

Integrating Human Milk Banking with Breastfeeding Promotion and Newborn Care: *is Kenya Ready?*

CHILD SURVIVAL IN KENYA

Kenya has made substantial progress in child survival over the past decade.¹ However, a neonatal death rate of 22 deaths per 1,000 live births,¹ an estimated 40,000 annual deaths in the first month of life,² mainly due to high prematurity rate (12.3%)³ and low birth weight (LBW) rate (8%)⁴ is reported. This indicates that Kenya runs the risk of not achieving the Every Newborn Action Plan’s goal of a neonatal mortality rate below 10 deaths per 1,000 live births by 2035,⁵ signifying the urgent need to focus on a healthy start to life.

Human milk has the greatest impact on child survival, optimal breastfeeding alone has the potential to avert an estimated 820,000 child deaths globally and improve child morbidity.⁶ However, despite the lifesaving and other important benefits of human milk, some infants, the majority of whom are sick, preterm, or LBW, have no access to their mother’s own milk due to a multitude of factors such as maternal illness, death, or abandonment. These newborns are therefore much more likely to suffer from adverse consequences resulting from complications that are preventable or treatable with proven and cost-effective interventions.
7,8, 9, 10, 11

DONATED HUMAN MILK—A LIFE SAVING ALTERNATIVE

The World Health Organization (WHO) recommends donated human milk (DHM) as a lifesaving alternative for children⁷ with no access to their mother’s own milk. Table 1 summarizes scientific evidence demonstrating that safe DHM is an irrefutably safe and cost-effective intervention that significantly improves health and survival over formula or other alternatives, such as animal milk.

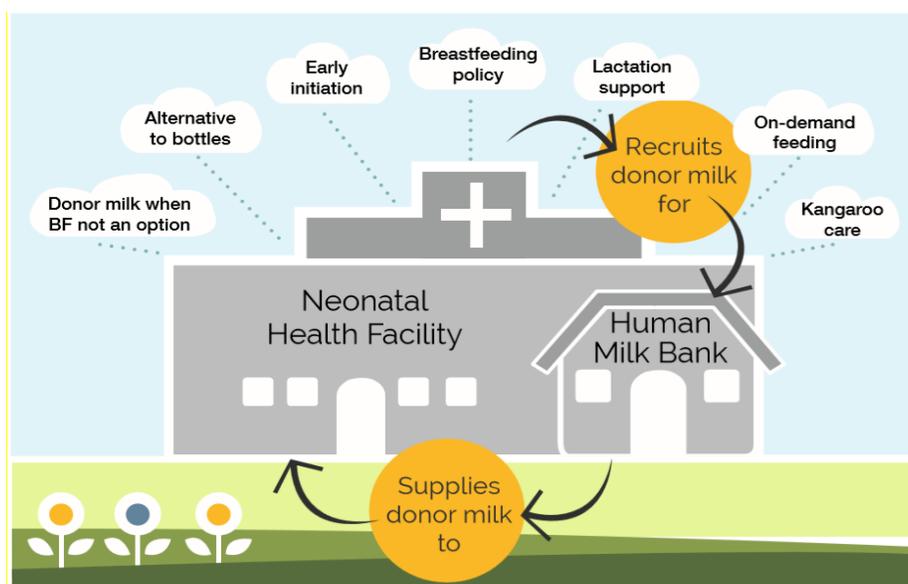
Table 1. Myriad studies demonstrating the impact from DHM on infants.

