COVID-19 - guidance for neonatal settings

Health Policy team
This page provides guidance for neonatal settings. It has been produced with the British Association of Perinatal Medicine (BAPM).
Status
Partnership

Last modified
9 April 2020

Post date
8 April 2020

Table of contents

General principles

You may find it helpful to give new parents the NHS leaflet on illness in newborn babies (PDF)

, which gives information on how to keep the baby safe and healthy, and the leaflet on coronavirus (PDF), which tells parents what to look out for and how to reduce the risk of their baby catching COVID-19.

It is currently considered possible, but not proven, that SARS-CoV-2 can be transmitted vertically. The proportion of pregnancies affected and the significance for the child are 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.

The newborn may become infected after birth, either from their mother, another family member or within the hospital setting. 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.

In older children and adults, 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.

Due to a combination of likely low or undetectable viral load (even if the baby is infected) and small tidal volumes, resuscitation of the newborn, although an AGP, is not considered to carry a high risk of infection. Given the rapid increase in prevalence of COVID-19 infection, and understandable concerns expressed by both medical and midwifery staff, RCPCH fully supports the recent national recommendation for use of full personal protective equipment (PPE) (including a FFP3 mask) in resuscitation of newborns born to COVID-19 suspected or confirmed mothers. In some cases, particularly when the prevalence of COVID-19 is high, Trusts may recommend that full PPE is worn by persons attending all deliveries, even if the mother is asymptomatic.

We recommend that, whenever possible, a cord blood sample is obtained for COVID-19 IgM and IgG in all cases where the mother has suspected or confirmed COVID-19 – while this is not currently able to be processed in a clinically useful timescale, storage and future analysis of samples will greatly help with understanding of transmission of this virus.

Maternal admissions

- Women with proven or suspected COVID-19 who require admission for midwifery care should be admitted to a dedicated room in the labour suite or directly to an obstetric theatre if immediate emergency management is required.
- The neonatal team should be informed as soon as possible of this admission and the resuscitaire and room equipment should be checked before the mother enters the room.
- Intubation of the mother for a GA Caesarean section is a significant aerosol generating procedure (AGP); the use of Entonox and maternal pushing during labour are not considered AGPs.
- Suctioning, bag mask ventilation and intubation of the newborn are AGPs, although the absolute risk to health care workers performing these manoeuvres on newborn infants is thought to be low.
- Commonly used equipment for neonatal resuscitation and stabilisation should be

readily available (eg located in disposable grab bags) to avoid taking the full resuscitation trolley into the room unless required.
- A dedicated pulse oximeter should be located on the resuscitaire to avoid moving equipment in and out of the delivery room unnecessarily.
- The appropriate Personal Protective Equipment (PPE) must be worn by any person entering the room and only essential staff should be present in the delivery room/theatre.
- All women with confirmed or suspected COVID-19 should have continuous cardiotocography monitoring in labour.
- There is no evidence to suggest that steroids for fetal lung maturation cause any harm in the context of COVID-19. Steroids should therefore be given to mothers anticipating preterm delivery where indicated and urgent delivery should not be delayed for their administration (as normal practice).
- MgSO4 should be given for neuroprotection of infants < 30 weeks' gestation as per current guidance.
- Deferred cord clamping is recommended provided there are no other contraindications.
- The baby can be dried as normal while the cord is still intact. In the case of a preterm baby, standard thermoregulatory measures including the use of a plastic bag should be used.

Neonatal team attendance in labour suite

- A designated member of the neonatal team should be assigned to attend suspected/confirmed COVID-19 deliveries, if required. It is important that any neonatal staff attending have the required capabilities to deal with anticipated likely complications, to minimise staff exposure. Local units should make their own arrangements for designating staff, but more senior involvement may be required than is usual for the type of delivery.
- PPE should be donned in an adjacent room and the team member should wait outside the delivery room, ready to be called in should the baby require any intervention(s).
- If it is anticipated that the baby will require respiratory support, appropriately skilled neonatal team members should be present at delivery and wearing PPE.
- Neonatal resuscitation/stabilisation should proceed as per current NLS / ARNI guidance.
- If additional equipment is required, this can be passed to the team by a 'clean' staff member outside the room.
- Guidance is available on safe transfers between departments, but neonates should be transferred in a closed incubator if on respiratory support. Where possible, all procedures and investigations should be carried out in the single room with a minimal number of staff present.

