



COVID-19 pandemic

Frequently Asked Questions within Neonatal Services

A BAPM supplement to RCPCH guidance

Updated 10<sup>th</sup> June 2020

This document has been compiled by consensus, taking into account feedback from perinatal professionals and guidance from both RCPCH and RCOG, as well as national cross specialty guidance on personal protective equipment (PPE).

<https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe>

It offers advice on management of specific situations which should be interpreted in conjunction with local and network guidance. The evidence base around SARS-CoV-2 is changing rapidly and guidance is being regularly updated – this version of FAQs supersedes all previous versions and should be read in conjunction with the most recent guidance from other national organisations.

We are grateful for input from Drs David Evans, Liz Whittaker, Cheryl Battersby and Misha Moore, Prof Neil Marlow, Sascha Well-Munro OBE and the team at Bliss as well as feedback from many neonatal colleagues.

We hope that you will find this document useful as you continue to care for babies and families in these unprecedented times; please continue to feedback suggestions for amendments.

Helen Mactier, on behalf of the BAPM Executive Committee

## **Background**

It is currently considered possible, but not proven, that SARS-CoV-2 can be transmitted vertically<sup>(1-4)</sup>. The proportion of pregnancies affected and the significance for the child have yet to be determined. To date, viral RNA has not been detected in amniotic fluid, vaginal secretions or breast milk. In the individual reported cases of possible vertical transmission, viral RNA in the infant's respiratory secretions was not demonstrated before 36 hours of life. ([RCPCH evidence summary](#).)

COVID-19 appears generally to be a fairly minor illness in young infants and may be asymptomatic. Infected infants will, however, be potentially infectious and there are concerns that illness could potentially be more severe in preterm or otherwise immune compromised babies. There is also a significant risk of staff becoming infected.

The risk of transmitting infection is greatly increased by aerosol generating procedures (AGPs); this has particular relevance in neonatal settings, where CPAP and high flow oxygen therapies are commonly used. While it is generally accepted that the combination of low or undetectable viral load and small tidal volumes make AGP in the first day of life very low risk, we agree with national guidance, that full PPE (including a FFP3 mask and eye protection) is utilised whenever a baby born to a symptomatic mother with suspected or confirmed COVID-19 requires resuscitation (including airway suctioning).

Recent data from the US suggest that a significant proportion of asymptomatic pregnant women may be SARS-CoV-2 positive at delivery <sup>(5)</sup>; as the prevalence of COVID-19 increases, individual Trusts are likely to respond by recommending even higher levels of PPE in some situations – you are advised to follow local and/or network guidance.

There is currently no specific treatment for COVID-19 but the [RECOVERY TRIAL](#) is now recruiting neonates – eligible babies are those with severe or critical illness and suspected or proven SARS-CoV-2 infection.

Remember to report all suspected or proven neonatal COVID-19 infection via the [BPSU](#). You are also encouraged to consider participating in any of the other COVID-19 studies currently underway.

For an up to date summary of evidence, visit the [RCPCH website](#).

### **Update to testing:**

As of 27<sup>th</sup> April, NHSE recommended testing all non-elective admissions to hospitals – in conjunction with RCPCH, we have interpreted this to include all mothers admitted in labour, but not all newborns admitted to NNUs. The rationale for this is outlined in [RCPCH guidance](#). Depending on local prevalence of SARS-CoV-2, it may be reasonable to consider testing any baby readmitted from home, even with a non-respiratory condition (e.g. jaundice requiring phototherapy) although the risk of infection from an asymptomatic infant is likely to be very low if appropriate hygiene measures are adopted.

Clinical indications for testing of babies within hospital settings are outlined below; if testing facilities permit, it is reasonable to obtain an additional sample for SARS-CoV-2 PCR from the baby soon after birth when the mother is suspected or proven COVID-19. Early negative samples cannot be considered definitive (and this should be explained to parents at testing) but reporting of test results via the BPSU surveillance system has potential to inform transmission of the virus, and thus future management of affected pregnancies.

While collecting cord blood samples for SARS-CoV-2 IgM and/or IgG may also inform transmission of the virus, these tests are not routinely available, and parent(s) would need to give informed written consent for sample storage.

