

SPECIAL COLLABORATIONReceived: June 2nd 2020Accepted: June 29th 2020Published: July 9th 2020**THE IMPACT OF COVID-19 PANDEMIC ON BREASTFEEDING AND BIRTH CARE.
THE IMPORTANCE OF RECOVERING GOOD PRACTICES****Paula Lalaguna Mallada (1,6), N. Marta Díaz-Gómez (2,6), Marta Costa Romero (3,6), Laura San Feliciano Martín (4,6) and Carme Gabarrell Guiu (5,6)**

(1) Servicio de Pediatría. Hospital de Barbastro. Huesca. Spain.

(2) Facultad de Ciencias de la Salud. Universidad de La Laguna. Tenerife. Spain.

(3) Neonatología. Hospital Universitario de Cabueñes. Gijón. Spain.

(4) Neonatología. Hospital Universitario de Salamanca. Salamanca. Spain.

(5) Pediatría. ABS Primer de Maig. Lleida. Spain.

(6) Asociación Española de Promoción y Apoyo a la Lactancia Materna (AELEMA). Madrid. Spain.

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ABSTRACT

The SARS-CoV-2 pandemic has had a major impact on birth care and lactation. The lack of knowledge regarding the transmission mechanisms and the potential risks for the mother and the newborn, even when the vertical transmission of the virus has not been demonstrated, has led to the abandonment of practices such as skin-to-skin and the early initiation of breastfeeding (BF), which offer great benefits for maternal and child health.

Taking into account the available scientific evidence and the protective effect of BF, the World Health Organization (WHO), and other organisms recommend, in cases of suspected or confirmed SARS-CoV-2 infection of the mother, maintaining mother-child contact and BF, adopting preventive measure procedures to minimize the risk of contagion. These measures include hand hygiene, before and after contact with the newborn and the use of a mask. If a temporary separation of mother and child is required, it is recommended to feed the newborn with expressed breast milk.

The presence of IgA antibodies against SARS-CoV-2 has been confirmed in the milk of infected women, so BF could reduce the clinical impact of the disease in the infant, if it becomes infected.

Key words: Newborn, Breastfeeding, Covid-19, Infant.

RESUMEN**Impacto de la pandemia de Covid-19 en la lactancia y cuidados al nacimiento. Importancia de recuperar las buenas prácticas.**

La pandemia por el SARS-CoV-2 ha tenido un gran impacto en la atención al nacimiento y la lactancia. El desconocimiento de los mecanismos de contagio y los riesgos potenciales para la madre y el recién nacido (RN), aun cuando no se ha demostrado la transmisión vertical del virus, ha propiciado el abandono de prácticas como el piel con piel y el inicio precoz de la lactancia materna (LM), que ofrecen grandes beneficios para la salud materno-infantil.

Teniendo en cuenta la evidencia científica disponible y el efecto protector de la LM, la Organización Mundial de la Salud (OMS) y otros organismos recomiendan mantener el contacto madre-hijo y la LM en casos de sospecha o infección confirmada por SARS-CoV-2 en la madre, adoptando procedimientos preventivos para minimizar el riesgo de contagio, como la higiene de las manos, antes y después del contacto con el RN, así como el uso de mascarilla. Si se precisa una separación temporal de la madre y el niño, se recomienda alimentar al RN con leche materna extraída.

Se ha confirmado la presencia de anticuerpos IgA frente al SARS-CoV-2 en leche de mujeres infectadas, por lo que la LM podría disminuir el impacto clínico de la enfermedad en el lactante, si llega a contagiarse.

Palabras clave: Recién nacido, Lactancia materna, Covid-19, Lactante.

