Resuscitation Council UK

Frequently asked questions about COVID-19 and Newborn Life Support in the delivery room

The purpose of these FAQs are to provide practical, pragmatic advice to anyone providing assessment, stabilisation or resuscitation of newborn babies in the UK during the COVID-19 pandemic. Newborn Life Support is very different from adult resuscitation and this guidance is only applicable to newborn babies. It aims to provide evidence-based advice where possible (accepting the evidence base is weak) and tries to avoid anxiety based medicine where practical (accepting that clinician safety is vital and the perception of safety is very important).

PPE Terminology

FRSM fluid resistant surgical mask
FRDG fluid resistant disposable gown
PPE personal protective equipment
AGP aerosol generating procedure
FFP mask filtering face-piece respirator (e.g. FFP3, N95 or equivalent)

FAQs

1. Who should attend the delivery of a baby to a COVID-19 suspected/confirmed mother?

Neonatal teams should only attend deliveries from COVID-19 suspected/ confirmed mothers for the usual indications. COVID-19 positivity, on its own, does not require a neonatal team. If neonatal input is required then a risk assessment as to the likely number of people needed should be undertaken (e.g. is one person needed for assessment and then more called if needed, or is it clear that 2-3 people will be needed?)

2. Is full PPE required for any newborn baby where COVID-19 is suspected/ confirmed in a symptomatic mother?

We suggest using an FRDG, FFP and eye protection. Consider adding a surgical hat if this is in line with local PPE guidance. The reason for this PPE suggestion is:

- Aerosol generating procedures (AGP) may need to be carried out; PHE advice issued on 02/04/2020[1] and BAPM / RCPCH advice issued on the 03/04/2020[2] and 08/04/2020[3] suggested AGPs needed this level of PPE
- It reduces the debate about who needs to wear which PPE and avoids changing PPE midway through stabilising a baby
- It allows the team to focus on providing the standard NLS algorithm for stabilisation without the distractions of additional cognitive load

However, it is worth remembering that COVID-19 is not thought to be vertically transmitted so that it is unlikely there is coronavirus in the newborn lung that could be aerosolised. Although mask CPAP or PPV via a mask to a newborn baby are labelled AGP's it is not clear how much aerosolization they generate.

It is likely to be less than in adults because of lower tidal volumes combined with the fact the neonatal lung does not have much air in it at birth.

There are no reported cases of healthcare professions contacting coronavirus from a newborn baby through resuscitation at birth. Therefore, the risk to neonatal staff, whilst unquantifiable, is likely very low.

3. Which mothers are considered negative?

This should be defined in line with local or national agreement. It may vary according to the incidence of coronavirus in that region at that time. The definition might be by test results or by lack of symptoms and known contacts.

4. What PPE is needed for newborn babies born to asymptomatic mothers who are not suspected/confirmed to be COVID-19 positive?

A plastic apron, FRSM, gloves and eye protection should be worn. The minimum number of staff needed should attend. A separate room to assess the baby is not necessary.

In considering whether mum is asymptomatic it should be remembered that a low-grade temperature in labour is not unusual.

There needs to be a local risk assessment based on how many cases of coronavirus are thought to be in your region. In very high incidence areas teams may choose to move to considering all mothers as potentially positive. This approach needs to be balanced against the needs of other, higher risk, areas of the hospital (e.g. adult ITU) and needs to be a carefully considered decision.

5. Where should assessment, stabilization and/or resuscitation of a newborn baby be carried out if the mother is suspected/confirmed COVID-19 positive?

It should be remembered that mum being suspected or confirmed COVID-19 positive is not an indication for neonatal team attendance. The usual indications for needing a neonatal team should be followed.

The mother poses a greater infection risk to the neonatal team than the baby. Depending on the layout of the delivery area/theatre, it may be better to bring the baby to the neonatal team rather than the neonatal team to the baby. The neonatal team could be in an adjacent clinical room to the delivery room / obstetric theatre if available. If the baby needs stabilization or assessment then they are passed to the adjacent neonatal team. If it is clear at birth that the baby does not need stabilization then the neonatal team never enter the delivery room / obstetric theatre.

