

## JAMA Insights

## Caring for Women Who Are Planning a Pregnancy, Pregnant, or Postpartum During the COVID-19 Pandemic

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**Since its recognition** in China in December 2019, coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has rapidly spread throughout the world and become a pandemic. Although considerable data on COVID-19 are available, much remains to be learned about its effects on pregnant women and newborns.

No data are currently available to assess whether pregnant women are more susceptible to COVID-19. Pregnant women are at risk for severe disease associated with other respiratory illnesses (eg, 2009 H1N1 influenza),<sup>1</sup> but thus far, pregnant women with COVID-19 do not appear to be at increased risk for severe disease compared with the general population. Data from China showed that among 147 pregnant women, 8% had severe disease and 1% had critical illness, which are lower rates than observed in the nonpregnant population (14% with severe disease and 6% with critical illness).<sup>2</sup> Case series from China consisting primarily of women with third-trimester infection have shown that clinical findings in pregnant women are similar to those seen in the general population.<sup>1</sup> Conversely, a small Swedish study reported that pregnant and postpartum women with COVID-19 were 5 times more likely to be admitted to an intensive care unit compared with nonpregnant women of similar age.<sup>3</sup>

Data on pregnant women with COVID-19 in the US are beginning to accumulate. For example, a recent report included 43 pregnant women with COVID-19 who presented for care at 2 hospitals in New York City.<sup>4</sup> Although this case series did not include a nonpregnant control group, the proportion of pregnant women with severe disease was similar to that described in nonpregnant adults with COVID-19.<sup>4</sup> More information is needed about the effect of pregnancy and comorbidities to understand how they affect clinical outcomes of COVID-19. The US experience might differ from other countries because of the high frequency of comorbidities among pregnant women in the US.

The effects of COVID-19 during pregnancy on the neonate are not well understood. Nearly all infections reported from China were during the third or late-second trimester, so whether first-trimester SARS-CoV-2 infection might cause birth defects or pregnancy loss is unknown. Some newborns born to mothers with COVID-19 during pregnancy were born preterm or of low birth weight, but whether these outcomes were COVID-19-related is unclear. SARS-CoV-2 transmission from a mother to her newborn could occur prenatally, perinatally, or postnatally. In most newborns tested after birth, results have been negative for SARS-CoV-2.<sup>1</sup> However, symptomatic newborns born to mothers with COVID-19 have been reported to have SARS-CoV-2 infection at a few days of life<sup>5</sup>; whether this was due to prenatal, perinatal, or postnatal transmission is unknown. Recently, a probable case of congenital infection was reported in a newborn born to a woman with familial neutropenia who was diagnosed with COVID-19 before delivery. A neonatal nasopharyngeal swab collected on the day of birth prior to skin-to-skin maternal contact was positive.<sup>6</sup> The presence of IgM and IgG antibodies in 3 infants born to mothers with COVID-19 during pregnancy was recently reported.<sup>7</sup> IgG antibodies

freely cross the placenta; however, IgM antibodies do not typically cross the placenta, suggesting the possibility of prenatal transmission of SARS-CoV-2. However, these studies do not provide definitive evidence for intrauterine transmission because cross-reactivity and false-positive IgM test results can occur.<sup>7</sup> Whether transmission can occur through breastfeeding is unknown. SARS-CoV-2 RNA has been detected in breastmilk samples from a single woman with COVID-19, and her infant tested positive for SARS-CoV-2, but whether the infant was infected through breastfeeding is unclear.<sup>8</sup> Given the benefits of breast milk, when feasible, breast milk should be fed to infants regardless of maternal COVID-19 status.

Based on experiences with other infections (eg, influenza), adverse effects on the fetus or newborn related to prenatal infection might occur even without intrauterine transmission. For example, severe maternal illness with influenza requiring intensive care unit admission was associated with increased risks for preterm birth, low birth weight, and low Apgar scores.<sup>9</sup> Whether an increased risk for adverse outcomes among newborns born to women with COVID-19 will be seen is unknown.

Given the limited data, recommendations for caring for women who are planning a pregnancy, pregnant, or have given birth during the COVID-19 pandemic are based on expert opinion. Women planning a pregnancy in the time of COVID-19 might ask whether they should delay pregnancy until after the pandemic. Based on limited data, there does not seem to be a compelling reason to recommend delaying pregnancy. For women who are pregnant, the primary recommendation is to avoid becoming infected with SARS-CoV-2 through hygiene and social distancing measures. Early recognition of COVID-19 in a pregnant patient admitted to a labor and delivery unit is necessary so appropriate infection control practices can be instituted. Given that some women with COVID-19 might be asymptomatic or presymptomatic, health care facilities may consider polymerase chain reaction testing for SARS-CoV-2 at the time of admission.

