COVID-19 - guidance for paediatric services

Health Policy team
This guidance has been prepared to provide members / health professionals working in paediatrics and child health with advice around the ongoing outbreak of COVID-19. It also provides signposts and links to further information developed by national bodies.

This guidance will be updated on a regular basis as new data becomes available. We will work with others to bring together the best available information. Advice and guidance should be used alongside local operational policies developed by your organisation.

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Preparing for COVID-19

- Understand the current advice from PHE on which patients should go to hospital, and who should stay at home and advise accordingly.
- It is important that staff are familiar with local operational procedures and are appropriately trained. For example:
    - Staff should be aware of the location where possible cases will be isolated and who to contact in their organisation to discuss possible cases.

    - Guidelines on the use of Personal and Protective Equipment are changing frequently and health professionals should regularly review updated guidance
    - Staff involved in assessing or caring for confirmed cases of COVID-19 should be trained in using a FFP3 respirator and that fit testing has been undertaken before this equipment is used
    - Staff caring for children with confirmed COVID-19 or undertaking aerosol generating procedures should be trained in the safe donning and removal of PPE
    - Planning for cohorting should be undertaken as soon as possible to ensure criteria for groups are established. Cohorting should be for established diagnosis.
- Public Health England (PHE) has produced guidance for health professionals in advising the public
- NHS Inform has produced information for professionals advising the public

Occuptional Health

- It is important that health professionals should not attend a healthcare setting if there is a risk they could spread COVID-19 in line with current PHE guidelines.
- Any staff involved in care of possible cases should be given emergency contact details if they develop COVID-19 compatible symptoms while away from the hospital.
- PHE has produced guidance for health care providers about their staff
- Health Protection Scotland has provided guidance for health care providers about their staff for Scotland
- Health Protection Scotland have included guidance for household members of health care staff in their health care providers guidance
- Health professionals should seek advice from occupational health, concerned or have other underlying health conditions. Older people, and people with pre-existing medical conditions (such as asthma, diabetes, heart disease) are more likely to become severely ill with the virus. Health professionals should seek advice from occupational health if they are pregnant or concerned that they are vulnerable to COVID-19 infection.
- Guidance for health professionals is being reviewed on a regular basis

COVID-19 infection in pregnancy

Guidance for healthcare professionals on Coronavirus (COVID-19) infection in pregnancy, published by the RCOG, Royal College of Midwives, Royal College of Paediatrics and Child Health, Public Health England and Health Protection Scotland.

Working in neonatal settings

British Association of Perinatal Medicine

Clinical presentation: Pregnant women, unborn children and neonates

There are a limited number of cases reported to date where pregnant women have contracted COVID-19, all in the late third trimester and nearly all delivered ?7 days after symptom onset; most will only experience mild or moderate cold/flu like symptoms. At present, expert opinion is that the fetus is unlikely to be exposed during pregnancy. Only one case of possible vertical transmission caused by intrauterine infection has been identified.

Transmission of the virus is therefore most likely to occur post birth. Guidance on caring for pregnant women with suspected or confirmed COVID-19 and their babies has been published and is available here. Guidance may change as knowledge evolves; you are strongly encouraged to conduct a risk/benefit discussion with neonatologists and families to individualise care in babies that may be more susceptible to COVID-19 infection.

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.
- Guidance on whether a mother in advanced labour is a potential AGP is currently being sought.
- Commonly used equipment for neonatal resuscitation and stabilisation should be readily available (e.g. 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 determined locally must be worn by any person entering the room. Follow local guidelines regarding donning and doffing PPE.
- In order to minimise staff exposure, 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.
- Deferred cord clamping is recommended provided there are no other contraindications.

- The baby can dried as normal, while the cord is still intact. Or in the case of a pre term baby, standard thermoregulatory measures including the use of a plastic bag.
- Breastfeeding and formula feeding by the mother is permissible, but mothers should be advised regarding hand washing and wearing a mask is advised while handling the baby.

Neonatal management in labour suite

- A designated member of the neonatal team should be assigned to attend suspected/confirmed COVID-19 deliveries. It is important that the most senior person likely to be required attends in the first instance, to minimise staff exposure. Local units should make their own arrangements for designating staff, but senior involvement is expected.
- 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. Where possible, all procedures and investigations should be carried out in the single room with a minimal number of staff present.
- 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

Baby born in good condition

- Well babies not requiring medical intervention should remain with their mother in their designated room. See guidance for more detail.
- All babies of suspected or confirmed COVID-19 positive mothers need to be tested for COVID- 19.
- 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 NNU. In the latter case the baby should be isolated from their mother
- 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
- PPE should continue to be used according to local guidance.