Sepsis	DHM reduced risk of late-onset sepsis in low-birth weight infants by 19% in first 28 days. ⁸ DHM has a greater protective effect compared to formula. ⁹
Necrotizing enterocolitis (NEC)	Exclusive DHM or mother’s milk reduced the risk of NEC <79% without the use of formula. Four systematic reviews across study designs and countries found that DHM protects preterm infants against NEC more than formula. ¹⁰
Feeding tolerance	Preterm infants fed unfortified DHM had greater feeding tolerance, fewer vomits, less gastric stasis, and reduced diarrhea compared with formula-fed infants. ¹²
Reduced length of stay in neonatal intensive care unit (NICU)	Cost of providing DHM to preterm infants is mitigated by a reduced risk of complications and shorter length of stay in NICU. One US hospital determined that use of DHM reduced length of stay by 15 days per infant and duration of total parenteral nutrition by ten days per infant. ¹³
Cost-savings	The percentage of infants who are EBF at discharge is 7.6% higher in NICUs with an HMB. ¹⁴ One hospital reported saving ~US\$9,669 per infant using DHM through shortened length of stay and reduced cases of NEC and sepsis. ¹¹ Estimated savings to NICU or health care plan for every dollar spent on DHM: ~US\$11.23 In Brazil, the national HMB network has saved \$540 million in health care costs annually.

HUMAN MILK BANKING

WHO has issued a global call to scale up the establishment of human milk banks (HMBs) for the provision of safe donated human milk for children who have no access to their mother's own milk. HMBs receive, process, store and provide safe DHM to infants who need it. Kenya has not yet implemented the global best practice of providing DHM from HMBs. However, recognizing the urgent need to increase access to human milk, Kenyan policymakers have sought support to document the feasibility of establishing HMBs and to rapidly develop local HMB guidance in Kenya. Therefore, PATH and the African Population and Health Research Center (APHRC) are supporting the Ministry of Health and other Kenyan stakeholders to tailor the **Mother-Baby Friendly Initiative Plus (MBFI+)** model (Figure 1)—an integrated hub for infant nutrition and survival—to the Kenyan context.

Figure 1. Using the innovative MBFI+ model, human milk banks become integrated hubs for infant nutrition and survival.



FEASIBILITY OF HUMAN MILK BANKING IN KENYA

To support the process of establishing a foundation for HMBs in Kenya, APHRC led a formative assessment in Nairobi County, between August and December 2016, to assess the feasibility and acceptability of human milk banking. The study was conducted at the community and health facility levels, employing both qualitative and quantitative data collection methods. The quantitative survey involved about 900 mothers of young children attending paediatric, maternity and labour wards, and the maternal and child health clinics in three health facilities in Nairobi. The qualitative study involved a total of 71 participants, including community members in Embakasi sub-County, health care providers from three health facilities in Nairobi, policymakers in the Ministry of Health, and other key stakeholders.

KEY FINDINGS

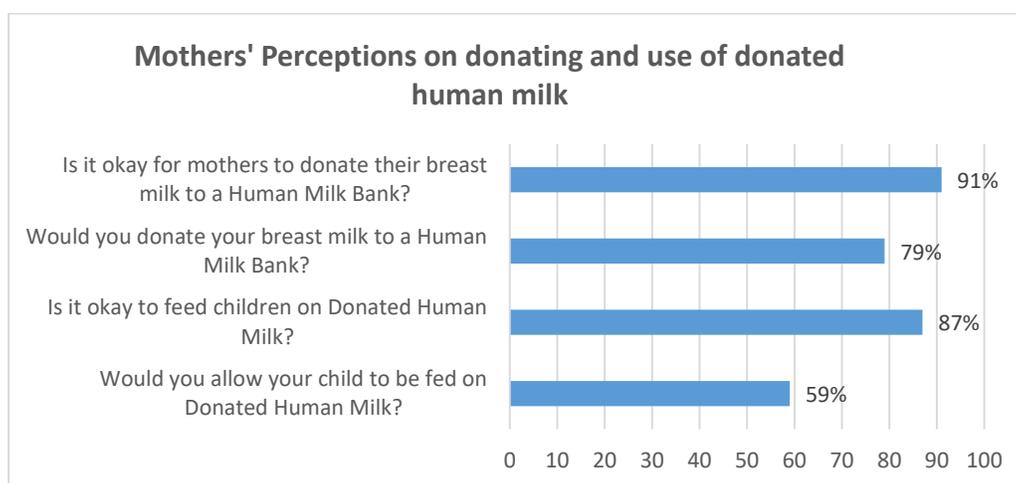
Findings demonstrated **positive attitudes and breastfeeding practices among respondents**, as 99% of the mothers interviewed acknowledged that breast milk is an important food for infants mainly due to the fact that it promotes immunity, protects against infections, and promotes optimal child health and growth. More than half of the interviewed mothers reported initiating breastfeeding within one hour of birth, and an estimated 73% introduced or intended to introduce other food and liquids when the child was six months