Correspondence:

N. Marta Díaz-Gómez
Facultad de Ciencias de la Salud
Universidad de La Laguna
38200 Tenerife, Spain
nmdiaz@ull.edu.es

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INTRODUCTION

The current pandemic due to the SARS-CoV-2 virus has had an important impact on the model of birth care and lactation. Clinical practice based on evidence and recommendations, with demonstrated benefits regarding maternal and child health, such as accompaniment during childbirth, skin-to-skin contact after birth, early breastfeeding and rooming-in in the maternity^(1,2) have been relegated or removed from clinical practices in delivery room and maternity ward, due to fear and ignorance concerning the transmission of the virus and the potential infection risks for mother and the newborn^(3,4).

Infections by other respiratory viruses such as Influenza or other types of coronaviruses have been associated with complications during pregnancy, so pregnant women have been included among the vulnerable groups of Covid-19 and are considered one of the priority study groups^(5,6).

COVID-19 TRANSMISSION

Covid-19 disease is mainly spread from person to person through close contact and is transmitted by drops from the respiratory tract and through fomites.

Until now, microbiological studies (placenta, amniotic fluid, breast milk, umbilical cord blood, nasal aspiration) of children of mothers infected during pregnancy have been negative^(7,8,9). In a recent study carried out in Germany⁽¹⁰⁾ in which the milk of two mothers diagnosed of Covid-19, was analysed. SARS-CoV-2 RNA was detected in one of the breast-milk samples. The newborn child of this mother had mild symptoms of the disease and tested positive for SARS-CoV-2, without evidence that the contagion had occurred through breast milk or other transmission mechanisms. The evolution was favourable in both the mother and the newborn.

There are studies that confirm the presence of IgA antibodies against SARS-CoV-2 in the breast milk of infected mothers⁽¹¹⁾. For that reason, maintaining breastfeeding is likely to lessen the clinical impact of the disease on the infant.

It has not been possible, in any case, to demonstrate the vertical transmission of the virus^(6,12,13). In Spain, a national register has been created, and data is being collected from all children born to Covid-19 positive mothers. This will allow a better understanding of the behaviour of this virus in the neonatal period (<https://www.seneo.es/index.php/log-covid-seneo>).

The risk of horizontal transmission in newborns is the same as that of the general population, when they are in close contact with infected people (relatives, caregivers...); some cases have been documented^(14,15,16).

SUMMARY OF THE DIFFERENT RECOMMENDATIONS DURING THE PANDEMIC

Taking into account all the above, since the beginning of the pandemic, the WHO⁽¹⁷⁾ and other international organizations and associations such as Unicef⁽¹⁸⁾, the Centers For Disease Control And Prevention of the United States^(19,20), the Royal College of Obstetricians and Gynaecologists⁽²¹⁾, the Italian Society of Neonatology, the Union of European Neonatal & Perinatal Societies⁽²²⁾, as well as national associations, such as APILAM (Association for the Promotion and Scientific and Cultural Research on Breastfeeding)⁽²³⁾, IHAN-España (Spanish- Baby Friendly Hospital Initiative)⁽²⁴⁾ and AELAMA (Spanish Association for the Promotion and Support for Breastfeeding)⁽²⁵⁾, have recommended maintaining mother-child contact and breastfeeding, in the case of infected mothers, taking extreme precautions to minimize the risk of contagion. However, in the context of the pandemic, as a consequence of the lack of

evidence and fear of potential risks, the first recommendations (March 2020) of other international scientific societies, including those of the Society of Gynecology and Obstetrics (SEGO) and of the Spanish Society of Neonatology (SENEO), advised the isolation of positive Covid mothers during childbirth and the puerperium. They also recommended avoiding skin to skin contact as well as separating and isolating the newborn. Although these recommendations were intended to protect newborns from the potential harm of maternal SARS-CoV-2 infection, they did not take into account the impact of mother-infant separation, as indicated by other authors^(26,27). The latest update of SENEÓ's recommendations⁽²⁸⁾ is in line with other international societies that are committed to maintaining mother-newborn cohabitation. The proposal of SENEÓ and other different medical societies involved in maternal and child care at a national level, has been included in the latest version of the Protocol of the Ministry of Health "*Protocol for the management of pregnant women and newborns*"⁽⁵⁾ that promotes care without separation and facilitate immediate skin to skin contact after birth and breastfeeding. These updated recommendations, which are proving to be safe, have made it easier for many centres to gradually recover practices that were consolidated before the pandemic^(1,2), but there is still certain disparity concerning practices in the different maternity wards around our country and many still follow the most conservative recommendations based on the first published works from China^(29,30,31,32).