Baby requiring additional care

- Babies requiring additional care (e.g. 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 at all 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 PPE.

Transfer to NNU

- Please find guidance here

Management on NNU

- All staff must adhere to the locally recommended PPE guidelines before entering the isolation room.
- Clinical investigations should be minimised whilst maintaining standards of care. Senior input is recommended when deferring routine investigations and in prioritisation of work. Consider ways to reduce unnecessary investigations – e.g. use of POCT.
- Intubation/LISA are particularly high risk and must involve use of appropriate PPE, even in an emergency. In-line suction with endotracheal tubes should be used if possible.
- Where possible use of a video-laryngoscope should be considered for intubation, and the baby kept within the incubator. By reducing proximity to the baby's airway this may help to reduce exposure to the virus. Intubation should only be undertaken by staff with appropriate competencies.
- CPAP and high flow therapies are associated with significant aerolisation and must therefore be also be considered high risk.
- In the absence of evidence, it is reasonable to treat the baby's respiratory illness in the same way 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 babies requiring respiratory support should be nursed in an incubator.
- 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.

Transport

- Limit transfers to minimum.
- Level 2 units to keep majority of babies as per network escalation policies.
- Neonatal Transport Group are considering guidance.
- Exposure to COVID-19 in itself is not a reason to transfer.

Testing of babies

- All babies of suspected or confirmed (symptomatic) COVID-19 positive mothers should

be tested for COVID-19 as soon as possible.

Breastfeeding

- Breastfeeding will be encouraged through supporting mothers who have been separated from their baby to express milk (EBM). Mothers should have a designated breast pump for exclusive use and local infection control policies should be consulted in the cleansing of this.
- It is not yet clear whether COVID-19 can be transferred via breast milk.
- Other coronaviruses are destroyed by pasteurisation but there is no evidence to inform whether COVID-19 (if present) would be similarly destroyed.
- Further information is available from The European Milk Bank Association position.

Newborn screening

- New-born Infant Physical Examination – where possible this should be completed in hospital either by a NIPE trained midwife who is caring for the mother, or other NIPE practitioner once a negative result has been received. The timing/location of the NIPE may need to be individualised where there has been an early hospital discharge before COVID-19 screening results for the baby are known.
- Audiology screening – this should be deferred and discussed with the Newborn Hearing Screeners and a follow up plan put in place prior to hospital 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

- COVID-19 positive parents should not be able to visit their baby on the NNU.
- Parents who have been screened for COVID-19, for whatever reason, should not be permitted to visit their baby until they have been confirmed negative
- No other visitors (including siblings) should be allowed to visit infants in NNUs (all areas), except under exceptional circumstances, to be discussed with local infection control.
- 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 (e.g. immunocompromised, chronic lung disease, cardiac disease) about reducing risk of infection (reduce social contact, handwashing) and interventions aimed at preventing other diseases (e.g. 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.

Working in acute paediatrics and emergency departments

Preparations

- PHE guidance on preparedness emphasises that staff should be familiar with local operational procedures and appropriately trained. For example, staff should be aware of where possible cases will be isolated and who to contact in their organisation to discuss possible cases.
- Staff involved in assessing or caring for confirmed cases of COVID-19 should be trained in using PPE and fit testing should be undertaken before this equipment is used. All staff in high risk areas such as emergency departments and urgent care, and other areas as agreed locally must be trained in the use of PPE.
- Staff caring for children with confirmed COVID-19 or undertaking aerosol generating procedures (AGP) should be trained in the safe donning and removal of PPE.
- Health Protection Scotland has provided advice for management of cases in inpatient settings in Scotland

Good practice for paediatrics

Consider the following:

- How will you deal with calls from concerned parents of children with and without risk?
- Where are your quarantine areas and isolation areas for walk-in patients? Are they child-friendly as well as suitable for decontamination?
- Is your designated COVID-19 area for isolation and treatment at presentation of unwell suspected COVID-19 patients suitable for children’s care?
- How will you manage family members of suspected cases in the ED area during this time? See [appendix 3] for good practice (Isolation plans for parent and child combinations)

