

Delivery room considerations for infants born to mothers with suspected or proven COVID-19

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Background: COVID-19

Beginning in December 2019, people began presenting with pneumonia of unknown etiology in Wuhan, Hubei province, China. In the following months, the virus causing this disease (named COVID-19) has been identified as a novel coronavirus (SARS-CoV-2) and the World Health Organization declared a pandemic on March 11, 2020. While mild or moderate disease is expected in a majority of paediatric patients, scarce data is available on the outcomes of pregnancies affected by the virus [1]. This practice point addresses the risk of vertical transmission, as well as delivery room care of a newborn whose mother is suspected or confirmed to have COVID-19.

Risk of vertical transmission

SARS-CoV-2 shares similarities with the coronaviruses causing Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS), neither of which have documented cases of vertical transmission [2]; thus, the *a priori* risk for vertical transmission should be low.

There are some recent reviews of outcomes of infants born to mothers who tested positive for COVID-19 while pregnant [3][4][5]. In this literature, none of the infants, when tested shortly after delivery, were found to be positive for COVID-19, suggesting that vertical transmission is unlikely. In one report involving 9 women, all deliveries occurred by caesarean section and samples of amniotic fluid devoid of contamination by maternal blood and feces (as could occur with vaginal delivery) tested negative [4]. This pure sampling of amniotic fluid is the strongest indication that vertical transmission is not a risk with COVID-19. Another small case series sampled vaginal mucous from 10 women and found no positive results from viral testing. This should provide some reassurance to health care workers who handle infants born vaginally to mothers known to be COVID-19-positive [6].

However, the possibility of vertical transmission remains under active study. A single case report documented a positive nasopharyngeal aspirate (NPA) of a newborn at 36 hours of age, but it was unclear what steps had been taken to prevent infection of the infant following delivery [7]. Another case report found an asymptomatic infant with elevated IgM against SARS-CoV-2 at 2 hours of age, however the virus testing by PCR (polymerase chain reaction) was negative [8]. Most recently, literature from China reported 33 infants born to COVID-positive mothers, with three testing positive by NPA at 2 days of age [9]. All three were born via caesarean section but samples of amniotic fluid were not collected nor were viral swabs in the hours after delivery collected, making it difficult to confirm vertical transmission. Of note, the two term infants in this series presented with symptoms including fever and lethargy, with pneumonia on chest radiographs at 2 days of age.

In summary, at this time, the small collective body of evidence appears to show that vertical transmission remains highly unlikely but that further case reporting and timely testing is needed. While this route of transfer needs to be considered, postnatal infection from a caregiver or family transmission is most likely. However, these case reports reinforce the importance of taking strict measures to avoid postnatal infection of the newborn.

Precautions at delivery for mothers with suspected or proven COVID-19

Practitioners should consult with and adhere to local infection prevention and control (IPC) recommendations at all times.

In general, planning precautions for attendance at a delivery must take into account these four considerations:

1. Non-COVID-related pulmonary disease in the newborn is common, and the differential diagnosis for neonatal respiratory distress should be considered in full. Zhu et al described the outcomes of 10 infants, including 6 preterm infants, born to COVID-19 positive mothers [10]. Although respiratory illness was common in this cohort, all infants were pharyngeal-swab negative. This illustrates that when attending a high-risk delivery, COVID-related neonatal respiratory distress is highly unlikely. Illness should not be inappropriately attributed to COVID-19 without appropriate consideration for more common entities.
2. Attendance at delivery for babies of COVID-positive mothers is not routinely indicated if there are no other indications of fetal distress and/or anticipated need for advanced resuscitation. If a neonatal resuscitation team is required, only essential and experienced personnel should attend. They should maintain a distance of 2 metres from the mother.
3. Since the newborn infant is unlikely to be infected with SARS-CoV-2 at delivery, droplet/contact precautions are recommended during the initial steps of resuscitation, including positive pressure ventilation and institution of CPAP or intubation. However, if the mother is intubated or there is a requirement to do so, the neonatal resuscitation team can don personal protective equipment (PPE), including an N95 respirator. Again, practitioners should consult with and adhere to local IPC recommendations at all times.
4. Provided that a distance of two metres can be achieved between the mother and the bed in which resuscitation of a newborn will occur, management of the newborn can occur in the delivery suite. Since the newborn cannot be protected using airborne precautions, if the mother is intubated or other aerosol generating medical procedures (AGMP) will occur in the room, resuscitation should be performed in an adjacent room if available. Moreover, if resuscitation will take place in a separate room, a delivery room attendee should bring the newborn to the resuscitation team outside the room for transfer to the resuscitation bed, thus minimizing the use of airborne PPE. This recommendation, while not evidence based per se, is meant to achieve a balance between timely resuscitation and minimizing exposure of the resuscitation team to risk of airborne transmission.

Cord management at birth

It is unlikely COVID-19 would be transmitted during the brief period of delayed cord clamping. Due to its known benefits and lack of evidence for harm, this practice may continue. Before committing to delayed cord clamping, however, the family should be informed in advance that there is a risk (albeit low) of transmission, so that they can make a decision for the health care team to follow.

Conclusions

Health care practitioners can expect to encounter mothers who have either suspected or proven COVID-19 with increasing frequency. The practical approaches in this practice point aim to ensure the best care for the newborn, while minimizing risk to health care professionals and being mindful of how scarce resources may become.

Information on COVID-19 will be reviewed and updated in CPS documents as the related literature evolves.

See related documents:

- NICU care for newborns born to mothers with suspected or proven COVID-19
- Breastfeeding when mothers have suspected or proven COVID-19

Acknowledgements

This practice point has been reviewed by members of the Canadian Paediatric Society's Fetus and Newborn Committee, Infectious Diseases and Immunization Committee, and Neonatal-Perinatal Section Executive; and the Society of Obstetricians and Gynaecologists of Canada.

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Last updated: Apr 9 2020