

Coronavirus COVID-19

BC Centre for Disease Control | BC Ministry of Health



HOW YOU CAN SLOW THE SPREAD OF COVID-19

Take care of others by taking care of yourself.

Wash your hands, don't touch your face, and stay home if you are sick.

Stay at Home and Physically Distance

Stay at home whenever you can. Maintain 2 meters distance from those outside of your household.

Guideline for the Management of the Neonate in the NICU, Nursery of Pediatric Unit that is a Confirmed or Suspect Case of COVID-19

Updated: Sept. 4, 2020

Knowledge is changing rapidly and therefore information below may be modified in response to new information and evidence.

Site Applicability

Sites in British Columbia that deliver health care to neonates within Neonatal, Newborn and Pediatric Programs. This document is intended for the subsequent care of the neonate after the time of birth.

General Information

- SARS-CoV-2 is a novel coronavirus that causes COVID-19 illness in adults and children. In the context of a global COVID-19 pandemic, B.C. has implemented a number of public health measures to prevent the spread of SARS-CoV-2.
- There have been over 60 documented cases of pregnant women with confirmed COVID-19 in China. The vast majority of these women have had mild to moderate pneumonia, with limited case series reporting good pregnancy outcomes. Spontaneous and iatrogenic preterm labour are the most reported adverse pregnancy outcome, but it is not clear whether this occurs at a higher rate than in women who do not have COVID-19.
- **Vertical Transmission: Within the small cohort referred to in previous statement there is no strong evidence of vertical transmission at this point.**
- Teratogenicity: There is currently no reported increased risk of congenital anomaly, though the number of reported cases is small.
- COVID-19 virus has a very low infection rate in children estimated at 1-5% worldwide. The majority of cases in children are the result of a household transmission by droplet spread from another family member with symptoms of COVID-19.

Definitions

- COVID-19 disease categories as used in this document:
 - Confirmed case: Neonate has laboratory result confirmation for SARS-CoV-2.
 - Suspect case: Neonate who has become symptomatic of a viral influenza type illness and COVID-19 is a part of the differential diagnosis and testing has been sent.

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Ministry of Health



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If you have fever, a new cough, or are having difficulty breathing, call 8-1-1.

Non-medical inquiries (ex. travel, physical distancing): 1-888-COVID19 (1888-268-4319) or text 604-630-0300



- Case contact: Neonate is asymptomatic but was exposed to a health care provider or family member who is a symptomatic or a confirmed case of covid-19. For example, a neonate who is asymptomatic born to a woman with suspect or confirmed case of COVID-19 is classified as contact.
- IPAC: Infection Prevention and Control

Clinical Manifestation in the neonate with COVID-1

- **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	Respiratory	Gastrointestinal
Temperature Instability	Grunting	Abdominal Distension
Lethargy	Nasal Flaring	Feeding Intolerance
	Tachypnea	Diarrhea/Watery Stools
	Chest retractions	Emesis
	Central cyanosis/pallor	
	Apnea	
	Cough	

- **Laboratory & Radiology Findings:**

Laboratory Findings:

- Normal or leukopenia, lymphopenia
- Mild thrombocytopenia
- Elevated CK, ALP, ALT, AST and LDH

Radiology Findings:

- Chest X Ray infiltrates

Admission of neonate with current status of suspect, confirmed case or close contact of COVID-19 to the NICU, Nursery or Pediatric Unit.

- Test ALL newborns born to mothers who are confirmed cases of COVID-19 for SARS-CoV-2 within 1- 2 hours of birth.
- Newborns should be bathed as soon as reasonably possible after birth to remove virus potentially present on skin surfaces.
- Routine testing for SARS-CoV-2, of newborns born to mothers who are suspect cases of COVID-19 is not recommended. Test newborns only if mother's test results come back as positive for SARS-CoV-2.
- If newborn tests positive for SARS-CoV-2 isolate until:
 - At least 10 days have passed since the onset of symptoms; AND
 - Fever has resolved without the use of fever-reducing medication: AND
 - Symptoms (respiratory, gastrointestinal, and systemic) have improved
- If newborn tests negative for SARS-CoV-2 isolate as per a close contact and monitor for influenza like symptoms.
- Newborn of mother with confirmed COVID-19 is considered a close contact and should isolate with mother for 14 days to ensure the full incubation and infectious period has passed



- The neonate should ideally remain in a closed incubator until the COVID-19 related risk of transmission has been reasonable excluded.

Admission Location:

- Admit to single patient (isolation) room. Since not all sites have access to single room care consult with the local IPAC department to review options as soon as possible.
- Place on appropriate infection precautions.
- Notify local IPAC of admission.
- The neonate should ideally remain in a closed incubator until the COVID-19 laboratory test results are negative.

