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No Evidence of Infectious SARS-CoV-2 in Human Milk: Analysis of a Cohort of 110 Lactating Women

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Update in

No infectious SARS-CoV-2 in breast milk from a cohort of 110 lactating women.

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Abstract

**Background:** SARS-CoV-2 infections of infants and toddlers are usually mild but can result in life-threatening disease. SARS-CoV-2 RNA been detected in the breast milk of lactating women, but the potential role of breastfeeding in transmission to infants has remained uncertain.

**Methods:** Breast milk specimens were examined for the presence of the virus by RT-PCR and/or culture. Specimens that contained viral RNA (vRNA) were examined for the presence of subgenomic coronavirus RNA (sgRNA), a putative marker of infectivity. Culture methods were used to determine the thermal stability of SARS-CoV-2 in human milk.

**Results:** Breast milk samples from 110 women (65 confirmed with a SARS-CoV-2 diagnostic test, 36 with symptoms but without tests, and 9 with symptoms but a negative SARS-CoV-2 diagnostic test) were tested by RT-PCR (285 samples) and/or viral culture (160 samples). Although vRNA of SARS-CoV-2 was detected in the milk of 7 of 110 (6%) women with either a confirmed infection or symptomatic illness, and in 6 of 65 (9%) of women with a positive SARS-CoV-2 diagnostic test, virus was not detected in any culture. None of the 7 milk specimens with detectable vRNA contained sgRNA. Notably, when artificially added to human milk in control experiments, infectious SARS-CoV-2 could be cultured despite several freeze-thaw cycles, as occurs in the storage and usage of human milk.

**Conclusions:** SARS-CoV-2 RNA can be found infrequently in the breastmilk of women with recent infection, but we found no evidence that breastmilk contains infectious virus or that breastfeeding represents a risk factor for transmission of infection to infants.

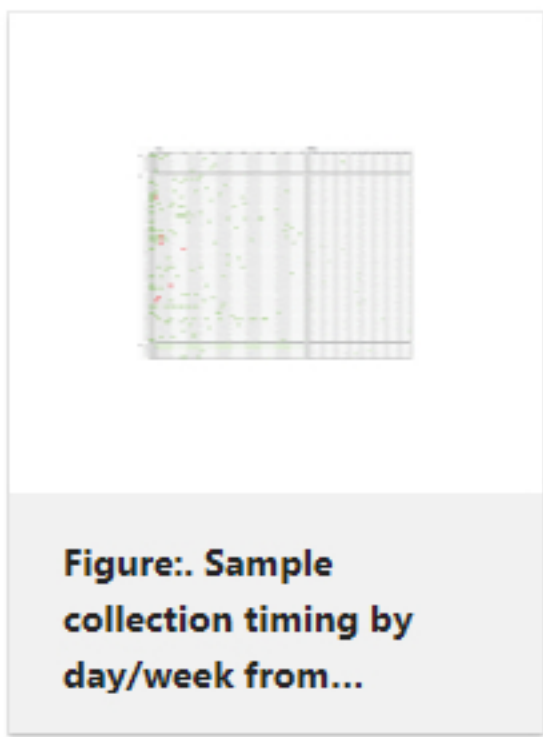
**Key points: Question:** SARS-CoV-2 RNA has been detected in a small number of human milk samples collected from recently infected women. The role of breastfeeding in transmission of the virus to infants has remained uncertain due to the small number of specimens analyzed in any study published thus far.**Findings:** In a total study group of 110 women, SARS-CoV-2 RNA was detected in milk from 6 of 65 women (9.2%) with recent confirmed infection. Neither infectious virus nor subgenomic RNA (a marker of virus infectivity) were detected in any of the samples.**Meaning:** We found no evidence that infectious SARS-CoV-2 is present milk from recently infected women, even if SARS-CoV-2 PCR tests are positive, providing reassurance of the safety of breastfeeding.

PubMed Disclaimer

Conflict of interest statement

Conflict of Interest Disclosures  
Dr Bode reported serving as the UC San Diego Chair of Collaborative Human Milk Research, which is endowed by the Family Larsson-Rosenquist Foundation. Medela Corporation provided milk sample collection materials for this study. Dr. Chambers reports that shipping of milk samples was financially supported by the Mothers' Milk Bank at Austin, an accredited milk bank and member of the Human Milk Banking Association of North America. The other authors have no relevant conflicts to disclose.

Figures



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