

Abstract

COVID-19 and Human Milk: Are We Prepared for the Next Pandemic? [†]

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[†] Presented at the More Than Just Milk Lactation Science Symposium, Perth, Australia, 25 November 2022.

Abstract: For most babies, human milk is considered the best form of early life nutrition with additional immediate and long-term benefits for health and development. During extreme circumstances and crises, it is therefore of utmost importance to monitor and protect the safety of breastfeeding and the use of human milk. At the onset of the recent COVID-19 pandemic, it was critical to rapidly establish rigorous scientific evidence to ensure that the emerging infectious agent SARS-CoV-2 is not transmitted through human milk. As soon as the WHO declared COVID-19 a pandemic on 11 March 2020, we quickly assembled and activated a multidisciplinary team of human milk researchers and virologists and leveraged our existing Human Milk Research Biorepository to recruit lactating women and collect milk samples—literally from day 1 of the pandemic. We and others used RT-qPCR and found that human milk does indeed occasionally contain SARS-CoV-2 viral mRNA. However, a virus is more than a piece of mRNA, which alone is not able to cause the disease. We therefore tested the hypothesis that viral mRNA found in human milk represents an active, replication competent virus. We validated a cell culture SARS-CoV-2 infectivity assay for use in human milk and discovered the following: (i) the presence of SARS-CoV-2 mRNA in human milk of infected women is rare; (ii) The presence of viral RNA is not the same as presence of active, replication-competent virus. In fact, none of the human milk samples from SARS-CoV-2-infected women contained replication-competent virus, including samples that tested positive for viral mRNA by RT-qPCR; and (iii) even if human milk was contaminated with SARS-CoV-2 during pumping and handling, Holder pasteurization, which is commonly used by human milk banks, inactivates the virus in contaminated human milk. In summary, our research has provided scientific evidence that transmission of SARS-CoV-2 from mother to infant through breastfeeding and the use of human milk is highly unlikely. This study was officially published on 19 August 2020, 161 days after the WHO declared COVID-19 a pandemic. Under normal circumstances, this timeline from ideation to publication would be considered remarkably fast, but it wasn't fast enough during a time of crisis. A total of 161 days of uncertainty has led to fear-based confusion, misinformation, and increased the risk of breastfeeding cessation despite the well-documented benefits of human milk and breastfeeding. The current pandemic has uncovered the urgent and immediate need to invest in research that establishes the safety of breastfeeding and human milk at crisis onset. We therefore call on governments, public health agencies, and the scientific community at large to establish a “rapid response task force” that is capable of rapidly and rigorously monitoring and assessing the safety of breastfeeding and human milk at the onset of the next global health crisis.



Citation: Bode, L. COVID-19 and Human Milk: Are We Prepared for the Next Pandemic?. *Proceedings* **2023**, *84*, 8. <https://doi.org/10.3390/proceedings2023084008>

Academic Editors: Lisa F. Stinson, Sharon L. Perrella and Donna T. Geddes

Published: 14 February 2023



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Keywords: breastfeeding; human milk; lactation; COVID-19; pandemic

Funding: L.B. is the UC San Diego Chair of Collaborative Human Milk Research, endowed by a generous gift from the Family Larsson-Rosenquist Foundation, Switzerland.

Institutional Review Board Statement: Human Ethics was not required for this abstract.

Informed Consent Statement: Informed consent was not obtained for this review of published literature.

Data Availability Statement: Data are not available for this abstract.

Conflicts of Interest: The author declares no conflict of interest.

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