Following introduction of routine testing of mothers, there are two categories of neonatal admissions, depending on whether the mother is symptomatic or asymptomatic:

### **1) Symptomatic mother with suspected or confirmed COVID- 19**

#### **How do I manage a baby born to a symptomatic mother and who requires respiratory support?**

- Admit to an isolation cubicle or a cohorted area and nurse in an incubator.
- Don PPE appropriate for AGP (including a FFP3 mask) when directly caring for the baby.
- Test for SARS-CoV-2 (PCR) at 72 hours and again on day 5, whether or not a sample was obtained soon after birth. If the baby's condition deteriorates, or the respiratory disease is considered atypical after 24 hours of life, the baby should be screened earlier for COVID-19.
- Send nasopharyngeal aspirate or ET secretions, rather than a throat swab.
- Consider methods to reduce viral spread into the NNU including placing the expiratory limb of the CPAP into the incubator.
- The baby should be considered potentially infectious for up to 14 days. Once they no longer require AGPs, standard PPE (gloves, apron and FRSM with eye protection if risk of splashing) would be appropriate, but the baby should remain in isolation for 7 days and be nursed in an incubator until day 14.

**Mother:** the mother (and her partner) should not attend the NNU until she has tested negative or until 7 days after the onset of her symptoms and she is symptom free.

**Partner:** If the partner is asymptomatic, he/she will need to self-isolate for 14 days from the onset of the mother's first symptoms before attending the NNU.

**Skin to skin contact** should generally not be permitted while the infant requires on-going respiratory support and is still potentially infectious, but may be considered in exceptional circumstances, e.g. end of life care. In this case, unless the mother has tested negative or more than 7 days have elapsed since the onset of her symptoms and she is now symptom free, she will require to wear a fluid resistant surgical mask (FRSM) (to protect both the baby and staff members). The risks of skin to skin contact and whether the mother may be fully immune are not known so holding the baby while wearing appropriate PPE may be preferred. Other family members who are not known to have been infected with SARS-CoV-2 should be offered the opportunity to wear a FFP3 mask after fitting and appropriate training, to protect themselves while the baby is still potentially infectious.

## **How do I manage an asymptomatic baby born to a symptomatic mother with suspected or confirmed COVID-19 who requires admission to NNU but does not require respiratory support?**

- Admit to an isolation cubicle or a cohorted area and nurse in an incubator.
- If the mother tests negative, the baby should be nursed thereafter as normal.
- If the mother is confirmed positive or while her tests are outstanding, there is no indication for routine testing of asymptomatic babies, but if resources permit, testing the baby (PCR) at 72 hours and again on day 5 (throat and nasal swab) may help to delineate the natural history of COVID-19 in the newborn. Test the baby if they become symptomatic (fever/temperature instability and/or respiratory distress).
- Use standard PPE for routine baby cares (gloves, apron and FRSM). Eye protection if risk of splashing.
- If the baby is asymptomatic at 72 hours, they can be moved out of an isolation room but should remain in an incubator for 14 days or until discharge, whichever is sooner. If there is a deterioration, include Sars-CoV-2 respiratory PCR testing and consider isolation if respiratory support is required.

***Skin to skin contact*** can be undertaken from 7 days after the onset of mother's symptoms if she is well. Other family members will commonly be self-isolating – if they have recovered from COVID-19 or completed 14 days' self-isolation they may undertake skin to skin contact.

***Discharge:*** If the baby is well enough to be discharged from the NNU, they may be accommodated in an isolation room in the postnatal ward with their mother, or sent home to continue isolation, as clinically appropriate and with appropriate safety netting advice.

