**Best Evidence Topic Report – COVID-19 Domus Medica dossier CD20083**

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| **Title** | **Borstvoeding bij besmetting met COVID-19** |
| **Original Question** | Kan borstvoeding nog indien moeder besmet is met COVID-19 + DM CD20083 |
| Report by | Dr. Ellen Van Houtven en dr.Paul Van Royen |
| Search checked by | Josefien van Olmen / Hilde Philips / Paul Van Royen |
| Clinical scenario | Kan borstvoeding voortgezet worden indien moder besmet is met COVID-19 en zo ja op welke manier ? |
| Answerable question (PICO/PIRT/PEO/…) | P: moeders in postpartum – (mogelijks) besmet met COVID-19E: geven van borstvoedingO: aantal besmettingen, transmissie van virus  |
| Search terms | Pubmed 1) (“breast feeding”[MeSH Terms] OR (“breast”[All Fields] AND “feeding”[All Fields]) OR “breast feeding”[All Fields] OR “breastfeeding”[All Fields]) AND (“COVID-19” OR “Coronaviridae Infections”[Mesh] OR “SARS Virus”[Mesh]) 2) COVID-19 AND breastfeeding |
| Search date | 13/04/2020 |
| Search outcome (number of hits) | Pubmed: 1) 12 hits 2) 8 hits  |
| Relevant papers & guidelines(number of final inclusions) | No research articles- one rapid review- through cross referencies- two case report studies (Chen et al.; Schwartz et al)  |
| Expert opinions | If you have consulted an expert: selection, whom, when |

Exclusion criteria : no answer to the clinical question or no relevant information, no full text, other language

**Evidence tables: scientific studies –**

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| Author, date and country | Study type | Main risks of bias | Patient characteristics | Intervention/Index test/Exposure/Main findings | Comparator (if applicable) | Outcome | Key results  |
| Chen 12/02/2020, China | Case report | Selection bias- small sample size- Only pregnant women with caesarean section | 9 pregnant women with COVID-19 pneumonia-  | Vertical transmission (amniotic fluid, cor blood, neonatal throat swab) Transmission through breast milk (for 6 patients) | No transmission | Clinical characteristics Samples of amniotic fluid, cor blood, neonatal throat swab and breast milk tested for SARS-CoV-2 | No intrauterine transmission of COVID-19. All samples including 6 samples of breastmilk were negative for SARS-CoV-2 |
| Mullins et al.  | Rapid review | No systematic review- |  |  |  | Different items on pregnancy, delivery, maternal and infant health | Guidance from China states that ‘Infants should not be fed with the breast milk from mothers with confirmed or suspected of 2019-nCoV’. Guidance from the CDC is less clear but is still precautionary . RCOG advises against routine separation of mother and baby and gives guidance on individualized care.  |
| Rasmussen et al17/02/2020 USA | Expert review  | No systematic review |  |  |  | Coronavirus Disease 2019 (COVID-19) and pregnancy: what obstetricians need to know  | Until additional data are available, mothers who intend to breastfeed and are well enough to express breastmilk should be encouraged to do so; breast- feeding can be instituted after she is no longer considered infectious. No data are available to guide length of separation and will need to be decided on a case-by-case basis after discussion be- tween infection control experts and neonatologists.  |
| Schwartz et al.  | Case report | Selection bias- small sample size-  | 38 pregnant women with COVID-19 in China | Vertical transmission for COVID-19 | No vertical transmission | Description of clinical outcome and vertical transmission (intrauterine, transplacental)  | no evidence that SARS-CoV-2 undergoes intrauterine or transplacental transmission from infected pregnant women to their fetuses. Two extra cases – no transmission in breastmilk |

