

Guidelines for pregnant women with suspected SARS-CoV-2 infection

Coronaviruses responsible for severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) can cause severe adverse pregnancy outcomes, such as miscarriage, premature delivery, intrauterine growth restriction, and maternal death.^{1,2} Vertical transmission of the virus responsible for 2019 novel coronavirus disease (COVID-19), severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has not yet been detected, whereas perinatal transmission has been suspected in one case.³

Consequences of infection with SARS-CoV-2 for pregnancies are uncertain, with no evidence so far of severe outcomes for mothers and infants; however, the possibility should be considered.⁴ The recent experience with Zika virus suggests that when a new pathogen emerges, the health-care community should be prepared for the worst-case scenario.⁵ Therefore, recommendations for management of pregnant women at risk of SARS-CoV-2 infection are urgently needed. To this end, we propose a detailed management algorithm for health-care providers (appendix).

In the algorithm, we suggest that any pregnant woman who has travelled in a country affected by SARS-CoV-2 within the previous 14 days or who has had close contact with a patient with confirmed SARS-CoV-2 infection should be tested with a SARS-CoV-2 nucleic acid amplification test,⁶ even if asymptomatic. Pregnant women with laboratory-confirmed SARS-CoV-2 infection who are asymptomatic should be self-monitored at home for clinical features of COVID-19 for at least 14 days. These patients and those recovering from mild illness should be monitored with bimonthly fetal growth ultrasounds and Doppler assessments because of the potential

risk for intrauterine growth restriction. Pregnant women with COVID-19 pneumonia should be managed by a multidisciplinary team at a tertiary care centre. When quick Sepsis-related Organ Failure Assessment criteria are met, the patient should be transferred to an intensive care unit.

For pregnant women with confirmed infection, the choice of delivery timing should be individualised depending on the week of gestation and maternal, fetal, and delivery conditions. Whenever possible, vaginal delivery via induction of labour, with eventual instrumental delivery to avoid maternal exhaustion, should be favoured to avoid unnecessary surgical complications in an already sick patient. Septic shock, acute organ failure, or fetal distress should prompt emergency cesarean delivery (or termination if legal before fetal viability).

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.

These recommendations should be adapted to local health-care facilities, as well as in response to any further updates on SARS-CoV-2 and COVID-19.

We declare no competing interests.

Guillaume Favre, Léo Pomar, Xiaolong Qi, Karin Nielsen-Saines, Didier Musso, *David Baud
david.baud@chuv.ch

Materno-fetal and Obstetrics Research Unit, Department Woman-Mother-Child, Lausanne University Hospital, 1011 Lausanne, Switzerland (GF, LP, DB); CHESS Center, The First Hospital of Lanzhou University, Lanzhou, China (XQ); Division of Pediatric Infectious Diseases, David Geffen School of Medicine, University of California, Los Angeles, CA, USA (KN-S); Aix Marseille Université, IRD, AP-HM, SSA, VITROME, IHU—Méditerranée infection, Marseille, France (DM); and Laboratoire Eurofins Labazur Guyane, French Guiana, France (DM)

1 Alfaraj SH, Al-Tawfiq JA, Memish ZA. Middle East respiratory syndrome coronavirus (MERS-CoV) infection during pregnancy: report of two cases & review of the literature. *J Microbiol Immunol Infect* 2019; **52**: 501–03.

- 2 Wong SF, Chow KM, Leung TN, et al. Pregnancy and perinatal outcomes of women with severe acute respiratory syndrome. *Am J Obstet Gynecol* 2004; **191**: 292–97.
- 3 Chen H, Guo Juanjuan, Wang C, et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. *Lancet* 2020; published online Feb 12. [https://doi.org/10.1016/S0140-6736\(20\)30360-3](https://doi.org/10.1016/S0140-6736(20)30360-3).
- 4 Favre G, Pomar L, Musso D, Baud D. 2019-nCoV epidemic: what about pregnancies? *Lancet* 2020; **395**: e40.
- 5 Musso D, Ko AI, Baud D. Zika virus infection—after the pandemic. *N Engl J Med* 2019; **381**: 1444–57.
- 6 WHO. Laboratory testing for 2019 novel coronavirus (2019-nCoV) in suspected human cases. Interim guidance. Geneva: World Health Organization, 2020.



Lancet Infect Dis 2020

Published Online
March 3, 2020
[https://doi.org/10.1016/S1473-3099\(20\)30157-2](https://doi.org/10.1016/S1473-3099(20)30157-2)

See Online for appendix

THE LANCET

Infectious Diseases

Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Favre G, Pomar L, Qi X, Nielsen-Saines K, Musso D, Baud D. Guidelines for pregnant women with suspected SARS-CoV-2 infection. *Lancet Infect Dis* 2020; published online March 3. [http://dx.doi.org/10.1016/S1473-3099\(20\)30157-2](http://dx.doi.org/10.1016/S1473-3099(20)30157-2).