You should identify:

- Your lead clinician / lead nurse to lead on policies and procedures for COVID-19 (this may be a paediatrician in ED or ED link paediatrician
- Your paediatric cardiac arrest team and management of infectious risk team
- Your paediatric Ward isolation cubicles
- Your ward cohorting areas, if needed
- Your hospital's negative pressure cubicles, and prepare for use for children
- Suitable areas for donning and doffing PPE and its disposal in paediatric areas
- Staff to maintain isolation rooms and ensure quarantine areas remain clean, stocked and ready for use

And ensure that:

- If there is no ensuite toilet in the isolation room, a dedicated commode (which should be cleaned as per local cleaning schedule) should be used with arrangement in place for the safe removal of the bedpan to an appropriate disposal point
- In emergency departments, barrier signs and infection control precaution signs are in place
- Access to isolation cubicles is only via one entrance

And:

- Establish a process for communicating positive results from swabs taken in the quarantine area. Including repeat risk assessment by telephone triage if positive
- Ensure families and patients have advice on self-isolation
- Have your suite of patient information ready specifically written for parents and children, including written information for admitted patients and posters in waiting areas.

Infection control

- PHE has provided guidance on infection prevention and control for inpatient settings that should be used alongside local operational policies. The PHE guidance includes:
    - isolation
    - staff considerations
    - visitors
    - PPE and hand hygiene
    - decontamination
    - mobile equipment
    - critical care, and
    - transfers.
- Health Protection Scotland has produced infection prevention and control advice for acute care settings.

Case management

- Latest advice is available here

- Children will be told to remain at home unless the child unwell and requires urgent hospital review.
    - Current advice for the public on NHS111 testing available here

Managing suspected cases

- PHE has produced guidance on steps to take when a patient suspected COVID-19 presents to ED

Making the diagnosis

- Follow PHE's guidance on sample requirements for laboratory investigations.
- Follow HPS guidance for Scotland
- The sample sets required for diagnostic testing are listed here

Presentation of possible COVID-19 at ED

- If a child with possible COVID-19 presents directly to ED, they should be redirected to your COVID-19 quarantine area and the family asked to call NHS 111.
- If the child has severe respiratory compromise, they will need to be transferred immediately to your designated isolation cubicle for management. In most hospitals this will be in your ED areas, other solutions may exist.
- Complete your COVID screening documentation as per guidance
- Ideally only one parent / carer should accompany child to isolation cubicle. Decide who that will be and manage other members appropriately to reduce risk of infection and request they self isolate.
- Follow isolation plans for admitted patients (see appendix 3) for isolation plans for parent/child combinations)
- Patient and all family members should wear surgical masks whilst in ED
- Healthcare staff should wear PPE as per PHE guidance
- Any cases phoned in by Ambulance services as "sick" and likely to require resuscitation will be managed in your designated isolation room. The Resuscitation Council have published guidance.
- A record should be kept of all staff in contact with a possible case, and this record should be accessible to occupational health should the need arise.
- Visitors should be restricted to essential visitors only, such as parents of a paediatric patient or an affected patient's main carer. It is recommended that only one parent is in attendance.
- The attending parent must wear PPE equipment defined by PHE at all times within the hospital buildings and grounds
- PPE should be disposed of in line with infection control procedures
- It is not advisable to move suspected patients and their families internally until an infectious risk assessment is performed. This covers absolute risk of family members being infected, risk to family members themselves of being secondarily infected by case, risk of family members infecting others within the hospital (ie not wearing PPE/ poor compliance to infection risk reduction measures), including management of asymptomatic parent / carer who themselves be a potential infection risk when entering or exiting the unit. The risk assessment needs to be standardised and recorded.

Management of confirmed cases

- Many people with confirmed COVID-19 may be managed at home as per PHE guidance

High risk procedures

PHE guidance is available on management high risk procedures, including aerosol generating procedures. This guidance also discusses nebuliser use.

