MANAGEMENT OF THE INFANT CONFIRMED, SUSPECT/PATIENT UNDER INVESTIGATION OR CONTACT TO COVID-19

DOCUMENT TYPE: GUIDELINE

Site Applicability

BC Women's Hospital Neonatal Program Care Providers.

Practice Level

Basic Skill – Care guideline for the infant with contact to, suspected/under investigation for or confirmed with COVID-19 within the neonatal program.

Guideline Statements

Knowledge and understanding about Covid-19 is changing rapidly and therefore information below is likely to be modified in response to new information and evidence. Please refer to the electronic version of this document for most up-to-date information.

COVID-19

There is continued global spread of COVID-19 which is associated with both morbidity and mortality internationally, with increased incidence in BC.

Pregnancy Outcomes with Confirmed COVID-19

To date, there have been over 60 cases of pregnant women with confirmed COVID-19 in China. The pregnancy outcomes have been reported to be good largely, with spontaneous and iatrogenic preterm labour being the most reported adverse pregnancy outcomes.

Vertical Transmission

There is limited information regarding vertical transmission and it is believed to be extremely rare at this time.

Teratogenicity

There is currently no reported increased risk of congenital anomaly, though the number of reported cases is small.

Infant Category

Confirmed Case – Infant has laboratory result confirmation for COVID-19.
Suspect Case/Patient Under Investigation (PUI) – An infant who is symptomatic of a viral illness and COVID-19 is a part of the differential diagnosis and testing has been sent.
Contact Case – Infant is asymptomatic, at their baseline and has had a close contact with a Health Care Provider (HCP) or Family Member who has become symptomatic for or diagnosed with COVID-19. This includes the infant at the time of birth when the mother is confirmed or suspect/PUI for Covid-19 whose test results at the time of delivery come back positive.

Isolation Precautions

Droplet & Contact precautions for all infant categories. Aerosol generating medical procedures (AGMP) require the addition of Airborne Precautions (N95 respirator).

Confirmed Case – a minimum of 10 days from the onset of symptoms or until the symptoms have completely resolved.

Suspect Case/Patient Under Investigation (PUI) and Contact Case –14 days to ensure the full incubation period has passed.

Infection Prevention: discontinuation of isolation precaution ONLY with IPAC consultation.

Equipment & Supplies

HCP require Droplet & Contact Personnel Protective Equipment (PPE) to provide direct patient care. Aerosol generating medical procedures (AGMP) require the addition of Airborne Precautions (N95 respirator).

Guideline:

Clinical Manifestation in the Infant with COVID-19:

Incubation Period: it is reported to be 3-7 days in general, with the shortest being 1 day, and the longest being 14 days.

Clinical Presentation:

Neurological:
- Temperature Instability
- Lethargy

Respiratory:
- Tachypnea
- Grunting
- Nasal Flaring
- Dyspnea
- Apnea
- Cough

Gastrointestinal:
- Abdominal Distension
- Feeding Intolerance
- Diarrhea/Watery Stools
- Emesis

Laboratory & Radiology Findings:

- Normal or leukopenia, lymphopenia
- Mild thrombocytopenia
- Elevated CK, ALP, ALT, AST and LDH
- Chest X Ray infiltrates

A. INITIAL ADMISSION TO NICU

Admission Location:

- Confirmed, Suspect/PUI and then Contact Case, in this order, should have priority to airborne isolation room (negative pressure) when possible.
- Place on appropriate isolation precautions (Droplet & Contact precautions +/- Airborne precautions as stated above).
- Notify IPAC.
- The infant should ideally be cared for in an incubator until asymptomatic or past the 14 day incubation period. This does not preclude the infant from being held by family or HCP.

Investigations for an infant with a Suspect Case (symptomatic) or Contact Case ***ONLY* at the time of delivery when born to a mother with confirmed Covid-19:**

- Respiratory Tract Secretion specimen:
  - Nasopharyngeal swab (FLOQ) for non-intubated infant and infant greater than 750 grams – Droplet & Contact precautions only
  - Nasopharyngeal Wash for non-intubated infant less than 750 grams – Droplet & Contact and Airborne precautions
  - Endotracheal aspirate for intubated infant (include respiratory panel to test) – Droplet & Contact and Airborne precautions
- For infants born to a mother with confirmed for COVID-19 at the time of delivery:
  - Test ALL infants within the first to 2 hours of life to determine whether vertical transmission has occurred. Cleanse face prior to collection for swab or wash.

- Blood work:
  - ***Symptomatic Case ONLY*** add CBC, CRP, ALP/ALT/AST and blood culture as part of the initial workup
- Newborn stool samples are NOT to be collected for diagnostic purposes.
- Consider repeat nasopharyngeal swab or wash on day 14 or at the time of discharge (whenever earlier).
- If the mother is a PUI at the time of delivery and their results confirm Covid-19 then test the infant.

