

emphasise policies and actions that reflect inter-relations across the SDGs for improved nutrition.<sup>1,5</sup>

I declare no competing interests.

**Rakhi Dandona**

**rakhi.dandona@phfi.org**

Public Health Foundation of India, Gurugram, India; and Institute for Health Metrics and Evaluation, University of Washington, Seattle, USA

- 1 Swaminathan S, Hemalatha R, Pandey A, et al. The burden of child and maternal malnutrition and trends in its indicators in the states of India: the Global Burden of Disease Study 1990–2017. *Lancet Child Adolesc Health* 2019; **3**: 855–70.
- 2 Global Nutrition Report. Global Nutrition Report 2018 Executive summary. Global Nutrition Report, 2018. <https://globalnutritionreport.org/reports/global-nutrition-report-2018/executive-summary/> (accessed April 15, 2020).
- 3 Sarna A, Porwal A, Ramesh S, et al. Characterisation of the types of anaemia prevalent among children and adolescents aged 1–19 years in India: a population-based study. *Lancet Child Adolesc Health* 2020; **4**: 515–25.
- 4 Ministry of Health and Family Welfare, Government of India. India Factsheet. National Family Health Survey (NFHS-4) 2015–16. Mumbai: Indian Institute for Population Studies, 2016. <http://rchiips.org/NFHS/pdf/NFHS4/India.pdf> (accessed April 15, 2020).
- 5 NITI Aayog, Government of India. Nourishing India. National Nutrition Strategy, Government of India. NITI Aayog, 2017. [https://niti.gov.in/writereaddata/files/document\\_publication/Nutrition\\_Strategy\\_Booklet.pdf](https://niti.gov.in/writereaddata/files/document_publication/Nutrition_Strategy_Booklet.pdf) (accessed April 15, 2020).
- 6 Fiedler JL, Babu S, Smitz MF, Lividini K, Bermudez O. Indian social safety net programs as platforms for introducing wheat flour fortification: a case study of Gujarat, India. *Food Nutr Bull* 2012; **33**: 11–30.
- 7 Miller V, Yusuf S, Chow CK, et al. Availability, affordability, and consumption of fruits and vegetables in 18 countries across income levels: findings from the Prospective Urban Rural Epidemiology (PURE) study. *Lancet Glob Health* 2016; **4**: e695–703.
- 8 Chawanpaiboon S, Vogel JP, Moller AB, et al. Global, regional, and national estimates of levels of preterm birth in 2014: a systematic review and modelling analysis. *Lancet Glob Health* 2019; **7**: e37–46.
- 9 WHO. Driving commitment for nutrition within the UN decade of action on nutrition. Geneva: World Health Organization, 2018.



## Maintaining safety and service provision in human milk banking: a call to action in response to the COVID-19 pandemic

Published Online

May 6, 2020

[https://doi.org/10.1016/S2352-4642\(20\)30134-6](https://doi.org/10.1016/S2352-4642(20)30134-6)

When a mother's own milk is not available, WHO recommends pasteurised donor human milk as the first alternative.<sup>1</sup> Human milk banks screen and recruit donors, and have wide-ranging precautions to ensure the safety of donor milk. Screened donor milk principally feeds babies of very low birthweight, protecting them from a range of complications,<sup>2</sup> as well as babies with congenital anomalies or neurological conditions.<sup>3–5</sup> The benefits of a human milk diet highlight the importance of providing these infants with donor milk for short periods—with appropriate use in the context of optimal support for lactation, such provision can support mothers to establish their milk supply without the need for supplementation with infant formula milk.<sup>6</sup>

The coronavirus disease 2019 (COVID-19) pandemic is presenting many challenges to human milk banks worldwide and highlights a range of vulnerabilities in service provision and emergency preparedness. For the first time, the global human milk bank community is coming together to share learnings, collaborate, and plan. A Virtual Communication Network of milk bank leaders started to form on March 17, 2020, and now has more than 80 members from 34 countries. Data collated from regional and country leads in the Virtual Communication Network show that more than 800 000 infants are estimated to receive donor milk worldwide annually. However, the inadequate quality of

the data is a major flaw, and the true global scale of milk banking is unknown.

The group actively discusses COVID-19-specific challenges and has developed mitigation strategies to ensure donor milk safety and service continuation, which will shortly be made available as a publication. During this crucial COVID-19 response period, human milk banks are facing the logistical challenges of adequate staffing, difficulties in donor recruitment, questions around the safe handling and transportation of donor milk, and increased demand as a result of mothers and infants being separated.

The global nature of this network supports breastfeeding advice from WHO, which is appropriate in both low-income and high-income nations.<sup>7</sup> Human milk bank leaders who have lived and worked through the HIV pandemic have brought insights into the mistakes that occurred in the 1980s, with fear leading to breastfeeding cessation and costing the lives of many babies who received infant formula in unsafe conditions.<sup>8</sup> Unlike HIV, where transmission via breastfeeding was a source of infection, there is no evidence around severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) transmission from breastfeeding or human milk,<sup>9</sup> and the virus is inactivated by heat treatment.<sup>10</sup> Similar patterns have emerged during other viral outbreaks (eg, Zika in 2016),

where uncertainty about donor milk use meant that milk was withheld, and then used again once pasteurisation was proven to be effective or the virus shown not to be transmissible through milk. In the meantime, vulnerable infants have received suboptimal care. This constraint does not affect similar services (eg, blood transfusion and organ transplantation) to the same extent, where oversight and rapid research are prioritised.