If the neonatal team are in the same room as the mother and she has had an AGP in that room (for example intubation for a GA section), then everyone (maternity & neonatal staff) will need long-sleeved FRDG, gloves, FFP and eye protection.

If the baby needs an AGP then staff involved in the procedure will need a long-sleeved FRDG, FFP and eye protection. Given the viral load in the newborn lung

is likely to be nil or extremely low, combined with low tidal volumes the risk of coronavirus transmission to other healthcare professionals in the room who are not carrying out the neonatal aerosol generating procedure and are over 2 metres away from the baby is likely to be negligible. This view is an extrapolation of the limited evidence on neonatal coronavirus, the evidence on droplet spread and evidence on AGPs in a negative pressure theatre environment[4]. There have been no recorded cases globally of healthcare staff catching coronavirus from a newborn baby. A local decision about appropriate PPE for maternity staff should be made in this situation.

6. Should the standard NLS algorithm be used or does it need to be modified?

The standard NLS algorithm should be used. Remember in a COVID-19 suspected/confirmed delivery that the wet towel is potentially contaminated with coronavirus and should be disposed of safely. Evidence for the benefit of early intubation only applies to children and adults and is not relevant to newborn babies.

7. When using the T-piece device is it necessary to have any filter between device and baby?

No – a filter does not prevent mask leak so may not prevent exposure to any aerosols that may be produced. There is no evidence that a filter significantly alters flow delivery should they be used. Additionally, it is unclear whether the flow rate of gas coming out of the baby during use of the T-piece is sufficiently high to be an AGP, although flow is accelerated through the turret valve. Some T-piece systems have a sideways pointing swivel valve so the jet of air out of the valve is directed away from the resuscitator's face; it is worth considering using these.

As COVID-19 is unlikely to be vertically transmitted, there should not be coronavirus in the newborn lung that could be aerosolised.

8. What precautions should be taken if using suction?

PPE should be worn as described in questions 2 and 4. Suction below the cords is considered an AGP.

9. Is there any recommendation on the use of non-invasive respiratory support (CPAP/High Flow) to stabilise babies born to mothers with suspected/confirmed COVID-19 or should they be intubated as a preference?

Respiratory support of newborn babies should follow the standard NLS algorithm. Most babies requiring respiratory support do not require intubation and unnecessary intubation has the potential to be damaging to the neonatal lung. The baby is very unlikely to have COVID-19 related lung disease and the evidence that early intubation is beneficial for COVID-19 related lung disease is limited to older populations.

10. If intubating, should a video-laryngoscope be used?

Where possible, use of a video-laryngoscope should be considered for intubation, by reducing proximity to the baby's airway this may help to reduce exposure to the virus, if it is present. Intubation should only be undertaken by staff with appropriate competencies. Use of such equipment is not always practical in the resuscitation setting in which case usual practice should be followed with PPE precautions. If staff are not familiar with a video-laryngoscope, they should use a standard laryngoscope as this is likely to result in greater intubation success with fewer attempts.

11. Should cuffed tracheal tubes be used?

Although small size cuffed tubes are available, they are not widely used. In the newborn resuscitation setting, with the perceived low incidence of respiratory infection, uncuffed tracheal tubes should be used. It is noted that the use of cuffed tubes in neonates carries a higher risk of causing airway swelling and subglottic stenosis.

12. Is there any difference in precautions for babies delivered by C/S vs vaginally?

Given that vertical transmission is thought to be unlikely there is no difference in precautions for babies born by C/S and vaginally. From a maternal perspective there is a risk of converting ad hoc to a GA section for failed spinal, and diathermy may be an AGP; these factors may influence the PPE worn.

13. What if PPE is in short supply / not available?

PPE recommendations may not be applicable to every clinical environment; where availability of PPE is limited individualized risk/benefit assessments may be needed.

14. When moving babies from delivery suite to the NNU is it necessary to use full PPE, or universal precautions?

Babies born to COVID-19 suspected/confirmed mothers should be transferred in an incubator. Doffing of contaminated PPE needs to be considered. PPE for transfer will be influenced by local factors such as distance and route from labour ward to NNU.

AGPs should be avoided in public areas. For example, in the case of accidental extubation the baby should be ventilated via facemask, T-piece and/or self-inflating bag and intubated in a controlled way with appropriate full PPE on NNU.

