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# Guidance on COVID-19 During Pregnancy and the Puerperium (ISUOG, 2020)

International Society of Ultrasound in Obstetrics and Gynecology

This is a quick summary of the guidelines without analysis or commentary. For more information, go directly to the guidelines by clicking the link in the reference.

March 30, 2020

*The guideline on coronavirus disease (COVID-19) infection control during pregnancy and puerperium was released on March 11, 2020 by the International Society of Ultrasound in Obstetrics and Gynecology*.[1]

## Screening

During the COVID-19 epidemic period, a detailed history regarding recent travel, occupation, significant contact and cluster (TOCC) and clinical manifestations should be acquired routinely from all pregnant women attending for routine care.

On presentation to triage areas, pregnant patients with TOCC risk factors should be placed in an isolation room for further assessment.

Pregnant patients with known TOCC risk factors and those with mild or asymptomatic COVID-19 infection should delay antenatal visit and routine ultrasound assessment by 14 days.

In units in which routine group B streptococcus (GBS) screening is practiced, acquisition of vaginal and/or anal swabs should be delayed by 14 days in pregnant women with TOCC risk factors or should be performed only after a suspected/probable case tests negative or after recovery in a confirmed case. Intrapartum prophylactic antibiotic cover for women with ante- or intrapartum risk factors for GBS is an alternative.

## Chest Radiography during Pregnancy

In a pregnant woman with suspected COVID-19 infection, a chest CT scan may be considered as a primary tool for the detection of COVID-19 in epidemic areas. Informed consent should be acquired (shared decision-making) and a radiation shield be applied over the gravid uterus.

## Treatment during Pregnancy

Management of COVID-19-infected pregnant women should be undertaken by a multidisciplinary team (obstetricians, maternal–fetal-medicine subspecialists, intensivists, obstetric anesthetists, midwives, virologists, microbiologists, neonatologists, infectious disease specialists).

Suspected, probable, and confirmed cases of COVID-19 infection should be managed initially by designated tertiary hospitals with effective isolation facilities and protection equipment.

Suspected/probable cases should be treated in isolation and confirmed cases should be managed in a negative-pressure isolation room. A patient with a confirmed case who is critically ill should be admitted to a negative-pressure isolation room in an ICU.

Designated hospitals should set up a dedicated negative-pressure operating room and a neonatal isolation ward. All attending medical staff should don personal protective equipment (PPE; respirator, goggle, face protective shield, surgical gown, and gloves) when providing care for patients with confirmed cases of COVID-19 infection. However, in areas with widespread local transmission of the disease, health services may be unable to provide such levels of care to all suspected, probable, or confirmed cases.

Pregnant women with a mild clinical presentation may not initially require hospital admission and home confinement can be considered, provided that this is possible logistically and that monitoring of the woman's condition can be ensured.

If negative-pressure isolation rooms are not available, patients should be isolated in single rooms, or grouped together once COVID-19 infection has been confirmed.

For transfer of confirmed cases, the attending medical team should don PPE and keep themselves and their patient a minimum distance of 1–2 meters from any individuals without PPE.

*Suspected/probable cases*

General treatment: Maintain fluid and electrolyte balance; provide symptomatic treatment, such as antipyrexic and antidiarrheal medicines.

Surveillance: Close and vigilant monitoring of vital signs and oxygen saturation level to minimize maternal hypoxia; conduct arterial blood-gas analysis; repeat chest imaging (when indicated); regular evaluation of complete blood count, kidney and liver function testing, and coagulation testing.

Fetal monitoring: Undertake cardiotocography (CTG) for fetal heart rate (FHR) monitoring at ≥26 or ≥28 weeks of gestation (depending on local practice), and ultrasound assessment of fetal growth and amniotic fluid volume with umbilical artery Doppler if necessary. Note that monitoring devices and ultrasound equipment should be disinfected adequately before further use.

The pregnancy should be managed according to the clinical and ultrasound findings, regardless of the timing of infection during pregnancy. All visits for obstetric emergencies should be offered in agreement with current local guidelines. All routine follow-up appointments should be postponed by 14 days or until positive test results (or two consecutive negative test results) are available.

*Confirmed cases – non-severe disease*

The approach to maintaining fluid and electrolyte balance, symptomatic treatment, and surveillance is the same as for suspected/probable cases.

Currently there is no proven antiviral treatment for COVID-19 patients, although antiretroviral drugs are being trialed therapeutically on patients with severe symptoms. If antiviral treatment is to be considered, this should be done following careful discussion with virologists; pregnant patients should be counseled thoroughly on the potential adverse effects of antiviral treatment for the patient herself as well as on the risk of fetal growth restriction (FGR).