old. Expressing breast milk was practiced by 58% of the respondents, and primarily by those who either were employed, or had LBW babies, or delivered in health facilities where they received information about expressing breast milk.

“This baby, when you breastfeed it for six months without anything else, there is no day you will ever see the baby have a cold, fever or the baby looks like it is not satisfied. If you breastfeed for six months and the right time you are supposed to breastfeed the baby, the baby will be ok and satisfied and will get used to that of which it will breastfeed until the six months are over, exclusive breastfeeding for six months.”
FGD Mothers, Nairobi

Human milk banking is potentially acceptable and feasible in Kenya. Although breast milk donation and milk banking was a new idea to most (74%) of the women interviewed, the **majority of the women were positive about the concept.** While about 90% were generally positive about the concept, about 80% indicated they would donate their breast milk to an HMB, and about 60% indicated they would allow their children to be fed with DHM.

Figure 2. Perceptions on donating and use of donated human milk from human milk banks.



Respondents perceived human milk banking as a life-saving strategy.

“Okay, if it is a matter of life and death, it's about saving the child, of course I won't sit and watch a baby who needs the milk, she is like almost dying and I just know, in such a scenario of course I'll have a human heart, I'll donate.”
IDI mother, Nairobi

“(by having an HMB) First and foremost we will have reduced child mortality rates especially for children who have been left at infancy by their mothers because they would have gotten proper food (breast milk), that they would have otherwise missed since their parents are dead, and that is an advantage.”
KII, Religious Leader, Nairobi

Health workers indicated that the use of DHM would be an **affordable solution, compared to the high cost of infant formula** that is currently used in situations where mother’s own milk is not available. They

also felt that DHM would **reduce the side effects associated** with delayed breastfeeding, such as acute kidney injury, and the side effects and allergic reactions to infant formula.

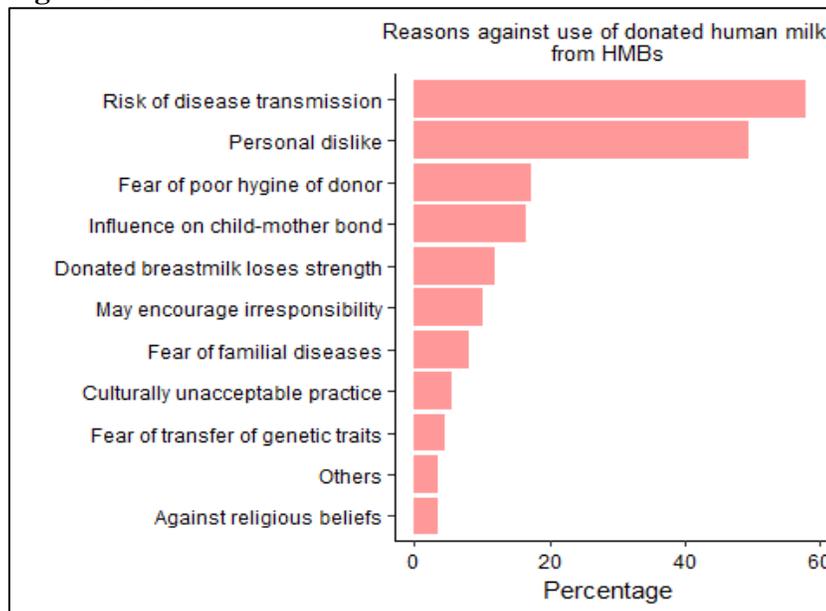
“At times it's challenging by the time they (mothers) are coming here to nursery they don't have that milk. So the baby is not fed for almost 72 hours as we wait for her to produce milk. So the baby is not being fed... If the mother is sick another problem is that they can come here and even getting that milk from the breast is very hard, they can even take three days without milk... There are babies there (nursery) admitted with the AKI (acute kidney injury) if you follow closely it is because of not breastfeeding. The mothers don't have adequate milk and their kidneys are damaged they go into dehydration, so kidneys are affected.”
KII, Health worker, Nairobi