If high risk AGP are medically necessary, they should be undertaken in a negative pressure room. The AGPs are:

- intubation, extubation and related procedures such as manual ventilation and open suctioning
- tracheotomy/tracheostomy procedures (insertion/open suctioning/removal)
- bronchoscopy
- surgery and post-mortem procedures involving high-speed devices
- some dental procedures (such as high-speed drilling)
- non-invasive ventilation (NIV) such as Bi-level Positive Airway Pressure (BiPAP) and Continuous Positive Airway Pressure ventilation (CPAP)
- High-Frequency Oscillating Ventilation (HFOV)
- High Flow Nasal Oxygen (HFNO), also called High Flow Nasal Cannula
- Induction of sputum

Use of NIV or HHFNCO

- Non-invasive ventilation (NIV) can be used in suspected and even confirmed cases if strict isolation precautions are adhered to – ie, staff in full PPE and negative pressure cubicle.
- There is not as much evidence for Humidified High Flow Nasal Cannuale Oxygen so this again should be used in strict isolation in full PPE.

Management of paediatric cardiac arrest

- Devise a modified protocol beforehand with identified members of senior paediatric team and ensure all are mask fit tested and able to don and doff PPE
- If the child is intubated and ventilated – try not to disconnect from the ventilator when doing CPR
- If the crash trolley is used – dispose of all the contents within the isolation room before taking the trolley out of the room to be cleaned with hyperchlorite wipes.

Guidance for Paediatric Intensive Care Services (PICS)

- The Paediatric Intensive Care Society have guidance available and a position statement on planning for the pandemic

- Guidance includes:
- Referral and transport of critically ill children with suspected and confirmed covid-19 infection
- Flow diagram for the management of critically ill children with suspected Covid-19 infection
- Flow diagram for the management of critically ill children with confirmed Covid-19 infection

Checklist for Intubation

1.Remember that your personal protection is the priority. All team involved must be mask fit tested and experienced in donning and doffing of PPE. Please review the material and use droplet/ contact isolation precautions (PPE – mask-surgical gown and gloves with eye protection if required) when interacting with patients

- Plan ahead: make sure you have practice donning and doffing and have a buddy
- Pay close attention to avoid self contamination
- Intubation checklist / senior personnel / allocate roles
- Negative pressure room if possible
- Identify these patients early as we want to avoid NIV
- Lines of communication should be easily available to the team inside the room and the team outside

Suggested roles:

- Doctor A. Most suitably experienced intubator undertakes first attempt at intubation.
- Doctor B. Acts as the team leader during intubation attempt. Gives induction.
- Nurse A. Airway assistance to Doctor A.
- Nurse B. The team should decide whether Nurse B should be inside the isolation room or remain in PPE outside the room.

2.Don PPE
3.Most experienced intubator available to perform intubation if possible
4.Standard monitoring, IV access, instruments, drugs , ventilator and suction checked –
5.Consider airway adjuncts/ glidescope/ AirTraq
6.Plan for RSI with skilled assistant to perform cricoid pressure. RSI can be modified
7.If plan for manual ventilation use small tidal volumes
8.Preoxygenate for 5 minutes with 100% O2 to avoid manual ventilation
9.Ensure filter between face mask and bag
10.Intubate and confirm - avoid stethoscope - EtCO2 and examination of the chest.

- If using glidescope – use disposable blade
- Encase rest of the unit in a clear plastic cover
- Keep other associated equipment outside the room until needed

11.Start MV – use filter, inline suction, try not to disconnect from ventilator
12.After leaving negative pressure area (which is where this should be done if possible) – spillage team to wipe down the surfaces and non disposable items with hyper chlorite wipes Disposable equipment should be placed in disposable double zip-locked clear plastic bag at end of procedure and disposed of in the burn bins inside the isolation room. All drugs must

be discarded
13.Proper Doffing PPE with Buddy

Working in community paediatrics

Children with **suspected** COVID-19 infection in community settings

British Association for Community Child Health

Isolation of children from their household and other child health professionals

- Community paediatricians should consider the entire care package when thinking about isolation, in partnership with those involved; parents and other carers that work with the child, for example.
- A co-ordinated approach should be taken to minimise risk. This necessitates a case by case approach to manage risk/benefit for the child and carers/clinicians.
- PHE advice should be taken regarding self-isolation with children; PHE acknowledges that some advice may be difficult to apply if the person isolated is a young child, and asks clinicians to use their professional judgement in deciding whether the recommendations are appropriate on a case-by-case basis.