Investigations Contact Case (asymptomatic):

- Except for at the time of delivery as detailed above, no routine laboratory testing is indicated for contact. Isolation precautions for 14 days and monitor for change in clinical status from baseline. If infant becomes symptomatic for viral illness consider Covid-19 and complete diagnostic investigations as above.

Care Management:

Proactive care: This is essential (e.g. planned intubations vs. emergent) to ensure practitioners can don appropriate PPE.

Supportive care: There is currently not sufficient evidence to support the use of routine anti-viral medications, steroids or interferon. Consultation with Pediatric Infectious Diseases is recommended for the ongoing management.

Parental presence: Discuss risks and benefits of direct contact for family and the infant:

- MotherBaby Care (Rabbit Pod), NICU Mixed Acuity (Bumblebee, Hedgehog, Dragonfly and Hummingbird) and Complex Care (Ladybug): Covid-19 positive or suspected/PUI mother or family/caregiver is not to enter the Neonatal Program until consultation with IPAC. This recommendation is for the safety of the HCPs, their infant, additional infants in the unit and their families.
- Before consult with IPAC, identify the parent's/caregiver's onset of symptoms, description of the severity of the symptoms, any contact with positive cases and if/when they were tested.
- Any parent/caregiver with an acute respiratory illness or other contagious diseases ideally should not be present in the unit.
- Parental presence will be evaluated in consultation with IPAC on a case by case bases e.g. infant is critically ill.
- If, after consultation with IPAC, a risk assessment is preformed and it is deemed appropriate to have parental presence, any symptomatic parent/caregiver should wear a mask and practice hand hygiene before each contact with the infant, including skin to skin, to reduce infection risk through droplet and contact transmission. Keep infant bed more than 2 meters from parent/caregiver if feasible at other times.

Infant feeding: Discuss feeding preference and options with parents: Breast milk is the best source of nutrition for most infants. Mothers' milk may provide infant protective factors after maternal COVID-19. There remain however many unknowns about COVID-19; small studies have not demonstrated COVID-19 in breast milk. If a mother has a symptomatic COVID-19 infection, Covid-19 can be transmitted to the infant during breastfeeding or close contact. For that reason, the family should participate in the decision to provide breast milk for infant feeding with the support of the healthcare providers.

- Every effort should be made to provide education and support for the mother to hand express and pump. The family who plans to breastfeed will need access to an electric breast pump to establish and maintain lactation.
- Prior to expressing breast milk, a mother should practice hand hygiene. After each pumping session, all parts that come into contact with breast milk should be thoroughly washed and the entire pump should be appropriately disinfected per the manufacturer's instructions
- If a mother and infant are rooming-in and the mother wishes to feed at the breast, the mother should put on a facemask and practice hand hygiene before each feeding.
- Document maternal decisions regarding the recommendation for separation and breast feedings.

Resuscitation and Ventilation Support: Ensure resuscitation and ventilator equipment are equipped with HEPA filtration to filter expired air. Changes as per manufacture guidelines. Modifications (opening the circuit) are considered AGMP and require Airborne Precautions.

Intra-Hospital Transport: A risk assessment should be completed for the need and if the clinical intervention (CT/MRI/eye exam), the infant must be transported in an incubator.

Infection Prevention: Discontinuation of precaution ONLY with IPAC consultation, based on underlying disease and the microbiology test results and disease history.

B. DURING NICU STAY

Contact:

- Place on appropriate precautions (Droplet & Contact precautions +/- Airborne precautions when AGMP are expected) for 14 days.
- Inform IPAC, CNL & Staff Neonatologist or Pediatrician for MBC.
- Family counseling and extended isolation precautions will be determined by both IPAC and care team.
- Do not move infant from room to an airborne isolation room (negative pressure) unless advised by IPAC or infant becomes symptomatic and requires an increased level of care (e.g. MBC to NICU).

Suspect case/Patient Under Investigation (PUI):

- Place on appropriate precautions (Droplet & Contact precautions +/- Airborne precautions as stated above) for 14 days.
- Inform IPAC, CNL & Staff Neonatologist or Pediatrician for MBC.
- Complete clinical investigations and follow care management as indicated above (section A).
- Do not move infant from room to an airborne isolation room (negative pressure) unless advised by IPAC or infant requires an increased level of care (e.g. MBC to NICU).

Confirmed:

- Maintain appropriate precautions (Droplet & Contact precautions +/- Airborne precautions as stated above) for a minimum of 10 days.
- Inform IPAC, CNL & Staff Neonatologist or Pediatrician for MBC.
- Complete all relevant clinical investigations if not already complete.
- Follow care management as indicated above (section A).
- Do not move infant from room to an airborne isolation room (negative pressure) unless advised by IPAC or infant requires an increased level of care (e.g. MBC to NICU).

