premature infants who receive donor milk rather than formula.

In addition to protecting against NEC, donor breast milk also improves feeding tolerance and supports steady growth. Allana et al. (2022) found that after implementing a donor milk program in an urban NICU, premature infants achieved full enteral feeding sooner and regained birth weight more quickly than those who received formula. They also experienced fewer feeding complications, suggesting that donor breast milk helps reduce gastrointestinal distress and the need for prolonged parenteral nutrition (Allana et al., 2022). Although donor milk can sometimes result in slightly slower weight gain compared to formula, this difference can be

balanced through the use of human milk fortifiers and ongoing nutritional assessment (Altobelli et al., 2020). Consistent use of donor milk feeding protocols has also been linked to shorter hospital stays and fewer surgical interventions for severe NEC (Monzon et al., 2023).

Additionally, the use of donor breast milk shows how following standardized, evidence-based feeding protocols can lead to better patient outcomes. When NICUs have clear donor milk policies, feeding practices become more consistent, which helps maintain high-quality care. Quigley et al. (2024) also found that using donor milk with careful storage and handling significantly lowers the risk of NEC without causing other complications. By following these standardized practices, nurses help make sure that all babies receive safe, high-quality care. Monzon et al. (2023) also found that using consistent human milk feeding protocols can cut NEC rates by up to 80%, showing how evidence-based nursing practices directly improve safety and consistency in neonatal nutrition.

Therefore, the evidence shows the importance of nurses including donor breast milk in feeding practices. Nurses are involved in care coordination, monitoring the infant's tolerance to feeds, and educating parents on the safety and benefits of donor milk. By understanding how donor milk protects infants, nurses can confidently encourage its use when a mother's milk isn't available and offer informed guidance to families. As Sami et al. (2023) explains, the components of human milk work on multiple levels to support immune function, prevent inflammation, and promote tissue repair. This is important information nurses can use when teaching families about the value of donor milk.

For this reason, the incorporation of donor breast milk into neonatal nutrition is a great step towards nursing care that is more preventive and centered on the patient. By using donor milk to lower NEC rates and improve feeding outcomes, the nurses take part in the lifesaving,

growth promoting, and long-term development support of premature infants. The proof is evident that donor human milk is the mainstay of quality NICU care, which aligns with patient safety, nursing education, and family support.

Additionally, research shows that infants who receive donor milk instead of formula tend to have fewer complications, recover more quickly, and show better developmental progress. Lapidaire et al. (2021) found that every 10% increase in human milk intake was linked to a 12% lower risk of infection or NEC, showing a dose-dependent protective effect. Altobelli et al. (2020) also noted that preterm infants fed human milk have lower risks of sepsis and other infections compared with formula-fed infants, which can lower healthcare costs and improve long-term outcomes. By preventing NEC and infections, donor milk decreases the need for surgeries and prolonged antibiotic treatments, both of which can increase stress and health risks for the infant and family.

Furthermore, the benefits of donor milk extend well beyond the NICU, influencing long-term outcomes as these infants continue to grow and develop. Research shows that human milk-fed infants tend to grow better and perform better cognitively than those fed formula (Quigley et al., 2024). According to Lapidaire et al. (2021), these neuroprotective effects may result from preventing early infections and NEC, conditions linked to lower IQ and weaker cognitive outcomes later on. In addition, these findings highlight that evidence-based nutrition helps support long-term health beyond the NICU. For nurses, this evidence highlights how consistent feeding protocols and donor milk advocacy can influence not only immediate health but also a child's long-term development.

On the other hand, donor milk programs can also affect families emotionally and socially. Many parents feel guilty or anxious if they cannot provide enough breast milk for their babies.

When nurses take time to educate and reassure parents about donor milk, it can ease some of this stress. Nurses can also support family-centered care by involving parents in feeding choices and explaining how donor milk is screened and pasteurized (Sami et al., 2023). Working together in this way helps families feel more confident and supported, which can improve the relationship between nurses and parents and lead to greater satisfaction with care.

### **Conclusion**

In conclusion, donor breast milk is an important, life-saving component of evidence-based care for premature infants in the NICU. Research has shown that it reduces necrotizing enterocolitis, improves feeding tolerance, and promotes healthy growth and development. These outcomes demonstrate how the use of donor milk directly supports nursing goals of patient safety, prevention, and family-centered care. Nurses play an important role in advocating for donor milk, making sure it is handled safely, and educating families on its benefits. By using standardized donor milk protocols in neonatal care, nurses not only minimize complications but also improve long-term health outcomes for the most vulnerable infants, reinforcing the transformative power of evidence-based practice in the NICU.

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