

# Breastfeeding and COVID-19

Scientific brief

23 June 2020



## Introduction

Breastfeeding is the cornerstone of infant and young child survival, nutrition and development and maternal health. The World Health Organization recommends exclusive breastfeeding for the first 6 months of life, followed by continued breastfeeding with appropriate complementary foods for up to 2 years and beyond.<sup>1</sup> Early and uninterrupted skin-to-skin contact, rooming-in<sup>2</sup> and kangaroo mother care<sup>3</sup> also significantly improve neonatal survival and reduce morbidity and are recommended by WHO.

However, concerns have been raised about whether mothers with COVID-19 can transmit the SARS-CoV-2 virus to their infant or young child through breastfeeding. Recommendations on mother-infant contact and breastfeeding must be based on a full consideration of not only of the potential risks of COVID-19 infection of the infant, but also the risks of morbidity and mortality associated with not breastfeeding, the inappropriate use of infant formula milks, as well as the protective effects of skin-to-skin contact. This scientific brief examines the evidence to date on the risks of transmission of COVID-19 from an infected mother to her baby through breastfeeding as well as evidence on the risks to child health from not breastfeeding.

## WHO recommendations

WHO recommends that mothers with suspected or confirmed COVID-19 should be encouraged to initiate or continue to breastfeed. Mothers should be counselled that the benefits of breastfeeding substantially outweigh the potential risks for transmission.<sup>4</sup>

Mother and infant should be enabled to remain together while rooming-in throughout the day and night and to practice skin-to-skin contact, including kangaroo mother care, especially immediately after birth and during establishment of breastfeeding, whether they or their infants have suspected or confirmed COVID-19.

## Methods

A living systematic review of evidence that followed the procedures of the Cochrane handbook for systematic reviews of interventions was carried out with the latest search done on 15 May 2020 to identify studies including mothers with suspected or confirmed COVID-19 and their infants or young children.<sup>5</sup> The search was conducted on Cochrane Library, EMBASE (OVID), PubMed (MEDLINE), Web of Science Core Collection (Clarivate Analytics) and the WHO Global Database. A total of 12,198 records were retrieved, 6945 were screened after removing duplicates, and 153 records with mother-infant dyads in which the mother had COVID-19 were included in full-text review.

## Results

A total of 46 mother-infant dyads had breastmilk samples tested for COVID-19. All mothers had COVID-19, while 13 infants tested COVID-19 positive. Breastmilk samples from 43 mothers were negative for the COVID-19 virus while samples from 3 mothers tested positive for viral particles by RT-PCR. Among the 3 infants whose mothers' breastmilk tested positive for viral RNA particles, not live virus, one infant tested positive for COVID-19 but infant feeding practices were not reported. The two other infants tested negative for COVID-19; one was breastfed, and the other newborn was fed expressed breast milk after viral RNA particles were no longer detected. In the single child with COVID-19, it was unclear through which route or source the infant became infected, i.e. through breastmilk or droplet from a close contact with the infected mother.

A preprint article reported secretory immunoglobulin A (sIgA) immune response against the COVID-19 virus found in 12 of 15 breastmilk samples from mothers with COVID-19.<sup>6</sup> The implications of this finding on the effect, duration and protection against COVID-19 for the child was not addressed.

## Limitations

To date, studies of mother-infant dyads with data on feeding practices and COVID-19 infection have come from case reports, case series or a report of a family cluster. Other study designs such as cohort studies or case-control studies were eligible for inclusion, but none were identified. We are thus unable to measure and compare risks of infection based on feeding practices.

Although 1 of the 3 infants of mothers with viral particles in breast milk had COVID-19, it was unclear through which route or source the infant was infected, i.e., through breastfeeding or close contact with the mother or other infected person. RT-PCR detects and amplifies viral genetic material in samples, such as breastmilk, but does not provide information on viability or infectivity of the virus. Documented presence of replicative COVID-19 virus in cell culture from breast milk and infectivity in animal models are needed to consider breast milk as potentially infectious.