## **2) Asymptomatic mother who has undergone routine testing**

- ***Mother tests positive***
  - The infant should be tested, isolated and managed according to the guidance above for infants born to symptomatic suspected or confirmed COVID-19 positive mothers.
- ***Mother's test is awaited***
  - The management will depend upon the local prevalence of SARS-CoV-2 infection, but an asymptomatic mother is unlikely to be highly infectious.
  - Baby without respiratory distress – no need to isolate, but if facilities permit, it would be reasonable to place them in a cohort room with other infants whose mothers are awaiting test results. Nurse in an incubator and monitor for signs of COVID-19. If the infant develops signs, or if the mother's test result is reported as positive, they should be isolated and tested (see guidance in preceding sections).
  - Baby who requires respiratory support (AGP)

- In this situation the risk of the baby being infected/infectious is very low. It is reasonable not to isolate the baby, but simply to nurse in an incubator and to use standard PPE. In areas where the prevalence of SARS-CoV-2 is high, or when the mother has a confirmed COVID-19 contact, Trust guidelines may mandate that the baby is isolated and full PPE worn.
  - Every effort should be made to ascertain the maternal test result as soon as possible.
- **Mother tests negative**
  - No need to isolate.
  - Even if baby meets the case definition by virtue of requiring early respiratory support for an anticipated non-COVID-19 respiratory pathology (e.g. RDS), there is no need to test and isolate. Use standard PPE for non-COVID-19 suspected patient as per Trust guidelines.
  - If there is subsequently clinical concern that an infant is not following a typical clinical course for an anticipated non-COVID-19 respiratory pathology, or that the mother has developed symptoms, both the mother and infant should be tested.
  - Remember to also investigate and treat for non-COVID-19 pathologies (e.g. sepsis).

### **How do I manage a baby confirmed COVID-19 positive, regardless of respiratory status?**

- Admit to an isolation cubicle or a cohorted area and nurse in an incubator.
- For babies not receiving respiratory support, standard PPE (gloves, apron and FRSM) with eye protection if risk of splashing of any body fluids; minimise handling as far as possible with clustered cares.
- Full PPE for AGPs (includes CPAP and high flow therapy).
- In the event of acute collapse, full PPE should be donned before undertaking intubation. If the baby does not respond to airway positioning manoeuvres and facial oxygen it would be reasonable to undertake bag mask ventilation wearing standard PPE with the baby in the incubator, whilst waiting for other staff to don full PPE.
- The value of retesting has not been fully assessed – if the baby is asymptomatic and at least 7 days from onset of symptoms it would be reasonable to move out of an isolation room, but the baby should be kept in an incubator for 7 days more (i.e. a total of 14 days) with use of standard PPE.
- If the tests on day 3 and 5 are positive and the requirement for respiratory support continues beyond 14 days, infants should remain in isolation whilst receiving any respiratory support that is classified an AGP, until they have had two negative PCR tests, performed at twice-weekly intervals. Following two negative PCR tests, they can be moved out of isolation, but they must remain in an incubator whilst requiring any AGP.

***Skin to skin contact*** should generally be avoided while the infant requires ongoing respiratory support but may be considered in exceptional circumstances – see under

“baby born to a mother with suspected or confirmed COVID-19”. If the mother or her partner have not had COVID-19 they should be offered full PPE including a FFP3 mask, after fitting and appropriate training.

**Discharge:** If the baby is well enough to be discharged from the NNU, they may be accommodated in an isolation room in the postnatal ward with their mother, or sent home to continue isolation, as clinically appropriate and with appropriate safety netting advice.

## **How do I manage a well baby in the NNU who has had postnatal contact with a suspected or confirmed case of COVID-19?**

- Postnatal contact is defined as physical contact (within 2 m) of at least 15 minutes' duration with a parent or carer who develops suspected or confirmed COVID-19 within the following 24 hours. It also includes being in the same room in an open cot for at least two hours with a symptomatic individual (parent, carer or other baby). If the contact was wearing a face mask or face covering and was asymptomatic the risk is probably very low.
- Test potential source for COVID-19 – if negative, no further action (as long as baby is asymptomatic). If symptoms persist and likely to represent COVID-19, consider a repeat test.
- If source is positive or indeterminate and the infant is asymptomatic (on NNU for non- respiratory reasons or improving respiratory status with anticipated non-COVID-19 pathology), they pose little risk of infection and do not require to be tested. It would be prudent to consider nursing them in an incubator and observing for signs of respiratory distress or other features that might suggest neonatal COVID-19 for the next 14 days (or discharge, whichever occurs first). If the baby develops signs, they should be tested and isolated.

**Skin to skin contact** is permissible with either parent (or both parents) if they are not the suspected or confirmed contact and should be encouraged in the usual way.