Monitoring for bacterial infection (blood culture, mid-stream or catheterized-specimen urine microscopy and culture) should be done, with timely use of appropriate antibiotics when there is evidence of secondary bacterial infection. When there is no clear evidence of secondary bacterial infection, empirical or inappropriate use of antibiotics should be avoided.

Fetal monitoring: undertake CTG for FHR monitoring when pregnancy is ≥26–28 weeks of gestation, and ultrasound assessment of fetal growth and amniotic fluid volume with umbilical artery Doppler if necessary.

*Confirmed cases – severe and critical disease*

The degree of severity of COVID-19 pneumonia is defined by the Infectious Diseases Society of America/American Thoracic Society guidelines for community-acquired pneumonia.

Severe pneumonia is associated with a high maternal and perinatal mortality rate, therefore, aggressive treatment is required, including supporting measures with hydration, oxygen therapy, and chest physiotherapy. The case should be managed in a negative-pressure isolation room in the ICU, preferably with the woman in a left lateral position, with the support of a multidisciplinary team.

Antibacterial treatment: Appropriate antibiotic treatment in combination with antiviral treatment should be used promptly when there is suspected or confirmed secondary bacterial infection, following discussion with microbiologists.

Blood-pressure monitoring and fluid-balance management: in patients without septic shock, conservative fluid management measures should be undertaken; in patients with septic shock, fluid resuscitation and inotropes are required to maintain an average arterial pressure ≥60 mmHg (1 mmHg = 0.133 kPa) and a lactate level < 2 mmol/L.

Oxygen therapy: Supplemental oxygen should be used to maintain oxygen saturation ≥95%; oxygen should be given promptly to patients with hypoxemia and/or shock, and method of ventilation should be according to the patient's condition and following guidance from the intensivists and obstetric anesthetists.

Fetal monitoring: If appropriate, CTG for FHR monitoring should be undertaken at ≥26–28 weeks of gestation, and ultrasound assessment of fetal growth and amniotic fluid volume with umbilical artery Doppler should be performed, if necessary, once the patient is stabilized.

Medically indicated preterm delivery should be considered by the multidisciplinary team on a case-by-case basis.

## Management during Pregnancy

Pregnant women with suspected/probable COVID-19 infection, or those with confirmed infection who are asymptomatic or recovering from mild illness, should be monitored with 2–4-weekly ultrasound assessment of fetal growth and amniotic fluid volume, with umbilical artery Doppler if necessary.

At present, it is uncertain whether there is a risk of vertical mother-to-baby transmission. Limited evidence suggests no evidence of intrauterine infection caused by vertical transmission in women who developed COVID-19 pneumonia in late

pregnancy. There are currently no data on perinatal outcome when the infection is acquired in the first and early second trimester of pregnancy, and these pregnancies should be monitored carefully after recovery.

## Ultrasound Equipment

Following ultrasound examination, ensure surfaces of transducers are cleaned and disinfected according to manufacturer specifications, taking note of the recommended 'wet time' for wiping transducers and other surfaces with disinfection agents. Consider using protective covers for probes and cables, especially when the patient has infected skin lesions or when a transvaginal scan is necessary. In the case of high infectivity, a 'deep clean' of the equipment is necessary.

A bedside scan is preferred; if the patient needs to be scanned in the clinic, this should be done at the end of the list, as the room and equipment will subsequently require a deep clean. Reprocessing of the probes should be documented for traceability.

## Management during Childbirth

COVID-19 infection itself is not an indication for delivery, unless there is a need to improve maternal oxygenation.

For suspected, probable, and confirmed cases of COVID-19 infection, delivery should be conducted in a negative-pressure isolation room on the labor ward. Human traffic around this room should be limited when it is occupied by an infected patient.

The timing and mode of delivery should be individualized, dependent mainly on the clinical status of the patient, gestational age, and fetal condition.

In the event that an infected woman has spontaneous onset of labor with optimal progress, she can be allowed to deliver vaginally. Shortening the second stage by operative vaginal delivery can be considered, as active pushing while wearing a surgical mask may be difficult for the woman to achieve.

With respect to a pregnant woman without a diagnosis of COVID-19 infection, but who might be a silent carrier of the virus, we urge caution regarding the practice of active pushing while wearing a surgical mask, as it is unclear if there is an increased risk of exposure to any healthcare professional attending the delivery without PPE, because forceful exhalation may significantly reduce the effectiveness of a mask in preventing the spread of the virus by respiratory droplets.

Induction of labor can be considered when the cervix is favorable, but there should be a low threshold to expedite the delivery when there is fetal distress, poor progress in labor, and/or deterioration in maternal condition.

Septic shock, acute organ failure, or fetal distress should prompt emergency cesarean delivery (or termination, if legal, before fetal viability).

For the protection of the medical team, water birth should be avoided.