Another topic of interest concerns visiting premature newborns hospitalized in Spanish neonatal ICUs. Each Unit has had to adopt isolation protocols and visit restriction depending on the epidemic situation, and thus avoid outbreaks or contagions. Many Units have gone from 24 hours a day open visiting, to limit the number or the duration of parental visits within the Unit, and even, implementing the total restriction of visits in many cases.

In order to alleviate this undesirable situation, new communication technologies such as video calls have been implemented, in this way parents are able to see their babies from home, whenever they desire. Therefore, kangaroo care and breastfeeding have decreased, with the known risks that this implies for premature infants^(33,34,35), despite favourable recommendations by the WHO⁽¹⁷⁾. On the other hand, due to the infection of milk donors and quarantine measures that limit citizen mobility, a marked decrease in the rates of breast milk donation to Human Milk Banks has been observed. This has led to a reduction in the number of premature infants who have been benefited from the intake of donated human milk, and therefore a higher risk of severe neonatal illnesses, such as necrotizing enterocolitis. Safe donation can be maintained, recommending specific hygiene and secure extraction measures^(36,37,38).

SUMMARY OF CURRENT RECOMMENDATIONS

Based on the present available evidence, the current recommendations are in accordance with those proposed by AELAMA⁽²⁵⁾ on March 9th 2020, set out below in italics:

"During Covid-19 pandemic it is necessary to combine measures to decrease the transmission of the virus and minimize the risks of the disease, and avoid unnecessary interferences with the establishment of mother-child bonding and breastfeeding, facilitating family centered care⁽³⁾. Taking into account the available scientific information and the potential protective effect of breast milk, it is necessary to emphasize that in the case of a woman with suspected or confirmed SARS-CoV-2 infection, in optimal clinical conditions and according to her desire, the separation of mother and newborn should be avoided, facilitating skin to skin contact, as well as initiation and maintenance of breastfeeding,

directly from the breast. In order to reduce the risk of transmission to the infant, the mother will need to adopt preventive procedures such as thorough hand hygiene before and after contact with the newborn and the use of a mask, in accordance with the WHO recommendations⁽¹⁷⁾.

The decision to separate or not the mother from her child is a decision that must be made on an individual basis. The decision needs to be made taking into consideration the current scientific knowledge, the intentions and wishes of the parents, the clinical situation of both, the parents' informed consent, and other circumstances such as the logistical situation of the hospital, the family and, possibly, the local epidemiological situation related to the spread of Covid-19.

In the event of temporary separation of the mother and the child, it will be essential to offer support to the mother so as to maintain milk production. This could be through manual or mechanical extraction, and therefore the mother will be able to feed the newborn with the pumped breast milk. In these circumstances it is fundamental to maintain all the safety measures to avoid the contamination of breast milk⁽³⁹⁾. As soon as the clinical situation allows it or once the virologic tests result negative the mother-child accommodation and the continuity of breastfeeding will be facilitated.

If the contagion of the breastfeeding mother occurs after delivery, it is recommended to maintain and promote breastfeeding, as well as to enhance the hygiene measures previously described. Breastfeeding will favour the passage of antibodies to the newborn”.

CONCLUSIONS

Current recommendations on the management of childbirth and lactation in the context of the Covid-19 pandemic are based on the maintenance

of good clinical practices regarding childbirth and nursing care promoted by the Spanish Ministry of Health, with widely documented benefits. Professionals and institutions need to be made aware of the negative impact caused by the separation of newborns from their families and of the importance of continuing to implement this type of care while ensuring safety and the minimum risk of contagion.