Babies born to asymptomatic mothers who are not suspected/confirmed COVID-19 can be transferred as per usual unit protocols, the use of PPE should be a local decision based on the distance and route from labour ward to NNU.

15. Are there any extra precautions around establishing venous access?

Eye protection / standard surgical mask / plastic apron and gloves are sufficient when obtaining venous access in a baby with suspected/confirmed COVID-19.

16. Can babies still be moved on a resuscitaire or should an incubator now be used?

See answer to question 14.

17. Should delayed cord clamping be carried out if the mum has suspected/ confirmed COVID-19?

This is unknown as there have been suggestions that it might either be protective or increase the viral load transferred to the baby. However, given that the baby has been exposed to the inutero environment and placental blood flow for months it seems unlikely that a short period of delayed clamping would increase the risk of infection. If delayed cord clamping is done for a baby who will need ongoing stabilisation, they should not be placed skin to skin with their mother if she is suspected/confirmed COVID-19 positive.

18. What protection should be used for LISA / MIST procedures?

These are AGPs so they should have the same PPE used for intubation (full sleeved gown, gloves, eye protection, FFP3 or equivalent mask) for both the person carrying out the procedure and assistants who have patient contact.

19. Can baby go skin-to-skin with mother after birth if the mother is COVID-19 positive?

If a baby does not need stabilisation or has received stabilisation and been returned to their mother then they can go skin to skin with their mother. If the mother is symptomatic then she should wear a fluid resistant surgical facemask. For a baby that needs stabilisation, assessment takes priority over going skin to skin.

20. Should baby be isolated from mother after birth if the mother is COVID-19 positive?

There are limited data to guide the postnatal management of babies of mothers who tested positive for COVID-19 in the third trimester of pregnancy. Literature from China has advised separate isolation of the infected mother and her baby for 14 days. However, routine precautionary separation of a mother and a healthy baby should not be undertaken lightly, given the potential detrimental effects on feeding and bonding.

Given the current limited evidence, we advise that women and healthy infants, not otherwise requiring neonatal care, are kept together in the immediate post-partum period (RCOG guidelines 2020[5]). Babies of COVID-19 positive mothers should be tested on days 3 and 5 for COVID-19 as per BAPM / RCPCH advice.

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21. What about breastfeeding after delivery?

It is reassuring that in six Chinese cases tested, breast milk was negative for COVID-19, however, given the small number of cases, this evidence should be interpreted with caution. The main risk of breastfeeding for infants is the close contact with the mother, who is likely to share infective droplets. In the light of the current evidence, we advise that the benefits of breastfeeding outweigh any potential risks of transmission of the virus through breast milk. It would be advisable for the mother to wear a fluid resistant surgical mask when breastfeeding. The risks and benefits of breastfeeding, including the risk of holding the baby in close proximity to the mother or another care giver, should they be infected, should be discussed with the parents (RCOG guideline 2020[4])

22. What about care for babies born to COVID-19 positive/suspected mothers on NNU?

Please refer to the guidance BAPM have issued on this topic.[3]

23. Does 'full PPE' include a disposable surgical hat?

PHE guidance did not make reference to wearing a hat. It may be helpful as droplets could end up on hair which is in close proximity to the face. The wearing of a disposable surgical hat is a local decision. If worn care should be taken when doffing as the incorrect removal of both hats and surgical masks are thought to be one mode of coronavirus transmission.

Plastic overshoes are another item of PPE that could be considered and should be decided in line with local or national recommendations.

24. Are neonatal chest compressions an aerosol generating procedure?

Whilst there is not good evidence to answer this question pragmatically the NLS algorithm focuses on airway and breathing so a number of AGPs would be carried out prior to starting chest compressions. Consequently PPE appropriate to the known or suspected COVID status of the mother and the completion of AGPs would already be in place.

References

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2. BAPM / RCPCH webinar 03/04/2020 www.bapm.org.uk

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4. Public Heath England 'Reducing the risk of coronavirus transmission in hospital' (02/04/2020) https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/reducing-the-risk-of-transmission-of-covid-19-in-the-hospital-setting

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