To avoid further straining the health system during the COVID-19 pandemic, the best chance to keep infants healthy is to promote breastfeeding and a human milk diet. WHO notes that where donor milk provision can play a part, human milk bank services should be supported. The consensus from this Virtual Communication Network is that a comprehensive approach should be implemented to maintain contact between mothers and babies, with skin-to-skin contact and breastfeeding support. If donor milk is provided during any separation linked to COVID-19, this should be for as short a time as possible as a bridge to receiving mother's own milk. By reducing the amount of mother-infant separation time and supporting the use of mother's own milk, the excess demand for donor milk will diminish, ensuring that the global supply can continue to be used for those who need donor milk most, when maternal breastfeeding is disrupted or not possible. This approach increases the chances that these infants will leave the neonatal intensive care unit breastfeeding exclusively, which is essential for the long-term health of mother and baby. Emphasis on the importance of human milk for infants within neonatal units creates an environment where the mother's own milk is seen as the valuable lifesaving resource that it is.

It is imperative that human milk bank systems are not inadvertently affected by efforts to contain COVID-19, but milk banks are facing unprecedented challenges to maintain safe supplies in volatile health system infrastructures. Local issues have been deepened by the absence of globally agreed operational safety guidelines, no global mechanism for rapid communication among milk banks, with little data and infrastructure to ensure responsiveness during a crisis. The strengthening of human milk bank systems is required to ensure that safe provision of donor milk remains an essential component of early and essential newborn care during routine care or emergency scenarios, such as natural disasters and pandemics.

We therefore collectively call on global policy leaders and funding agencies to recognise and prioritise the need to address four high-impact areas: (1) ensuring neonatal nutrition is an essential focus during emergencies; (2) funding research to optimise human milk bank systems in response to new infectious threats; (3) investing in innovation across all aspects of milk banking processes to improve the responsiveness, access, and quality of donor milk provision; and (4) supporting the integration of learnings and innovations by the global milk bank community during COVID-19 into newborn, nutrition, and emergency response planning for future emergencies.

The Virtual Communication Network is now focused on building a formal global alliance to enable enhanced communication, sharing of data, and maintenance of optimal practices. Human milk banks constitute a necessary but chronically under-resourced service that deserves better protection against this and future emergencies.

NS reports funding from UK Research and Innovation, as a Future Leaders Fellow at Imperial College London; and is a cofounder and trustee of the Human Milk Foundation. All other authors declare no competing interests.

*\*Natalie Shenker, on behalf of the Virtual Collaborative Network of Human Milk Banks and Associations†*  
natalie.shenker09@imperial.ac.uk

Imperial College London, London SW7 2AZ, UK

†Members of the Virtual Collaborative Network of Human Milk Banks and Associations team are listed in the appendix.

See Online for appendix

- 1 WHO. Donor human milk for low-birth-weight infants. 2019. [https://www.who.int/elena/titles/donormilk\\_infants/en/](https://www.who.int/elena/titles/donormilk_infants/en/) (accessed April 30, 2020).
- 2 Quigley M, Embleton ND, McGuire W. Formula versus donor breast milk for feeding preterm or low birth weight infants. *Cochrane Database Syst Rev* 2019; **6**: CD002971.
- 3 El-Khuffash A, Jain A, Lewandowski AJ, Levy PT. Preventing disease in the 21st century: early breast milk exposure and later cardiovascular health in premature infants. *Pediatr Res* 2020; **87**: 385–90.
- 4 Hoban R, Khatri S, Patel A, Unger SL. Supplementation of mother's own milk with donor milk in infants with gastroschisis or intestinal atresia: a retrospective study. *Nutrients* 2020; **12**: 589.
- 5 Tully MR, Lockhart-Borman L, Updegrove K. Stories of success: the use of donor milk is increasing in North America. *J Hum Lact* 2004; **20**: 75–77.
- 6 Kantorowska A, Wei JC, Cohen RS, Lawrence RA, Gould JB, Lee HC. Impact of donor milk availability on breast milk use and necrotizing enterocolitis rates. *Pediatrics* 2016; **137**: e20153123.
- 7 WHO. Breastfeeding advice during the COVID-19: for health care workers. 2020. <https://www.who.int/docs/default-source/maternal-health/faq-breastfeeding-and-covid-19.pdf> (accessed April 30, 2020).
- 8 Moland KM, de Paoli MM, Sellen DW, van Esterik P, Leshabari SC, Blystad A. Breastfeeding and HIV: experiences from a decade of prevention of postnatal HIV transmission in sub-Saharan Africa. *Int Breastfeed J* 2010; **5**: 10.
- 9 Chen H, Guo J, Wang C, et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. *Lancet* 2020; **395**: 809–15.
- 10 Chin AWH, Chu JTS, Perera MRA, et al. Stability of SARS-CoV-2 in different environmental conditions. *Lancet Microbe* 2020; published online April 2. [https://doi.org/10.1016/S2666-5247\(20\)30003-3](https://doi.org/10.1016/S2666-5247(20)30003-3).