Discharge Considerations:

- Defer audiology screening while infant is on precautions.
- Communicate with IPAC and Public Health to discuss about the precautions when back home, to minimize the chance of spread of virus in the community. There have been reports of nasopharyngeal swabs being persistently positive despite the resolution of symptoms.

Definitions

List of Aerosol-Generating Medical Procedures (AGMP)

- Intubation and Extubation related procedures (e.g., manual ventilation, open endotracheal suctioning)
- Cardiopulmonary resuscitation (CPR) with bag valve mask ventilation
- Bronchoscopy and bronchoalveolar lavage
- Positive Airway Pressure (e.g. BiPAP, CPAP)
- Humidified high flow oxygen systems (e.g. Optiflow)
- Tracheostomy care
- Nebulized therapy/aerosolized medication administration
- Open respiratory/airway suctioning
- High frequency oscillatory ventilation

The following procedures have not been shown to generate aerosols that increase transmission risk (includes but not limited to):

- Nasopharyngeal (NP) swabs
- Oral suctioning
- Chest physiotherapy

Documentation (If applicable)

Interdisciplinary Progress Notes; Nursing Flowsheet; RT Flowsheet; Prescriber Orders.

Patient & Family Engagement/Education

Family presence is dependent on family members being symptomatic or asymptomatic; risk of transmission between infant to or from family; compassionate reasons; and the known negative impacts of separation on the infant and their family. A harm risk reduction assessment should be done in collaboration with IPAC before family presence can be decided. Symptomatic family members should not provide parental presence expect for compassionate reasons within the Neonatal Program.

To best support the family, particularly when separation happens, will require support. Consult support services early (e.g. Lactation Consultant, Social Worker). Collaborate to provide infant mementoes and engage with the family as often as possible. With maternal infant separation, there is a risk for delayed or diminished bonding. Every effort is required to prevent or lessen this.

Refer to IPAC Table of Recommended Precautions: Selected Infectious Diseases, Conditions & Microorganisms for the most up to date information for family precautions.

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Cross References

- COVID-19: Compassionate Family Presence at End of Life, Death or Pregnancy Loss
- COVID-19: Patient Transfer/Transport
- COVID-19: PPE Use - Application of PPE Emergency Prioritization Policy
- COVID-19 Reference Tool
- C&W IPAC Table of Recommended Precautions: Selected Infectious Diseases, Conditions & Microorganisms
- Newborn Delivery Management when Mother is COID-19 Positive or Patient Under Investigation

Version History

DATE	DOCUMENT NUMBER and TITLE	ACTION TAKEN
15-Apr-2020	C-06-07-60613 Management Of The Infant Confirmed, Suspect/Patient Under Investigation Or Contact to COVID-19	Developed by CW COVID Response Working Group; Approved by Professional Practice Director

Disclaimer

Appendix A: Summary Table

Infant Category	Confirmed Case	Suspect Case/ PUI	Case Contact
Description	An infant has laboratory result confirmation for COVID-19.	An infant who is symptomatic of a viral illness and COVID-19 is a part of the differential diagnosis and testing has been sent.	Infant is asymptomatic, at their baseline and has had close contact with a Health Care Provider (HCP) or Family Member who has become symptomatic for or diagnosed with COVID-19. This includes the infant at the time of birth when the mother is confirmed or suspect/PUI for Covid-19 whose test results at the time of delivery come back positive.
Required PPE	Droplet & Contact Precaution +/- Airborne precautions for AMGPs.		
Isolation Precautions Duration **Do not remove isolation precautions without IPAC consult.**	Isolate for a minimum of 10 days from the onset of symptoms until symptoms have completely resolved.	Isolate for 14 days to ensure the full incubation period has passed. Continue to isolate while the infant remains symptomatic.	Isolate for 14 days to ensure the full incubation period has passed.
Clinical Presentation	Neurological: Temperature Instability and/or Lethargy Respiratory: Tachypnea, Grunting, Nasal Flaring, Dyspnea, Apnea and/or Cough Gastrointestinal: Abdominal Distension, Feeding Intolerance, Diarrhea/Watery Stools and/or Emesis		Asymptomatic – infant remains at their baseline.
Clinical Investigations	Respiratory Tract Secretion Specimen: - Nasopharyngeal swab (FLOQ) for non-intubated infant and infant greater than 750 grams. Recommend to first swab the throat and then the nasopharynx with the same swab for more optimal specimen collection. - Nasopharyngeal Washing for non-intubated infant less than 750 grams. - Endotracheal aspirate for intubated infant (include respiratory panel to test). Blood Work: - CBC, CRP, ALP/ALT/AST and consider blood culture with initial work up.		No routine investigations required except Respiratory Tract Secretion Specimen within two hours of birth only for an infant whose mother is Confirmed COVID-19 positive or if the mother is a PUI at the time of delivery and their results confirm COVID-19. Monitor for symptoms and reassess as required.
Clinical Management	Best practice, proactive, supportive and routine care.		