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REFERENCES

1. Grupo de trabajo de la Guía de Práctica Clínica sobre Atención al Parto Normal. Guía de Práctica Clínica sobre la Atención al Parto Normal. Plan de Calidad para el Sistema Nacional de Salud del Ministerio de Sanidad y Política Social. Agencia de Evaluación de Tecnologías Sanitarias del País Vasco (OSTEBA). Agencia de Evaluación de Tecnologías Sanitarias de Galicia (Avalia-t). 2010. Guías de Práctica Clínica en el SNS: OSTEBA N° 2009/01. Disponible en: <https://www.msbs.gob.es/organizacion/sns/planCalidadSNS/pdf/equidad/guiaPracClinPartoCompleta.pdf> (último acceso 17/6/20).
2. Grupo de trabajo de la Guía de Práctica Clínica sobre lactancia materna. Guía de Práctica Clínica sobre lactancia materna. Ministerio de Sanidad, Servicios Sociales e Igualdad; Agencia de Evaluación de Tecnologías Sanitarias del País Vasco-OSTEBA, 2017. Guías de Práctica Clínica en el SNS. Disponible en: https://www.msbs.gob.es/organizacion/sns/planCalidadSNS/docs/GPC_560_Lactancia_Osteba_compl-1.pdf (último acceso 17/6/20).

3. Arnaez J, Montes MT, Herranz-Rubia N, Garcia-Alix A. The Impact of the Current SARS-CoV-2 Pandemic on Neonatal Care. *Front Pediatr* [Internet]. 2020;8(April):1–4. doi: 10.3389/fped.2020.00247.
4. Mahmood A & Mahmood AM. (2020). COVID 19 and the impact on the beginning of life. *IJO-International Journal of Health Sciences and Nursing*, 3(04), 01-05. Disponible en: <http://www.ijournals.com/index.php/hsn/article/view/334> (último acceso 17/6/20).
5. Ministerio de Sanidad. Manejo de la mujer embarazada y del recién nacido con COVID-19. Documento técnico (Versión 17/6/2020). Disponible en: https://www.mscbs.gob.es/en/profesionales/saludPublica/ccayes/alertasActual/nCov-China/documentos/Documento_manejo_embarazo_recien_nacido.pdf?fbclid=IwAR2MPtKomJ4AS87YzMi49IAZiTaL3_qyAzfCvhp3C84QvXSDyVzyXZ-NKXU (último acceso 17/6/20).
6. Mimouni F, Lakshminrusimha S, Pearlman SA et al. Perinatal aspects on the covid-19 pandemic: a practical resource for perinatal–neonatal specialists. *J Perinatol* 40, 820–826 (2020). doi: 10.1038/s41372-020-0665-6.
7. Liu W, Wang J, Li W, Zhou Z, Liu S, Rong Z. Clinical characteristics of 19 neonates born to mothers with COVID-19. *Front Med*. 2020;14(2):193–8. doi: 10.1007/s11684-020-0772-y.