Both regional anesthesia and general anesthesia can be considered, depending on the clinical condition of the patient and after consultation with the obstetric anesthetist.

For preterm cases requiring delivery, we urge caution regarding the use of antenatal steroids (dexamethasone or betamethasone) for fetal lung maturation in a critically ill patient, because this can potentially worsen the clinical condition, and the administration of antenatal steroids would delay the delivery that is necessary for management of the patient. The use of antenatal steroids should be considered in discussion with infectious disease specialists, maternal-fetal medicine subspecialists, and neonatologists. In the case of an infected woman presenting with spontaneous preterm labor, tocolysis should not be used in an attempt to delay delivery in order to administer antenatal steroids.

Miscarried embryos/fetuses and placentae of COVID-19-infected pregnant women should be treated as infectious tissues and disposed of appropriately; if possible, testing of these tissues for COVID-19 by quantitative reverse transcription polymerase chain reaction (qRT-PCR) should be undertaken.

Neonatal management in suspected, probable, and confirmed cases of maternal COVID-19 infection: The umbilical cord should be clamped promptly and the neonate should be transferred to the resuscitation area for assessment by the attending pediatric team. There is insufficient evidence regarding whether delayed cord clamping increases the risk of infection to the newborn via direct contact. In units in which delayed cord clamping is recommended, clinicians should consider carefully whether this practice should be continued.

## Neonatal Management

There is currently insufficient evidence regarding the safety of breastfeeding and the need for mother-baby separation. If the mother is severely or critically ill, separation appears to be the best option, with attempts to express breast milk in order to maintain milk production. Precautions should be taken when cleaning the breast pumps. If the patient is asymptomatic or

mildly affected, breastfeeding and co-location (also called rooming-in) can be considered by the mother in coordination with healthcare providers, or may be necessary if facility limitations prevent mother-baby separation.

Since the main concern is that the virus may be transmitted by respiratory droplets rather than breast milk, breastfeeding mothers should be sure to wash their hands and wear a three-ply surgical mask before touching the baby. In cases of rooming-in, the baby's cot should be kept at least 2 meters from the mother's bed, and a physical barrier such as a curtain may be used.

The need to separate mothers with COVID-19 infection from their newborns, with the consequence that they are unable to breastfeed directly, may impede early bonding as well as establishment of lactation. These factors will inevitably cause additional stress for mothers in the postpartum period. As well as caring for their physical well-being, medical teams should consider the mental well-being of these mothers, showing appropriate concern and providing support when needed.

## General Precautions

Currently, there are no effective drugs or vaccines to prevent COVID-19. Therefore, personal protection should be considered in order to minimize the risk of contracting the virus.

Patients and healthcare providers should maintain good personal hygiene, as follows:

- Consciously avoid close contact with others during the COVID-19 epidemic period
- Reduce participation in any gathering in which a distance of at least 1 meter between individuals cannot be maintained
- Pay attention to hand washing
- Use hand sanitizer (with 70% alcohol concentration) frequently

Some national health authorities and some hospital systems recommend wearing a three-ply surgical mask when visiting a hospital or other high-risk area.

Seek medical assistance promptly for timely diagnosis and treatment when experiencing symptoms such as fever and cough.

## Recommendations for Healthcare Providers

Consider providing educational information (brochures, posters) in waiting areas.

Set up triage plans for screening. In units in which triage areas have been set up, staff should have appropriate protective equipment and be strictly compliant with hand hygiene.

Consider reducing the number of visitors to the department.

Medical staff who are caring for suspected, probable or confirmed cases of COVID-19 patients should be monitored closely for fever or other signs of infection and should not be working if they have any COVID-19 symptoms. Common symptoms at onset of illness include fever, dry cough, myalgia, fatigue, dyspnea, and anorexia. Some national health authorities and hospital systems recommend that medical staff assigned to care for suspected, probable, or confirmed cases of COVID-19 patients should minimize contact with other patients and colleagues, with the aim of reducing the risk of exposure and potential transmission.

Medical staff who have been exposed unexpectedly, while without PPE, to a COVID-19-infected pregnant patient, should be quarantined or self-isolate for 14 days.

Pregnant healthcare professionals should follow risk-assessment and infection-control guidelines following exposure to patients with suspected, probable or confirmed COVID-19.

For more information, see the *Coronavirus Resource Center.* For more Clinical Practice Guidelines, please go to Guidelines.

**References**

1. Poon LC, Yang H, Lee JCS, et al. ISUOG Interim Guidance on 2019 novel coronavirus infection during pregnancy and puerperium: information for healthcare professionals. *Ultrasound Obstet Gynecol*. 2020 Mar 11.https://obgyn.onlinelibrary.wiley.com/doi/full/10.1002/uog.22013



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