**Guidelines**

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| Organisation | Country | For which context (1st line, hospital, community, …) | For which professional group | Topic | Evidence-base | Key recommendatations  |
| World Health Organization (WHO) |  | Hospital clinicians |  | Clinical management of severe acute respiratory infection when COVID-19 is suspected |  | All recently pregnant women with COVID-19 or who have recovered from COVID-19 should be provided with necessary information and counselling on safe infant feeding and appropriate IPC measures to prevent COVID-19 transmission. Infants born to mothers with suspected, probable or confirmed COVID-19 infection, should be fed according to standard infant feeding guidelines, while applying necessary precautions for IPC. As with all confirmed or suspected COVID-19 cases, symptomatic mothers who are breastfeeding or practicing skin-to-skin contact or kangaroo mother care should practise respiratory hygiene, including during feeding (for example, use of a medical mask when near a child if with respiratory symptoms), perform hand hygiene before and after contactwith the child, and routinely clean and disinfect surfaces which the symptomatic mother has been in contact with. In situations when severe illness in a mother due to COVID-19 or other complications prevent her from caring for herinfant or prevent her from continuing direct breastfeeding, mothers should be encouraged and supported to express milk, and safely provide breastmilk to the infant, while applying appropriate IPC measures. |
| Dept Woman-Mother-Child, Lausanne University Hospital(Favre et al.)  | Switzerland | hospital | ObstetriciansNeonatologists | Guidelines for pregnant women with suspected SARS-CoV-2 infection | Expert based | Newborns of mothers positive for SARS-CoV-2 should be isolated for at least 14 days or until viral shedding clears, during which time direct breastfeeding is not recommended |
| Italian Society of Neonatology (SIN) (Davanzo et al)  | Italy | hospital | Neonatology | Breastfeeding and Coronavirus Disease 2019 | Expert based | If a mother previously identified as COVID-19 positive or under investigation for COVID-19 is asymptomatic or paucisymptomatic at delivery, rooming-in is feasible and direct breastfeeding is advisable, under strict measures of infection control. On the contrary, when a mother with COVID-19 is too sick to care for the newborn, the neonate will be managed separately and fed fresh expressed breast milk, with no need to pasteurize it, as human milk is not believed to be a vehicle of COVID-19 |
| Belgian Pediatric COVID-19 Task Force | Belgium | hospital | Pediatrics | Guideline Newborn of COVID-19 positive mother | Expert basedLiterature | Mother wears a surgical mask in the vicinity of her child or whilst breastfeeding & disinfects her hands before touching the baby (for at least 21 days – also at home) When not taking care of baby, the cot remains at a distance of more than 1.5 meters  |
| American College of Obstetricians and Gynaecologists | America | hospital  | Gynaecologists | Gebaseerd op de CDC ‘Considerations for Inpatient Obstetric Healthcare Settings’ | Expert based | There are rare exceptions when breastfeeding or feeding expressed breast milk is not recommended. Whether and how to start or continue breastfeeding should be determined by the mother in coordination with her family and health care practitioners. Currently, the primary concern is not whether the virus can be transmitted through breastmilk, but rather whether an infected mother can transmit the virus through respiratory droplets during the period of breastfeeding. A mother with confirmed COVID-19 or who is a symptomatic PUI should take all possible precautions to avoid spreading the virus to her infant, including washing her hands before touching the infant and wearing a face mask, if possible, while breastfeeding. If expressing breast milk with a manual or electric breast pump, the mother should wash her hands before touching any pump or bottle parts and follow recommendations for proper pump cleaning after each use. If possible, consider having someone who is well feed the expressed breast milk to the infant. In limited case series reported to date, no evidence of virus has been found in the breast milk of women infected with COVID-19; however, it is not yet known if COVID-19 can be transmitted through breast milk (ie, infectious virus in the breast milk). |
| INTERIM CLINICAL GUIDANCE FOR ADULTS WITH SUSPECTED OR CONFIRMED COVID-19 IN BELGIUM  | Belgium |  |  |  | Expert basedliterature | No virus has been isolated from placenta, amniotic fluid or breastmilk. One neonate (born from a COVID-19 positive mother) tested COVID-19 positive 36 hours after birth, probably linked to close contact and droplets from the mother. |
| Chen D et al. -, Int J Gynaecol Obstet. 2020 | China | Hospital | GynecologistsNeonatologists | Expert consensus for managing pregnant women and neonates born to mothers with suspected or confirmed novel coronavirus (COVID‐19) infection | Expert opinion | It is currently uncertain whether there is vertical transmission from mother to fetus, but limited cases have shown no evidence of vertical transmission in patients with COVID‐19 infection in late‐trimester pregnancy. Neonates should be isolated for at least 14 d. During this period, direct breastfeeding is not recommended. It is recommended that mothers pump milk regularly to ensure lactation. Breastfeeding may not be safe until COVID‐19 is ruled out or until both mother and neonate clear the virus. (Low quality – important guideline)  |

Main results

From literature it is unknown whether the virus can be transmitted through breast milk. The only case report found no virus in the maternal milk of six patients (Chen et al. 2020). The case report of Schwartz (2020) mentions another two pregnant women- whom breast milk showed no virus. Besides breast milk is a passive source of antibodies and other anti-infective factors and, thus may provide passive antibody protection for the infant.