Guidelines for the care of pregnant women known or suspected to have COVID-19 admitted for delivery have been developed by the Centers for Disease Control and Prevention (CDC) and several professional organizations (Box). On presentation, a mask should be placed on the woman and she should be isolated in a single-patient room with the door closed, with an airborne isolation room used for aerosol-generating procedures. Clinical care of a pregnant woman with COVID-19 should be based on illness severity; diagnostic measures and treatments should not be withheld based on pregnancy status. Given the risks of maternal respiratory depression, consideration should be given to limiting the use of magnesium sulfate for seizure prophylaxis and fetal neuroprotection. Given concerns about potential harm from corticosteroid use in patients with COVID-19, antenatal corticosteroid use for fetal maturation should be carefully considered and should depend on the gestational age. Early epidural analgesia should be considered to mitigate the risks associated with general anesthesia in the setting of an urgent cesarean delivery.

## Box. Recommendations for Care of Pregnant Women Confirmed or Suspected to Have Coronavirus Disease 2019 (COVID-19)

**Recommendations**

- Place a mask on the patient on presentation and isolate in a single-person room with the door closed. Airborne isolation rooms should be used for aerosolizing procedures (ACOG, CDC, SMFM, SOAP).
- Consider separating patients with COVID-19 in one area of the obstetric unit and using a designated team of trained clinicians in these areas (SMFM, SOAP).
- Weigh benefits and risks of magnesium sulfate for fetal neuroprotection or for preeclampsia/intrapartum seizure prophylaxis given potential maternal respiratory depression (SMFM, SOAP).
- Consider adjusting antenatal corticosteroid use for fetal maturation, given the risk of worsening patient outcomes with corticosteroid use in patients with COVID-19 (eg, offer antenatal steroids for patients <34 weeks' gestation, weigh risks and benefits and individualize decisions for ≥34 weeks' gestation) (ACOG, SMFM, SOAP).
- Consider early epidural analgesia to mitigate the risks associated with general anesthesia in the setting of an urgent cesarean delivery (SMFM, SOAP).
- Do not alter delivery timing or mode (eg, cesarean delivery, operative vaginal delivery) due to patients' COVID-19 infection status. However, for women with COVID-19 in the third trimester, it may be reasonable to attempt to postpone delivery to decrease risk of neonatal transmission (ACOG).
- Consider temporary separation of mothers with confirmed COVID-19 from their newborns (ACOG, AAP, CDC).
- Determination of whether to temporarily separate a mother with known or suspected COVID-19 should be made on a case-by-case basis, using shared decision-making (ACOG, CDC).

- If temporary separation is chosen, mothers who intend to breastfeed should practice hand and breast hygiene and express their milk. Expressed milk can be fed to the newborn by a healthy caregiver (ACOG, AAP, CDC, SMFM, SOAP).
- If separation is not chosen, use other measures to reduce risk of infection, such as physical barriers and face mask use by the mother (AAP, CDC).
- Mothers who choose to feed at the breast should wear a face mask and practice hand and breast hygiene before each feeding (AAP, ACOG, CDC, SMFM, SOAP).
- Newborns born to mothers with confirmed COVID-19 at the time of delivery should be considered to have suspected COVID-19 and be isolated from healthy newborns (AAP, ACOG, CDC).
- Newborns born to mothers with confirmed or suspected COVID-19 at the time of delivery should be tested 24 hours after birth for SARS-CoV-2 and, if negative, again at approximately 48 hours if testing capacity is available (AAP, CDC).

**Professional Organization Resources**

American Academy of Pediatrics (AAP) [initial guidance](#) and [FAQs](#)

American College of Obstetricians and Gynecologists (ACOG) [practice advisory](#) and [FAQs](#)

Centers for Disease Control and Prevention (CDC)

Society for Maternal-Fetal Medicine (SMFM) and Society for Obstetric Anesthesia and Perinatology (SOAP)

Decisions regarding timing and mode of delivery should be based on standard fetal and maternal indications.

Issues related to hospital placement of the newborn born to a mother with known or suspected COVID-19 are challenging. Measures to reduce the risk of transmission from an infected mother to her newborn include placing them in separate rooms or using other controls (eg, physical barriers, the mother wearing a face mask during contact with the newborn); shared decision-making between the mother and the care team regarding this issue is recommended. For those who select temporary separation, expression of breast milk

with careful hand and breast hygiene should be encouraged, with feeding of the breast milk done by a healthy caregiver. A mother who chooses to room with her newborn should use a face mask and careful hand and breast hygiene before breastfeeding. Newborns born to mothers with COVID-19 at delivery should be considered to have suspected COVID-19 and isolated from healthy newborns.

Information on COVID-19 is changing rapidly. As additional data become available recommendations might change, so clinicians should follow the CDC website and those of professional organizations for updates.

**ARTICLE INFORMATION**

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