Term or late preterm baby born in good condition

- Well babies born to suspected/confirmed COVID-19 mothers and who do not require medical intervention should remain with their mother in their designated room. See RCOG guidance for more detail.
- Current guidance is that well babies of COVID-19 positive mothers should only be tested if unwell.

- If the mother needs assistance in caring for her baby this would usually be provided by the attending midwife – when a mother is acutely unwell, an alternative non-quarantined carer/relative should be identified to provide care for the baby at home or in a designated room not in the neonatal unit (NNU). In the latter case the baby should be isolated from their mother.
- Appropriate PPE should be used by all healthcare personnel, both when attending the mother and when examining or caring for the baby.
- NIPE should be completed before discharge – this is not an AGP and visualisation of the soft palate should be performed as usual.
- Where appropriate, early discharge of the baby with a parent or carer, including safety netting advice should be facilitated. This will require close liaison with community midwifery services. The family should be advised to self isolate with the baby for 14 days from birth.

Term or late preterm baby requiring additional care

- Well babies born to suspected/confirmed COVID-19 mothers and who require additional care (eg intravenous antibiotics) should be assessed in the labour ward and a decision made as to whether additional care can safely be provided at the mother's bedside. Avoid NNU admission if possible and safe.
- Babies requiring admission to the NNU should be assessed in a designated area in the NNU by an appropriately skilled neonatal team member wearing appropriate PPE.

Transfer to NNU

- Public Health England has provided guidance on transfers to other departments.

Management on NNU

- For babies born to suspected/confirmed COVID-19 positive mother who require to be admitted to the NNU, clinical investigations should be minimised while maintaining standards of care. Senior input is recommended when deferring routine investigations and in prioritisation of work. Consider ways to reduce unnecessary investigations – eg use of point of care testing.
- Although the risk of transmission from AGPs within the first 24 hours after birth is thought to be low, staff should follow guidance regarding use of appropriate PPE, even in an emergency.
- All babies requiring respiratory support should be nursed in an incubator.
- In-line suction with endotracheal tubes should be used when staff are familiar with this.
- The use of a video-laryngoscope should be considered for intubation when available, as this might facilitate keeping the baby within the incubator. Reducing proximity to the baby's airway may also help to reduce exposure to the virus. Intubation should only be undertaken by staff with appropriate competencies.
- Remember that CPAP and high flow therapies (>=2 l/min) are AGPs and their use will necessitate full PPE including FFP3 masks. The expiratory limb of the CPAP circuit should be placed in the incubator whenever possible.
- With the exception of the need for FFP3 masks, management of the baby's respiratory illness should be the same as if they were not potentially exposed to COVID-19. The

evidence in favour of early intubation is limited to adults and older children.
- All equipment coming out of the isolation room should be cleaned as per Trust COVID-19 cleaning policy.
- A register must be kept of all staff entering the room.
- PPE required for suspected or confirmed cases of COVID-19 being cared for within neonatal services

PPE required for suspected or confirmed cases of COVID-19 being cared for within neonatal services

This guidance should be read in conjunction with nationally agreed recommendations for PPE for care of women with known or suspected coronavirus in labour and for personnel working in intensive care settings.

Appropriate PPE requirements are determined largely by the presence or absence of AGPs.

Within a neonatal context, these would include:

- Intubation, extubation and related procedures eg manual ventilation and open suctioning of the respiratory tract (including the upper respiratory tract). Less invasive administration of surfactant (LISA).
- Tracheotomy/tracheostomy procedures (insertion/open suctioning/removal)
- Non-invasive ventilation (NIV) eg Bi-level Positive Airway Pressure Ventilation (BiPAP) and Continuous Positive Airway Pressure (CPAP)
- High Frequency Oscillatory Ventilation (HFOV)
- High flow nasal oxygen (HFNO)

Note: 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.