Home visits

- Clinicians should consider whether visits are necessary and, if so, use telemedicine tools as much as possible. This may include telephone consultations or similar, depending on the resources available.
- The GMC has a flowchart that be helpful to determine whether remote consultation is appropriate. This must be considered in the context of risks posed by COVID-19 and on a case by case basis.
- When considering whether visits should be conducted as planned, clinicians should also consider their own safety and the safety of the other children that they provide care for.
- If a clinician believes they may have become infected with COVID-19, they should self-isolate and take the steps described in the PHE home isolation guidelines.
- If a clinician is in a patient's home and suspects COVID-19 infection among the patient or a member of the household, they should follow local policy and national guidance

Community clinics

- If a clinician feels that the risk outweighs the benefit of a child vulnerable to infection attending a community clinic, such as a child with complex medical needs, they should discuss this with the child's parent/carer and other professionals involved in their care

as appropriate.
- If a clinician working in a community clinic suspects that a patient has COVID-19, they should follow the PHE guidance for primary care clinicians as much as practicable and possible. This includes avoiding physical examination of a suspected case.
- Also see Health Protection Scotland guidance for primary care.

Educational settings

- If a clinician working in a school suspects that a patient has COVID-19, they should follow the PHE guidance for educational settings as much as practicable and possible / Health Protection Scotland guidance
- The clinician should discuss the case with relevant staff members, such as the headteacher, and call NHS 111, NHS 24 in Scotland, NHS Direct in Wales and GP out of house in Northern Ireland.
- The clinician should direct staff members to the guidance for educational settings for further information about decontamination, school closure and other measures.

Medical transport for confirmed COVID-19 cases

- Appropriate medical transport for the patient (and their parent/carer) to hospital will be dealt with by medical transport teams.
- The community paediatrician should advise parents to wait for this service and not to seek secondary care themselves, for example by going to the hospital via car or public transport.

Paediatric scenarios

Suspected child – asymptomatic

- Following screening in an appropriate isolation room, after recording of demographic data including contact details well/asymptomatic children should discharged home, self-isolating, pending screening results. Families/ carers must be given an advice sheet, including contact numbers and recommendations about when to seek medical advice as per PHE guidance.
- Chlorine clean the designated assessment suite where screening occurred.

Suspected child – mildly-moderately symptomatic requiring admission (level 0–1)

Level 0 is a standard ward paediatric patient. Level 1 refers to level 1 paediatric critical care.

- Children with mild to moderate symptoms and are admitted for observation/feeding support. This advice may change for those with mild symptoms during a pandemic stage.
- Possible interventions:
    - Nasogastric feeding
    - Supplemental oxygen to maintain saturations over local criteria (90– 92%)
    - IV fluids
    - Humidified High flow nasal cannulae oxygen (HHFNCO) – note this is a high risk procedure only if absolutely necessary and appropriate infection control

measures in place see PHE guidance PICS revised guidance
    - Monitoring as required by level of care.
- These children should be nursed in a single side room. A parent/carer who is admitted with the child must stay in the room at all times until discharge or confirmed negative screening test. Both child and parent should wear surgical mask for transfer from A+E to the designated room and if leaving for any reason.
- Staff should minimise time in the room as far as possible.
- The process must be explained to families requesting their compliance to infection control procedures. Ways of doing this but minimising contact need to be identified.
- Aerosol generating procedures (HHFNCO, suctioning, performing NPAs, using nebulisers) should be avoided unless absolutely essential. NPAs are also aerosol generating procedures but may be clinically helpful.
    - Where AGPs are medically necessary, they should be undertaken in a negative-pressure room, if available, or in a single room with the door closed.
- Waste should be managed appropriately. If there is no en-suite toilet in the side room, a dedicated commode (which should be cleaned as per local cleaning schedule) should be used with arrangements in place for the safe removal of the bedpan to an appropriate disposal point.
- Room will need chlorine clean following discharge if screening results pending or confirmed positive.

Suspected child - requiring moderate intervention (level 2 critical care e.g. CPAP)

- Children who require respiratory support should be discussed with PICU. If they are undergoing high risk procedures (suction, Optiflow, CPAP etc) they should be managed in a single side roomand should take priority over other inpatients.
- All attending staff should wear appropriate PPE FFP3 mask, visor, gloves and gown.
- If subsequently confirmed to have COVID-19, the patient may warrant transfer to an appropriate paediatric HCID centre if there are concerns regarding clinical deterioration; these decisions will be made on a case by case basis depending on capacity within the designated paediatric HCID centres.
- The parent/carer who is admitted with the child must stay in the room at all times until discharge or confirmed negative screening test.
- Room will need chlorine clean following discharge if screening results pending or confirmed positive.