In addition, interviews with policymakers revealed that the concept of human milk banking had been discussed in the past, but was not taken up due to other competing interests at the time. They felt that **HMBs would be a worthwhile investment to reduce newborn mortality**.

“Quite a number of people had floated the idea within our research sub-committee and many people were quite receptive, they were willing to have a go at it, like why don't we try this for Kenya and see whether it can work, can we do it, and I think most of the talking was just around the table many of them I didn't feel like they had a negative perception. I would see that they were very open to the idea and willing to embrace it. That should have been around 2006/7. We didn't go very far other than just the discussion, as a country or as members of that sub-committee we didn't take it any further than that.”
KII, Policymaker, Ministry of Health, Nairobi

Although respondents were generally positive about the use of DHM, and a **majority of respondents felt that there would be no cultural (62%) or religious (72%) concerns around DHM, an estimated 41% (n = 354) respondents cited** personal, health, cultural, and religious concerns regarding the use of donated milk from HMBs. Among those with concerns, close to 60% cited risk of disease transmission, including HIV, as the reason why they were opposed (Figure 3).

Figure 3. Concerns on the use of donated human milk from human milk banks.



Although concerns of HIV transmission were mentioned by a few respondents, these study findings generally suggest that with education and assurance about the safety and the rigorous processes of the HMB, communities would accept the use of DHM.

RECOMMENDATIONS FOR NEXT STEPS

- **Protect, promote, and support breastfeeding** by fostering the value of human milk among health care workers and in communities, including addressing cultural, religious, and health concerns of DHM. Although Kenya has made strides in promoting breastfeeding practices, there is still room for improvement. A robust breastfeeding culture, which often hinges on support from a mother's family and community, is needed as a solid foundation upon which an effective human milk banking program can be established.
- **Strengthen health systems** to ensure all infants receive human milk, especially sick and vulnerable neonates. This includes providing adequate lactation support to mothers with babies in the newborn intensive care unit (NICU), as well as improving data systems for accurate monitoring of human milk feeding in NICU settings. Strengthen and align national policies to reflect the same prioritization and implementation approaches for safe provision of DHM when mothers' milk is not available.
- Establish **local technical expertise** at the policy and implementation level to **assure the quality and safety of donor milk** through a multi-step process and to develop a Kenya-specific quality control framework. This will include development of robust guidelines, standard operating procedures, and monitoring systems appropriate for the local context. Incorporate best practices, such as Hazard Analysis for Critical Control Points¹⁵ (HACCP) planning, with technical input from the existing HMB programs, networks, and associations around the world.
- **Establish a center of excellence** for lactation support in the region, an integrated system with human milk banking as a key component of newborn care and nutrition programming. Pilot the

feasibility of an operational and scalable model for Kenya and conduct rigorous evaluation to determine impact on neonatal health and feeding outcomes.

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CONTACT DETAILS

APHRC: Elizabeth Kimani (ekimani@aphrc.org); PATH: Kiersten Israel-Ballard (kisrael-ballard@path.org);
Ministry of Health: Betty Samburu (betsamburu@gmail.com)

