

Evidence check

4 April 2020

Rapid evidence checks are based on a simplified review method and may not be entirely exhaustive, but aim to provide a balanced assessment of what is already known about a specific problem or issue. This brief has not been peer-reviewed and should not be a substitute for individual clinical judgement, nor is it an endorsed position of NSW Health.

Personal protective equipment and intrapartum care for low risk women

Rapid review questions

- What evidence is available regarding appropriate PPE for healthcare workers providing routine intrapartum care during the COVID-19 outbreak and other respiratory pandemics?
- What evidence is available about nosocomial infections or aerosol generating procedures in the provision of intrapartum care?

Context

- This evidence check focuses on PPE for intrapartum care for low risk women. There are a number of guidelines for providing maternity services for patients with suspected or confirmed COVID-19 infection (e.g. guidance from Queensland Health, shown in Appendix 1). Guidance for COVID-19 positive cases is not reviewed here.

In brief

- The Royal Australian and New Zealand College of Obstetricians and Gynaecologists recently released advice that when providing intrapartum care for any patient – including low-risk, screen-negative, non-COVID-19 patients, medical personnel should wear protective apparel, fluid-repellent surgical mask and eye protection during the pushing phase. It advises full PPE e.g. N95 masks - are not required for those caring for low-risk women (1).
- Experts in the US advise that a N95 mask should be worn in addition to droplet precaution PPE for any patients with suspected or confirmed COVID, **and** for any patient, regardless of respiratory symptoms, during indispensable aerosolising procedures, including second stage of labour (2)
- Aerosol-generating procedures (AGPs) are recognised as important sources for nosocomial transmission of emerging viruses. A systematic review of aerosol generating procedures in the SARS outbreak found no evidence of nosocomial infection associated with providing intrapartum care (3)
- Case reports and advice from maternal services in Italy and China report no vertical transmission of COVID-19; nor any nosocomial infections of healthcare workers (4, 5)
- The CDC notes that in times of PPE shortages, alternatives to N95s should be considered, and respirators reserved for situations where respiratory protection is most important, such as performance of aerosol-generating procedures on suspected or confirmed COVID-19 patients; or provision of care to patients with other infections for which respiratory protection is strongly indicated (e.g., tuberculosis, measles, varicella (6) (and potentially Figure on p7).

Methods

Google and PubMed were searched on 4 April 2020 using search strings shown in Appendix 2.

Results (Table 1)

Table One: Intrapartum care and nosocomial infections		
Source Title	Advice	Source Link
Maternal health care management during the outbreak of coronavirus disease 2019 (COVID-19) Hen et al, 2020)	<ul style="list-style-type: none"> • Case report of one hospital in China • Summarises maternal health care management strategies including antenatal care planning, patient triage based on risk level, admission control, and measures counteracting emergencies and newly discovered high risk cases • though tens of COVID-19 cases were confirmed in the hospital, no nosocomial infection occurred 	https://onlinelibrary.wiley.com/doi/epdf/10.1002/jmv.25787
Preparing an obstetric unit in the heart of the epidemic strike of COVID-19: quick reorganisation tips (Capanna et al, 2020)	<ul style="list-style-type: none"> • Case report of strategies to implement in obstetric units • For labour and delivery, the advice is: <ul style="list-style-type: none"> ○ Consider obstetric assistance for vaginal birth as "assistance manoeuvres that can produce aerosols": ○ use FFP2 / FFP3 facial filters, disposable water-repellent TNT long-sleeved gown, double gloves, visor / goggles, disposable headgear, shoes and proceed for disposal in accordance with the appropriate standards – ○ Surgical mask for patient. Allow removal of mask for pushing. ○ Partner allowed following internal policies, preferably not. 	https://www.tandfonline.com/doi/pdf/10.1080/14767058.2020.1749258?needAccess=true
Labour and Delivery Guidance for COVID-19 (Boelig et al, 2020)	<ul style="list-style-type: none"> • Advises on appropriate obstetric care for women who have tested positive or are suspected cases of COVID-19 • Outlines general changes for routine labour and delivery work flow <ul style="list-style-type: none"> ○ Every patient should wear a surgical mask ○ Every provider should have a surgical mask for each patient encounter (the ability to execute this recommendation is obviously limited by supply, but that should be the goal). 	https://els-jbs-prod-cdn.literatumonline.com/pb/assets/raw/Health%20Advance/journals/ymob/LD_Guidance_for_COVID19-1585058201517.pdf

	<ul style="list-style-type: none"> ○ For any patients with respiratory symptoms full droplet precautions should be utilised including gloves, gown, surgical mask with a face shield ○ N95 mask should be worn in addition to droplet precaution PPE for any patients with suspected or confirmed COVID, and for any patient, regardless of respiratory symptoms, during indispensable aerosolising procedures, including second stage of labour ○ As much as possible, oxygen should not be given aerosolised ○ hand hygiene with alcohol based rub after every patient contact and appropriate donning and doffing of PPE are critical. ○ Rooms that are exposed need to be wiped down as respiratory viruses may spread from surface contact. 	
<p>Nosocomial transmission of emerging viruses via aerosol-generating medical procedures (Judson and Munster, 2019)</p>	<ul style="list-style-type: none"> ● Aerosol-generating medical procedures (AGMPs) are increasingly being recognized as important sources for nosocomial transmission of emerging viruses. ● scarce empirical or quantitative evidence exists ● Healthcare workers are considered to be at risk for nosocomial virus transmission from both small and large droplet aerosols ● AGPs include bronchoscopy, CPR, BiPAP, CPAP. HFOV, tracheal intubation, manual ventilation, surgery, sputum induction, nebuliser treatment, suctioning, laser plume ● Coronaviruses (e.g. SARS, MERS) cause respiratory disease in humans and transmit via aerosols, but it is unknown whether small-droplet or large-droplet aerosols are the modes of transmission. 	<p>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6832307/#!po=12.5000</p>
<p>Aerosol Generating Procedures and Risk of Transmission of Acute Respiratory Infections to Healthcare Workers: A Systematic Review (Tran et al 2012)</p>	<ul style="list-style-type: none"> ● . During the severe acute respiratory syndrome (SARS) outbreaks, many frontline HCWs had a significantly increased risk of contracting disease ● Although clinical guidelines and protective measures for the management of patients with acute respiratory diseases exist, the magnitude of the risk of acquiring an infectious disease through some patient care procedures is not clearly understood 	<p>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3338532/?report=reader</p>

	<ul style="list-style-type: none"> Procedures that are believed to generate aerosols and droplets as a source of respiratory pathogens include positive pressure ventilation (BiPAP and CPAP), endotracheal intubation, airway suction, high frequency oscillatory ventilation, tracheostomy, chest physiotherapy, nebulizer treatment, sputum induction, and bronchoscopy 	
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References

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