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COVID-19: Personal Protective Equipment (PPE) for Neonatal Resuscitation

05/10/2020

Background

This document complements Public Health Ontario's (PHO) list of aerosol-generating medical procedures (AGMPs)[1] and aims to clarify the need for the use of additional precautions during neonatal resuscitation. The safety of health care workers and first responders is of utmost importance. This technical brief provides the rationale as to why droplet and contact precautions are recommended during neonatal resuscitation of babies born to mothers with suspect or confirmed COVID-19.

Evidence for Vertical Transmission

To date, there has been no conclusive evidence of in utero transmission of COVID-19 from mother to child. A full summary of the evidence is available in the document, What we know so far about… Routes of Transmission; however, in brief, the majority of case series have not documented vertical transmission.[2-9] While there are a few case reports that suggest that it may occur, two reports are based on neonates with only positive serology[10-11] and one report documents positive nasopharyngeal swabs in three infants on day two of life,[12] and therefore these infections may have occurred after birth. There is one report of an infant born via C-section to a critically-ill mother with COVID-19 pneumonia on day four of symptoms. The infant was separated from the mother at birth, but found to be positive by NP swab for COVID-19 at 16 hours of life.[13] Therefore, while vertical transmission may be possible, it does not appear to be common and would be more likely to occur in a critically unwell mother with a short duration of symptoms (i.e., no antibody response) who may have viremia.

Evidence for Neonatal Resuscitation as an AGMP

There is limited data on degree to which neonatal resuscitation generates significant aerosols to consider it an aerosol-generating medical procedure. Neonatal CPAP and bag and mask ventilation are not associated with epidemiological data that indicate it significantly increases the risk of infection to health care workers within close range of the procedure. In theory, given the lower lung volumes and the lower pressures required to ventilate neonates[14], the risk is likely much lower than in adults.

Conclusion

At this time, given the low risk of vertical transmission and the low risk of aerosol exposure from neonatal resuscitation, droplet and contact precautions are recommended during neonatal resuscitation for babies born to mothers with suspect or confirmed COVID-19. This recommendation does not replace the need for healthcare workers to select personal protective equipment based on a point of care risk assessment. In higher risk scenarios (i.e., critically unwell mother), healthcare workers involved in the

direct airway management (i.e., intubation) of a neonate may choose to wear an N95 respirator; however, the aerosol risk is unlikely to extend beyond the individual involved in direct airway management and as a result, Droplet and Contact Precautions should be used by the rest of the delivery and support team unless otherwise indicated for maternal management. PHO will continue to monitor the evidence and update this guidance as new evidence arises.

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Citation

Ontario Agency for Health Protection and Promotion (Public Health Ontario). Focus on: COVID-19: personal protective equipment for neonatal resuscitation. Toronto, ON: Queen's Printer for Ontario; 2020.

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