8. Fan C, Lei D, Fang C, Li C, Wang M, Liu Y et al. Perinatal Transmission of COVID-19 Associated SARS-CoV-2: Should We Worry?, *Clinical Infectious Diseases*. 2020. ciaa226 .doi: 10.1093/cid/ciaa226.
9. Chen L, Li Q, Zheng D, Jiang H, Wei Y, Zou L et al. Clinical Characteristics of Pregnant Women with Covid-19 in Wuhan, China. *N Engl J Med* [Internet]. 2020 Apr 17 [cited 2020 May 28]. doi: 10.1056/NEJMc2009226.
10. Groß R, Conzelmann C, Müller JA, Stenger S, Steinhart K, Kirchhoff F et al. Detection of SARS-CoV-2 in human breastmilk. *The Lancet*. vol. 0, issue 0. doi: 10.1016/S0140-6736(20)31181-8.
11. Fox A, Marino J, Amanat F, Krammer F, Hahn-Holbrook J, Zolla-Pazner S, Powell RL. Evidence of a significant secretory-IgA-dominant SARS-CoV-2 immune response in human milk following recovery from COVID-19. Preprint *BMJ*. 2020. doi: 10.1101/2020.05.04.20089995.
12. Simões e Silva AC, Leal CRV. Is SARS-CoV-2 Vertically Transmitted? *Front Pediatr* [Internet]. 2020 May 15;8:276. doi : 10.3389/fped.2020.00276.
13. Karimi-Zarchi M, Neamatzadeh H, Dastgheib SA et al. Vertical Transmission of Coronavirus Disease 19 (COVID-19) from Infected Pregnant Mothers to Neonates: A Review. *Fetal Pediatr Pathol*. 2020;39(3):246-250. doi: 10.1080/15513815.2020.1747120.
14. Alonso Díaz C, López Maestro M, Moral Pumarega MT, Flores Antón B, Pallás Alonso CR. First case of neonatal infection due to SARS-CoV-2 in Spain. *An Pediatr*. 2020;92(4):237–8. doi: 10.1016/j.anpedi.2020.03.002.
15. Salvatori G, De Rose DU, Concato C, Alario D, Olivini N, Dotta A et al. Managing COVID-19-Positive Maternal–Infant Dyads: An Italian Experience. *Breastfeed Med*. May 2020, Vol 15 (5): 347-348. doi: 10.1089/bfm.2020.0095.
16. Zhang ZJ, Yu XJ, Fu T, Liu Y, Jiang Y, Yang BX et al. Novel Coronavirus Infection in Newborn Babies Under 28 Days in China. *The European respiratory journal*. Jan2020, 2000697. doi: 10.1183/13993003.00697-2020.
17. World Health Organization. Clinical management of COVID-19. Interim guidance 27 May 2020. Disponible en: [https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected) (último acceso 17/6/20).
18. UNICEF. Coronavirus (COVID-19): lo que los padres deben saber. Cómo protegerte a ti y a tus hijos. 2020. Disponible en: <https://www.unicef.org/es/coronavirus/lo-que-los-padres-deben-saber> (último acceso 17/6/20).
19. CDC - Centers for Disease Control and Prevention. Si está embarazada, amamantando o al cuidado de niños