However, droplet infection could occur through close contact during breastfeeding. Several organisations and experts (WHO, Belgian, US and Italian guidelines) give the advise to stimulate breast feeding when the mother is asymptomatic. Feeding should always follow hygiene precautions. Several experts and guidelines of organisations suggest that the infant is ideally fed expressed breast milk given by another healthy caregiver until the mother has recovered of has been proven uninfected. Feeding should always follow hygiene precautions.
The current case reports all have the same risk of bias: small sample size and selection bias possible. Analysis of additional cases is necessary to determine if this absence of transmission in breast milk remains true.

What is your response rephrased for Domus Medica? –

Op basis van de beperkte wetenschappelijke literatuur is er momenteel geen evidentie voor transmissie van COVID-19 naar de moedermelk. Het doorgeven van specifieke antistoffen via de moedermelk, kan een eventuele SARS-CoV-2 infectie van de pasgeborene gunstig beïnvloeden. De voornaamste wijze van transmissie van moeder op baby is aldus via directe druppelinfectie (hoesten en niezen). Daarom raden verschillende richtlijnen aan om borstvoeding te stimuleren indien de moeder asymptomatisch is én mits inachtneming van de volgende hygiënische maatregelen.

- Handen wassen/desinfectie met alcohol voor en na het aanraken van de pasgeborene .
- Wassen van borstkas en borsten met zeep.
- Het dragen van een (chirurgisch) masker tijdens de borstvoeding.
- Het kinderbedje buiten verzorgingsmomenten op 1,5 m afstand plaatsen.

Er zijn nog geen richtlijnen beschikbaar over de nodige duur van deze maatregelen, maar experten raden aan om een minimum van 21 dagen te hanteren.

Bij een recente COVID-19 infectie van de moeder (<21 dagen na begin van de klachten) en zeker als de moeder nog klachten of problemen ondervindt van de COVID-19 infectie, geven sommige experten aan dat het veiliger is dat de moeder zelf de borstvoeding afkolft onder strikt hygiënische voorwaarden (handhygiëne, masker dragen tijdens afkolven, desinfecteren afkolfmateriaal) en dat een andere gezonde zorgverlener de afgekolfde borsvoeding aan de pasgeborene geeft.

De voordelen van borstvoeding, versus het risico op transmissie via droplets en de haalbaarheid van hygiënische maatregelen bij een COVID-19 positieve moeder, dienen dus steeds in samenspraak met de individuele patiënte afgewogen en besproken te worden.

References for Domus Medica Website

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2. Mullins E, Evans D., Viner RM et al. Coronavirus in pregnancy and delivery: rapid review. Ultrasound Obstet Gynecol 2020
3. Schwartz DA. An Analysis of 38 Pregnant Women with COVID-19, Their Newborn Infants, and Maternal-Fetal Transmission of SARS-CoV-2: Maternal Coronavirus Infections and Pregnancy Outcomes. Arch Pathol Lab Med. 2020 Mar 17. Available from: <https://doi.org/10.5858/arpa.2020-0901-SA>.
4. World Health Organization. Clinical management of severe acute respiratory infection when COVID-19 is suspected. Marc 2020.
5. Favre  G, Pomar  L, Qi  X, *et al*. Correspondence to the Lancet infectious diseases. March 3rd, 2020. guidelines for pregnant women with suspected SARS-CoV-2 infection. Lancet Infect Dis 2020 [https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(20)30157-2/fulltext](https://www.thelancet.com/journals/laninf/article/PIIS1473-3099%2820%2930157-2/fulltext)
6. Davanzo R, Moro G, Sandri F et al. Breastfeeding and Coronavirus Disease-2019. Ad interim indications of the Italian Society of Neonatology endorsed by the Union of European Neonatal & Perinatal Societies. Matern Child Nutr 2020; Apr 3:e13010. doi: 10.1111/mcn.13010
7. Belgian Pediatric COVID-19 Task Force - <https://mailer.meddb.be/dyn/tpl_attributes/user_documents/user_15171_documents/Covid_newsletter_21-3.pdf>
8. ACOG. Novel Coronavirus 2019 (COVID-19). <https://www.acog.org/clinical/clinical-guidance/practice-advisory/articles/2020/03/novel-coronavirus-2019>
9. INTERIM CLINICAL GUIDANCE FOR ADULTS WITH SUSPECTED OR CONFIRMED COVID-19 IN BELGIUM <https://epidemio.wiv-isp.be/ID/Documents/Covid19/COVID-19_InterimGuidelines_Treatment_ENG.pdf>
10. Chen D et. al. Expert consensus for managing pregnant women and neonates born to mothers with suspected or confirmed novel coronavirus (COVID-19) infection. Int J Gynaecol Obstet. 2020 Mar 20. Available from: https://doi.org/10.1002/ijgo.13146.