Suspected child – requiring PICU level 3 care

- The Paediatric Intensive Care society (PICS) have put together detailed practical guidance specific to the management of critically ill children, including flow diagrams for suspected and confirmed cases of COVID-19 infection
- Details regarding the levels of paediatric critical care can be found here.
- Level 3 care includes intubation and ongoing ventilation. Management and referral pathways for level 2 and 3 patients are described in PICs guidance, along with intubation guidance if a child needs intubating in a DGH due to respiratory failure.
- Children requiring level 3 care should be referred to PICU as per normal protocol, highlighting on referral that there is a suspicion of COVID-19.
- All staff involved in their care prior to transfer to intensive care should wear PPE (FFP3 mask, visor, glove and gown).

- If the child is confirmed to have COVID-19, assuming that we are still in the containment phase, they should ideally be transferred to an HCID PICU centre.
- Following transfer, the room should be chlorine cleaned.

Special cases: children with febrile neutropenia and suspected COVID-19

- Children should initially be assessed and tested in ED not the wards.
- Prompt administration of broad-spectrum antibiotics for the management of febrile neutropenia is essential.
- In the Oncology wards may wish to designate specific cubicles for patients with suspected COVID-19.
- All infectious disease precautions must be followed as for other COVID-19 patients as well as specific cautions for that patient group otherwise the child should be admitted into a cubicle within the suspected coronavirus area.

Children with complex medical needs

- Similar to COVID-19 infection among otherwise well children, there is little to no evidence regarding the effect of COVID-19 infection on children with complex medical needs.
- Children with conditions such as chronic lung disease do have higher risk for developing other types of respiratory infection. They are therefore at greater risk of COVID-19 infection. It is likely that children with complex medical needs are also liable to develop worse COVID-19 symptoms, depending on their pre-existing condition, compared to otherwise well children.
- PHE guidance on the investigation and initial management of potential cases defines a possible COVID-19 case as an individual that requires admission to hospital and has: either clinical or radiological evidence of pneumonia; or acute respiratory distress syndrome; or flu-like illness regardless of epidemiological links.
- If a patient with a history of persistent respiratory symptoms due to complex medical need requires admission to hospital with an acute exacerbation of their respiratory problems, they should be treated as a suspected COVID-19 case.
- Measures should be taken on a case by case basis to protect children from infection and to manage suspected cases, considering clinical case criteria and possible epidemiological links.
- Guidance can be found here .

Appendix 3 Isolation plans for parents child combinations

Single parent and child meeting COIVD-19 case definition - isolation plan whilst waiting for virology results

Child	Parent	Management
Well*	Well*	Child – home isolation Parent – home isolation
Well*	Level 1	Child – home isolation – support from social care. Parent – adult ward **

Child	Parent	Management
Well*	Level 2/3	Child – home isolation – support from social care. Parent – adult ward ** Escalate to HDU/ITU as per usual pathway
Level 1	Well*	Child – paediatric cubicle ** Parent – with child.
Level 1	Level 1	Child – paediatric cubicle ** Parent – adult ward ** Note this may alter over time – local decisions to collocate parent and child may be necessary
Level 1	Level 2/3	Child – paediatric cubicle ** If necessary need to plan locally for a child without available carer Parent - adult ward ** Escalate to HDU/ITU as per usual pathway
Level 2/3	Well*	Child – paeds ward cubicle ** Transfer to PICU as per usual pathway if deteriorates Parent – home isolation / PICU***
Level 2/3	Level 1	Child - paeds ward cubicle ** Transfer to PICU as per usual pathway if deteriorates Parent – adult ward **
Level 2/3	Level 2/3	Child - paeds ward cubicle ** Transfer to PICU as per usual pathway if deteriorates Parent – adult ward ** Escalate to HDU/ITU as per usual pathway

* deemed clinically stable and suitable to be managed as an outpatient

** ideally negative pressure, could use cubicle with lobby our cubicle without lobby only as a last resort

*** parents who are admitted with their child to PICU are then quarantined in isolation with their child and cannot come and go freely.