Note: PHE currently are reviewing the list of aerosol-generating procedures.

Labour ward

Performing a single aerosol generating procedure if suspected or confirmed COVID-19 in mother:

Disposable gloves	**Disposable plastic apron**	**Disposable fluid-resistant gown**	**Fluid-resistant (Type IIR) surgical mask**	**Filtering face plate (FFP3) respirator**	**Eye protection**
Single use		Single use		Single use	Single use

Attending a delivery to review a newborn not requiring respiratory support and no AGP performed on mother or baby (eg counselling mother immediately before delivery or reviewing following delivery):

Disposable gloves	**Disposable plastic apron**	**Disposable fluid-resistant gown**	**Fluid-resistant (Type IIR) surgical mask**	**Filtering face plate (FFP3) respirator**	**Eye protection**
Single use	Single use		Single use		Risk assessed*

*likelihood of splashing

NNU Intensive and High Dependency Care

Working in intensive care or high dependency areas, where there are suspected or confirmed cases and respiratory support meets the definition of an aerosol generating procedure (AGP) (eg IPPV, nCPAP, etc.):

Disposable gloves	**Disposable plastic apron**	**Disposable fluid-resistant gown**	**Fluid-resistant (Type IIR) surgical mask**	**Filtering face plate (FFP3) respirator**	**Eye protection**
Single use		Sessional use		Sessional use	Sessional use

Notes:

- **Single use** refers to disposal of PPE or decontamination of reusable items, eg eye protection or respirator, after each patient and/or following completion of a procedure, task, or session; dispose or decontaminate reusable items after each patient contact as per Standard Infection Control Precautions (SICPs).
- **Sessional use** refers to the use during a period of time where a health care worker is undertaking duties in a specific care setting/ exposure environment, eg on a ward round; providing ongoing care for inpatients. A session ends when the health care worker leaves the care setting / exposure environment. Sessional use should always be risk assessed and considered where there are high rates of hospital cases. PPE should be disposed of after each session or earlier if damaged, soiled, or uncomfortable.

NNU Low Dependency areas and Post-natal wards

Working in lower dependency inpatient areas (no AGPs) with suspected or confirmed cases - direct patient care (within 2 metres):

Disposable gloves	Disposable plastic apron	Disposable fluid-resistant gown	Fluid-resistant (Type IIR) surgical mask	Filtering face plate (FFP3) respirator	Eye protection
Single use	Single use*		Sessional use		Risk assessed**

*if the apron is too small to protect the uniform from splashing, then a full surgical gown should be used - either a fluid resistant gown or a non-fluid resistant gown plus an apron.

**likelihood of splashing

If an infant is in a lower dependency area but their condition deteriorates such that they require respiratory support (AGP), the staff caring for the infant need to don the appropriate PPE (see Intensive and High Dependency areas, above). In the event of acute collapse, requiring urgent airway / respiratory support, full PPE should be donned before undertaking intubation. It would be reasonable to undertake bag mask ventilation wearing a fluid-resistant (Type IIR) surgical mask, with the baby in an incubator, while waiting for other staff to don full PPE (FFP3).

Infants whose mothers are not suspected of having COVID-19

The PHE guidance allows individual hospitals to set PPE requirements for staff caring for patients who are not suspected of having COVID-19; the requirements will vary between hospitals and is dependent upon the extent of local sustained transmission of COVID-19, taking into account individual risk assessment for this new and emerging pathogen (see Table 4, under ‘NNU Low Dependancy areas and Post-natal wards’).

Transport

- Transfers of babies should be limited to a minimum.
- Level 2 units should endeavour to keep the vast majority of their babies as per network escalation policies.
- Exposure to COVID-19 in itself is not a reason to transfer.
- The Neonatal Transport Group is considering guidance.