## **When should I consider COVID-19 in a baby who deteriorates whilst receiving neonatal care?**

- Many of the signs of COVID-19 such as temperature instability, increase in oxygen requirement or respiratory distress are similar to signs which might be seen in preterm or sick term babies on neonatal units and screening all babies with these signs could create significant problems trying to isolate or segregate babies. We suggest considering screening for COVID-19 any symptomatic baby who has a known contact with someone who has or may have COVID-19, or any baby who displays a clinical course which is unusual or different from that normally seen. In areas of high prevalence the threshold for screening should be lower.
- Screen and isolate as per baby of a mother with suspected or confirmed COVID-19.

## **What about a well baby in the postnatal ward with a mother with suspected or confirmed COVID-19?**

- If the baby is asymptomatic, standard PPE (gloves, apron and FRSM).
- The NIPE is not an AGP (including inspection of the palate). Full visualisation of the palate should be undertaken as normal, using a tongue depressor if required.
- Mother should be advised to wear an apron and a mask when feeding baby, and to practise good hand hygiene. Breast feeding is permitted. If the mother is coughing she should be wearing a FRSM.
- The management will be the same for a well baby born to an asymptomatic mother whose test result is not known – standard PPE and no need to test the baby.

**Discharge:** Early discharge if mother well – ensure as many routine procedures as possible are undertaken before discharge, and/or that mechanisms are in place for prompt review in the community. Provide good safety-netting advice. The baby should be considered potentially infectious for 14 days from birth.

## **What are considered aerosol generating procedures (AGPs)?**

- All means of respiratory support, including high flow oxygen therapy (> 2 L/min) and open suctioning of the upper respiratory tract.
- During administration of nebulised medication, the aerosol derives from a non-patient source (the fluid in the nebuliser chamber) and does not carry patient-derived viral particles so this is not an AGP.
- Insertion of a nasogastric tube is not an AGP.

## **What about older ex-preterm babies with Chronic Lung Disease?**

- While there is no evidence to inform practice, it seems prudent that these babies should be nursed in an incubator, or in an isolation cubicle if possible. Parents should be encouraged to practise the strictest hand hygiene, to report any possible symptoms of COVID-19 and to self-isolate immediately in the event of any symptoms developing.
- Discharge on home oxygen should be facilitated if practical, with good safety-netting advice.

## **How do we manage provision of expressed breast milk (EBM) in the NNU?**

- To date viral RNA has not been detected in breast milk of COVID-19 confirmed mothers. The database is, however, small. The main risk of breastfeeding for the infant is the close contact with the mother, who is likely to share infective airborne droplets. Current national advice for well babies of COVID-19 suspected or confirmed mothers is that the benefits of breast feeding outweigh any theoretical risks.
- For unwell or preterm babies in the NNU the evidence is less clear.

- Practitioners should discuss with parents the pros and cons of provision of EBM to babies in the NNU, noting the current uncertainty. A joint decision should be informed by factors including the gestation and clinical condition of the baby, transfer of protective maternal antibodies, the availability of donor breast milk and parental choice. Other coronaviruses are destroyed by pasteurisation.
- COVID-19 positive mothers who are expressing milk must be facilitated to practise excellent hand hygiene, and care taken to ensure that bottles containing EBM are not externally contaminated. The virus is deactivated by chlorine disinfectants. EBM of COVID-19 suspected or positive mothers should be stored in a separate fridge or freezer from that of non- suspected or infected mothers. NNUs should have clear guidelines around handling, storage and use of EBM in these circumstances and suspected/infected mothers should have exclusive use of a breast pump.
- If it is decided to withhold mother's own breast milk, the mother should be encouraged to express and discard her milk, to maintain lactation until she is no longer infectious (7 days after onset of symptoms). Repeat testing of mother is not necessary. Parents should be signposted to appropriate feeding and emotional support during this period and reassured that breastfeeding can still take place after a period of using donor breast milk / formula if lactation is maintained.
- Consider testing a sample of EBM for SARS-CoV-2 once lactation is established as this may help with future understanding of this virus.