- pequeños (13/5/2020). Disponible en: <https://espanol.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/pregnancy-breastfeeding.html> (último acceso 17/6/20).
20. CDC - Centers for Disease Control and Prevention. Care of breastfeeding mothers (5/5/2020). Disponible en: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/care-for-breastfeeding-women.html> (último acceso 17/6/20).
21. Royal College of Obstetricians and Gynaecologists (RCOG). Coronavirus (COVID-19) Infection in Pregnancy. Information for healthcare professionals. Version 9: 13 May 2020 . Disponible en: <https://www.rcog.org.uk/globalassets/documents/guidelines/2020-05-13-coronavirus-covid-19-infection-in-pregnancy.pdf> (último acceso 17/6/20).
22. Davanzo R, Moro G, Sandri F, Agosti M, Moretti C, Mosca F. Breastfeeding and Coronavirus Disease-2019. Ad interim indications of the Italian Society of Neonatology endorsed by the Union of European Neonatal & Perinatal Societies [Internet]. *Maternal & child nutrition*. NLM (Medline); 2020 [cited 2020 May 13]. p. e13010. doi: 10.1111/mcn.13010.
23. APILAM. COVID-19 materna, enfermedad materna por Coronavirus 19. Disponible en: <http://www.e-lactancia.org/breastfeeding/maternal-covid-19-maternal-coronavirus-disease-2019/synonym/> (último acceso 17/6/20).
24. Nacimiento y Lactancia materna ante la pandemia de Coronavirus COVID-19 Recomendaciones IHAN para profesionales ante la pandemia por SARS- CoV-2 (v2). Disponible en: https://www.ihan.es/wp-content/uploads/SARS-CoV-2_y_LM-RECOMENDACIONES-IHAN-v02_04_2020FP-.pdf (último acceso 17/6/20).
25. AELAMA. Asociación Española de Lactancia Materna. Manejo del riesgo de contagio por coronavirus en madres y recién nacidos. 2020. Disponible en: <http://aelama.org/wp-content/uploads/2020/03/Lactancia-y-coronavirus-2020.pdf> (último acceso 17/6/20).
26. Stuebe A. Should Infants Be Separated from Mothers with COVID-19? First, Do No Harm. *Breastfeed Med*. 2020;15(5):351-352. doi: 10.1089/bfm.2020.29153.ams.
27. Tomori C, Gribble K, Palmquist AE, Ververs MT & Gross MS. (2020). When Separation is not the Answer: Breastfeeding Mothers and Infants affected by COVID-19. *Maternal & Child Nutrition*, e13033. doi: 10.1111/MCN.13033.
28. Sociedad Española de Neonatología. Recomendaciones para el manejo del recién nacido en relación con la infección por SARS-CoV-2. Versión 6.2 ; (27/05/20). Disponible en: https://www.seneo.es/images/site/COVID/Recomendaciones_SENeo_SARS-CoV-2_Version_6.2_27052020_.pdf (último acceso 17/6/20).
29. Lu Q, Shi Y. Coronavirus disease (COVID-19) and neonate: What neonatologist need to know. *J Med Virol*. 2020. doi: 10.1002/jmv.25740.
30. Zeng L, Xia S, Yuan W et al. Neonatal Early-Onset Infection With SARS-CoV-2 in 33 Neonates Born to Mothers With COVID- 19 in Wuhan, China. *JAMA Pediatrics* 2020; 23 (77): E1-E3. doi:10.1001/jamapediatrics.2020.0878.
31. Rasmussen SA et al. Coronavirus Disease 2019 (COVID-19) and pregnancy: what obstetricians need to know. *American Journal of Obstetrics & Gynecology*, Volume 222, Issue 5, 415 – 426. doi: 10.1016/j.ajog.2020.02.017.
32. Wang L, Shi Y, Xiao T et al. Chinese expert consensus on the perinatal and neonatal management for the prevention and control of the 2019 novel coronavirus infection (First edition). *Ann Transl Med*. 2020;8(3):47. doi: 10.21037/atm.2020.02.20.
33. Boquien CY. (2018). Human milk: An ideal food for nutrition of preterm newborn. *Frontiers in pediatrics*, 6, 295. doi: 10.3389/fped.2018.00295.
34. Boundy EO, Dastjerdi R, Spiegelman D, Fawzi WW, Missmer SA, Lieberman E, ... & Chan GJ. (2016). Kangaroo mother care and neonatal outcomes: a meta-analysis. *Pediatrics*, 137(1), e20152238. doi: 10.1542/peds.2015-2238.

35. Milk Handling for COVID-19 Positive or Suspected Mothers in the Hospital Setting. Disponible en: https://www.hmbana.org/file_download/inline/a593dd72-be78-471e-ae5e-6490309108fd (último acceso 17/6/20).
36. Furlow B. US NICUs and donor milk banks brace for COVID-19. *Lancet Child Adolesc Health*. 2020 May;4(5):355. doi: 10.1016/S2352-4642(20)30103-6.
37. Marinelli KA. International perspectives concerning donor milk banking during the SARS-CoV-2 (COVID-19) pandemic. *J Hum Lact*. 2020;890334420917661. doi: 10.1177/0890334420917661.
38. Marinelli KA, Lawrence RM. Safe Handling of Containers of Expressed Human Milk in all Settings During the SARS-CoV-2 (COVID-19) Pandemic. *J Hum Lact* [Internet]. 2020 Apr 3 [cited 2020 May 27];089033442091908. doi: 10.1177/0890334420919083.