Testing and isolation of infants

General principles

- Performing nasal swabs on asymptomatic infants may result in false negatives, and the optimal timing of testing is unclear.
- Asymptomatic infants, even if positive, are unlikely to transmit the virus, providing

everyone adheres to basic hygiene measures.
- Viral RNA may be detectable in stools for several weeks, but this does not mean that the faecal material is necessarily infective; providing carers adhere to basic hygiene measures, the risk is not thought to be significant.
- The ability to test and the ability to isolate potentially infected infants are likely to be limited. The described approach is therefore risk-based, realising that many risks are inferred, rather than known.
- Recommendations may change as testing capacity increases and we have more precision around estimating risks of transmission.

NNU admissions

- Infants of COVID-19 infected or suspected mothers should be isolated on admission to the NNU
- They should not be routinely tested unless they display signs or symptoms fitting the case definition.
- **Note:** newborn infants may not show all the features of an influenza-like illness, particularly a fever, so clinicians should have a high index of suspicion in all infants admitted to NICU and monitor for signs of respiratory illness during the admission.
- Infants of non-suspected COVID-19 mothers who admitted for reasons other than respiratory distress do not need isolating, but they must be monitored for signs of COVID-19 during their admission (see case definition and note, above). If they develop signs, they should then be isolated and tested.
- If infants meet the case definition only by virtue of requiring respiratory support for an anticipated non-COVID-19 respiratory pathology (eg respiratory distress syndrome), they should be tested after 72 hours of age, to avoid potential early false negative results. We suggest testing again on day 5 before declaring non-infected.
- If there is clinical concern that an infant is not following a typical clinical course for an anticipated non-COVID-19 respiratory pathology, they should be tested that day.
- Remember to also investigate and treat for non-COVID-19 pathologies (eg sepsis).
- Infants awaiting test results can be cohorted in the same isolation room, provided they remain in incubators, as airborne transmission is not currently thought to be a major mechanism of transmission in this clinical context.

When to move out of isolation

- Infants can come out of isolation providing: the tests on day 3 and 5 are negative; the infant is no longer symptomatic; and no longer requires respiratory support.
- Continue to isolate known COVID-19 positive infants until their symptoms resolve and they no longer need respiratory support; they can then be allowed out of isolation but must remain in an incubator and monitored for respiratory signs and symptoms for 14 days in total from exposure. During this period, staff caring for the infant should wear appropriate PPE for NNU Low Dependency areas. If they subsequently require respiratory support, they should return into isolation and be retested.
- Preterm infants can require lengthy respiratory support by virtue of their prematurity. If they are also COVID-19 positive, it would be permissible to move them out of isolation after 14 days, despite needing continued respiratory support, providing they are stable, with a clinical time course consistent with a non-COVID-19 respiratory pathology (eg RDS). The reliability of repeatedly testing for COVID-19 has not been established. If they are moved out of isolation, they must remain in an incubator while on respiratory

support. During this period, staff caring for the infant should wear the appropriate PPE for NNU Low Dependency as a minimum; it may be appropriate to require staff to wear appropriate PPE for NNU Intensive and High Dependency care (FFP3 on a sessional basis) if the prevalence of suspected or confirmed COVID-19 cases for that NNU is high (see PHE guidance – Table 4). If the baby deteriorates and require increasing levels of respiratory support, they should return into isolation and be retested.
- COVID-19 suspected or confirmed mothers should not visit the NNU until symptom free and at least 7 days after onset of their illness.

Postnatal contact on NNU with confirmed COVID-19 case

- 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.