## How should we manage visitors to the Neonatal Unit and/or Transitional Care Unit (TCU)?

We recognise that many Trusts and NNUs have felt it necessary to reduce visiting in the current pandemic. This reflects a need to protect staff as well as babies and families in our care. Besides reducing infection risk, there are some advantages to fewer visitors, including potentially more time for staff to spend caring for the mother and her partner.

Neonatal services present a unique situation in terms of "visitors" and it is essential that the mother and her partner are *never* considered to be visitors within the neonatal unit – they are partners in their baby's care, and their presence should be encouraged ([See Bliss statement.](#)) The mother and her newborn are a biological entity and should have unrestricted contact when admission to a NNU is unavoidable.

In order properly to involve parents in decision making about their baby's care, neonatal units should identify how to facilitate their presence at all times of day, including on ward rounds, while maintaining social distancing within the NNU. The benefits of extended parental contact, including skin to skin care and active involvement in their baby's care are well documented, as are the long established advantages of breast feeding. At such a stressful time, it is important for both parents to be able to be present together, at least for part of the day, unless such practice would be clearly detrimental to other babies and/or staff in the NNU or TCU.

Parental vulnerability may be heightened by the current pandemic; remember to signpost parents to available resources for support. The importance of working in cooperation with maternity services to ensure maternal well-being cannot be over emphasised.



- It would generally not be appropriate for COVID-19 positive or self-isolating parents to attend the NNU or TCU – in such circumstances every effort should be made to facilitate remote contact by use of video technology and/or social media.
- The same arrangements for testing should be offered to parents as are applied to staff, in order to minimise unnecessary separation. This includes testing of symptomatic parents and testing of suspected contacts.
- An asymptomatic mother who is awaiting the result of routine SARS-CoV-2 admission screening should usually be allowed to attend her baby in the NNU and to provide skin to skin care (see guidance under testing of asymptomatic mothers).
- Units should have clear policies on the use of PPE for both parents and staff, and this should include consideration of full PPE for parents (with appropriate training) in some situations such as unstable ventilated babies or during end of life care when the baby has tested positive. It seems sensible that SARS-CoV-2-negative parents should wear the same PPE as staff caring for their baby.
- For babies receiving palliative or end-of-life care, everything possible should be done to achieve parental presence and participation in cares, even for COVID-19 positive parents.
- Other family members facilitating parental attendance should wear face masks or face coverings as per national guidance if they require to be within the hospital building.

### **What advice should I give to parents taking their baby home?**

- Both NHS England and the Scottish Government have published parental information leaflets which should be offered to parents before they leave the NNU or postnatal ward. These are available on line.
- It is important to reassure parents that their baby is extremely unlikely to become unwell with COVID-19, but that they could become unwell for a host of other reasons. Parents should be encouraged to seek advice early if they have any concerns whatsoever; in the case of a baby recently discharged from the NNU this advice would probably best come from the NNU team in the first instance.

[Link to leaflets](#)

#### References

1. Zeng L, Xia S, Yuan W, Yan K, Xiao F, Shao J, Zhou W. Neonatal Early-Onset Infection With SARS-CoV-2 in 33 Neonates Born to Mothers With COVID-19 in Wuhan, China. *JAMA Pediatr*. Published online March 26, 2020. doi:10.1001/jamapediatrics.2020.0878
2. Zeng H, Xu C, Fan J, Tang Y, Deng Q, Zhang W, Long X. Antibodies in Infants Born to Mothers With COVID-19 Pneumonia. *JAMA*. Published online March 26, 2020. doi:10.1001/jama.2020.4861
3. Dong L, Tian J, He S, Zhu C, Wang J, Liu C, Yang J. Possible Vertical Transmission of SARS-CoV-2 From an Infected Mother to Her Newborn. *JAMA*. Published online March 26, 2020. doi:10.1001/jama.2020.4621

4. Kimberlin DW, Stagno S. Can SARS-CoV-2 Infection Be Acquired In Utero? More Definitive Evidence Is Needed. JAMA. Published online March 26, 2020. doi:10.1001/jama.2020.4868
5. Sutton D, Fuchs K, D'Alton M, Goffman D. Universal Screening for SARS-CoV-2 in Women Admitted for Delivery. NEJM. Published online April 13, 2020. DOI: 10.1056/NEJMc2009316