The presence of IgA in breast milk is one of the ways in which breastfeeding protects infants against infection and death. IgA antibodies with reactivity to the COVID-19 virus have been detected in breastmilk of mothers previously infected with COVID-19 but their strength and durability have not yet been adequately studied to address protection from COVID-19 among breastfed infants.

## Discussion

Detection of COVID-19 viral RNA in breastmilk is not the same as finding viable and infective virus. Transmission of COVID-19 would need replicative and infectious virus being able to reach target sites in the infant and also to overcome infant defense systems. If in the future COVID-19 virus from breastmilk were shown to be replicative in cell culture it would need to reach target sites in the infant and overcome infant defense systems for transmission of COVID-19 to occur.

The implications of transmission risk need to be framed in terms of COVID-19 prevalence in breastfeeding mothers and the scope and severity of COVID-19 infection in infants when transmission occurs compared to the adverse consequences of separation and using breastmilk substitutes and also separation of newborns and young infants from mothers.

Children appear to be at low risk of COVID-19. Among the cases of confirmed COVID-19 in children, most have experienced only mild or asymptomatic illness.<sup>7,8</sup> This is also the case with other zoonotic coronaviruses (SARS-CoV and MERS-CoV), which seem to affect children less commonly and to cause fewer symptoms and less severe disease compared with adults.<sup>9</sup>

Secretory IgA have been detected in breastmilk of mothers with previous COVID-19 infection. Although the strength and durability of sIgA reactive to COVID-19 have not yet been determined, multiple bioactive components have been identified in breastmilk that not only protect against infections but improve neurocognitive and immunologic development of the child since Lars A Hanson first described sIgA in breastmilk in 1961.<sup>10-12</sup>

Skin-to-skin contact and kangaroo mother care facilitate breastfeeding as well as improve thermoregulation, blood glucose control, and maternal-infant attachment, and decrease the risk in mortality and severe infection among low birth weight infants.<sup>13,14</sup> Beyond the neonatal period, positive effects of mother-infant holding include improved sleep patterns, lower rates of behavioural problems in the child and higher quality parental interaction.<sup>15,16</sup>

Exclusively breastfed infants, the risk of mortality is 14-fold higher in infants who are not breastfed.<sup>17</sup> Over 820 000 children's lives could be saved every year among children under 5 years, if all children 0-23 months were optimally breastfed. For mothers, breastfeeding protects against breast cancer and may protect against ovarian cancer and type 2 diabetes.<sup>18</sup> On the other hand, children are at low risk of COVID-19.

## Knowledge gaps

It is still not clear whether the virus can or cannot be transmitted through breast milk. Risk of transmission based on feeding practices have not been quantified, compared, or modelled against the benefits of breastfeeding and nurturing mother-infant interaction.

## Conclusion

At present, data are not sufficient to conclude vertical transmission of COVID-19 through breastfeeding. In infants, the risk of COVID-19 infection is low, the infection is typically mild or asymptomatic, while the consequences of not breastfeeding and separation between mother and child can be significant. At this point it appears that COVID-19 in infants and children represents a much lower threat to survival and health than other infections that breastfeeding is protective against. The benefits of breastfeeding and nurturing mother-infant interaction to prevent infection and promote health and development are especially important when health and other community services are themselves

disrupted or limited. Adherence to infection prevention and control measures is essential to prevent contact transmission between COVID-19 suspected or confirmed mothers and their newborns and young infants.

Based on available evidence, WHO recommendations on the initiation and continued breastfeeding of infants and young children also apply to mothers with suspected or confirmed COVID-19.

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WHO continues to monitor the situation closely for any changes that may affect this interim guidance. Should any factors change, WHO will issue a further update. Otherwise, this scientific brief will expire 2 years after the date of publication.

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