Breastfeeding by COVID-19 suspected or confirmed mothers

- Viral RNA has not, to date, been detected in breast milk of COVID-19 confirmed mothers. The dataset is, however, small.
- 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.
- Breastfeeding and formula feeding by the mother is permissible, but mothers should be advised regarding hand washing and should wear a fluid-resistant (Type IIR) surgical mask (FRSM) while handling the baby.
- Practitioners need to make a balanced decision around provision of expressed milk to babies in the NNU. This decision should be informed by factors including the gestation and clinical condition of the baby, the availability of donor breast milk and parental choice. Other coronaviruses are destroyed by pasteurisation. Further information is available from in the European Milk Bank Association position statement.
- COVID-19 positive mothers who are expressing milk must be facilitated to practice excellent hand hygiene, and care must be taken to ensure that bottles containing EBM are not externally contaminated. EBM of COVID-19 suspected or positive mothers should not be stored with EBM from non-infected mothers. Mothers should have a designated breast pump for exclusive use. NNUs should have clear guidelines around handling, storage and use of EBM in these circumstances.
- 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.

Newborn screening

- Newborn Infant Physical Examination (NIPE) should be completed prior to discharge for all babies. This is not considered an AGP including, if necessary, use of a tongue depressor to facilitate inspection of the palate.

- Newborn Blood Spot (NBS) screening should take place as usual
- Audiology screening should continue in maternity units and on the NNU if staffing resources permit.
- The ability to perform investigations and tests once the infant has left hospital will be restricted - eg newborn hearing screening in the community, bringing infants back for echocardiograms, etc. Thus, where possible, investigations and tests should be performed before discharge from the maternity or neonatal unit. Maternity units should aim to maintain sufficient staffing in order to perform the necessary screening before discharge.

Managing neonatal unit capacity

- It is anticipated that NNU capacity may become problematic either due to cot capacity or staff availability. Individual units should have agreed staffing plans when optimal staffing plans cannot be achieved.
- Cohorting of confirmed positive cases may be necessary and should follow local guidance.

Parents and visitors to NNU

- COVID-19 positive parents should not visit their baby on the NNU until 7 days after the onset of illness and they are asymptomatic.
- Partners of COVID-19 positive mothers must still adhere to the current advice from PHE regarding self-isolation, and the hospital policy regarding visiting the maternity wards and NNU, except under exceptional circumstances, to be discussed with local infection control
- No other visitors (including siblings) should be allowed to visit infants in NNUs, except under exceptional circumstances.
  NHS England has guidance on visitors to inpatients, outpatients and diagnostics.
- Visits from other NHS staff and personnel to the NNU should be kept to a minimum – consider opportunities for remote meetings.
- Units should seek to mitigate loss of family contact with video techniques.

Neonatal discharge and follow up

- All measures aimed at early discharge from the NNU should be upscaled and visits by community liaison staff to the NNU kept to a minimum.
- Consider telephone / video consultations for neonatal follow up, where possible, to avoid vulnerable infants with chronic lung disease, etc., attending clinics.
- Advice should be provided to parents of those infants at increased risk (eg immunocompromised, chronic lung disease, cardiac disease) about reducing risk of infection (reduce social contact, handwashing) and interventions aimed at preventing other diseases (eg immunisations) should be optimised.
- Parents who telephone NNUs for help should receive experienced advice, with the aim of minimising direct contact with either neonatal or paediatric services.

Staff wellbeing

- There is no need for staff to self-isolate after looking after a suspected or confirmed case of COVID-19 if correct PPE precautions have been taken.
- Any staff concerns regarding contact with a possible case should be discussed with local occupational health departments.
- If/when redeployment of staff is necessary, this must be agreed at senior level and staff appropriately supervised and supported. See supportive doctors guidance and advice from HEE.

Notes on this guidance

This guidance has been produced with the British Association of Perinatal Medicine (BAPM).

An FAQ document from BAPM was published on 8 April 2020. It has been developed according to feedback from perinatal professionals and offers advice on the management of specific situations, supplementing this RCPCH / BAPM guidance. It should be interpreted in conjunction with local and network guidance.

Latest updates to this page

Updates in this version (published 9 April):

- Links added the NHS leaflets on illness in newborn babies and coronavirus information for parents.

Updates in version published 8 April:

- BAPM FAQ document added.