Status of neonate changed to suspect, confirmed case or close contact of COVID-19 during stay in NICU

Patient location

- Place newborn in closed incubator if available and move to single patient room. If closed incubator is not available, clear pathway to single room to minimize infection spread.
- Admit to single patient (isolation) room. Since not all sites have access to single room care for these newborns consult with the local IPAC department to review options as soon as possible.
- Place on appropriate infection precautions.
- Inform IPAC, Provider, Charge Nurse and Nurse Manager as appropriate at your site
- Review, order and complete clinical investigations if indicated.
- Family counseling and extended contact precautions will be determined by both IPAC and care team.

General Management of neonate suspect, confirmed, case or close contact to COVID-19

Investigations for confirmed or suspect case:

- Microbiology specimen for SARS-CoV-2 and other respiratory viruses:
 - Nasopharyngeal swab for non-intubated newborn and newborn greater than 750 grams
 - Nasopharyngeal Washing for non-intubated newborn less than 750
 - Endotracheal aspirate for intubated newborn, include respiratory panel to test
 - Add HOSP to specimen label to prioritize testing requisition
- Blood work: In addition to site specific admission bloodwork consider adding CBC, CRP, blood culture and ALP/ALT/AST to initial workup for PUI who is symptomatic.
- Neonatal stool samples are NOT to be collected for diagnostic purposes.

Investigations Contact (asymptomatic):

- No laboratory testing indicated unless mother is a confirmed case of COVID-19. If neonate becomes symptomatic for viral influenza-like illness, they should be considered as a suspect case of COVID-19 and complete diagnostic investigations as above.

Care Management:

- Proactive care such as planned intubations vs. emergent is essential to ensure practitioners can don appropriate PPE.
- Supportive care is currently the only known effective care for COVID-19. Advanced support may be indicated if severe respiratory deterioration is occurring. Consider transfer to higher level of care if indicated.
- There is currently not enough evidence to support the use of routine anti-viral medications, steroids or interferon.



- Consultation with Pediatric Infectious Diseases is recommended for the ongoing management
- Please refer to Clinical Reference Group Recommendation: Pediatric Clinical Guidance for COVID-19 http://www.bccdc.ca/Health-Professionals-Site/Documents/COVID-19_Pediatric_clinical_guidance.pdf for additional information.

Resuscitation equipment:

- Aerosol generating medical procedures require the addition of Airborne Precautions (N95 respirator). Refer to http://www.bccdc.ca/Health-Professionals-Site/Documents/AGMPs_requiring_N95.pdf for most up to date information.
- Adding HEPA filters to manual resuscitation devices may result in ↑ resistance and dead space. You may have to adjust the manual compression of the device to achieve the desired ventilation. Consult with your local Respiratory Therapist for additional information.

Respiratory Support:

- Ensure that equipment used for respiratory support such as CPAP, ventilators...etc. are equipped with HEPA filters to filter expired air. Consult local Respiratory Therapist for further advice.
- Don N95 mask at any time ventilator, CPAP or high flow circuits are being disconnected and opened as this action is considered aerosol generating procedures

Intra-hospital Transfer of the neonate:

- Limit intra-hospital transfer.
- Complete risk assessment to determine the need for clinical intervention such as CT, MRI, eye exam; postpone if possible.
- If clinical intervention cannot be postponed the neonate must be transported in a closed incubator and follow local IPAC procedures to minimize spread of infection.

Skin-to-Skin

- Mother and parent should put on facemask and practice hand hygiene before skin-to-skin to reduce disease spread through droplet and contact transmission.

Feeding of the neonate:

- Breast milk is the best source of nutrition for most neonates. While there remain many unknowns about COVID-19 small studies have not demonstrated the presence of COVID-19 in breastmilk.
- Family should participate in the decision to use breast milk to feed neonate with the support of the healthcare providers.
 - When the neonate is separated from their mother due to infection control restrictions or medical reasons, every effort should be made to provide education on hand expression and pumping. Ensure access to an electric breast pump for a mother whose long-term plan is to breastfeed.
 - Prior to expressing breast milk, a mother should practice hand hygiene and don a facemask if she is a contact, confirmed or suspect case of COVID-19. 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 as per the manufacturer's instructions.
 - Due to the current COVID-19 pandemic there is a limited supply of donor milk. The current supply of pasteurized donor human milk is reserved for the sickest newborns in BC (see



<http://www.bcwomens.ca/health-professionals/professional-resources/milk-bank-resources> for additional information).

- If a mother and neonate are rooming-in and the mother wishes to breastfeed she should put on facemask and practice hand hygiene before each feeding to reduce disease spread through droplet and contact transmission.

Patient and Family Engagement

- Family presence is dependent on:
 - Current site and health authority-specific visitor guidelines
 - Risk of transmission between newborn and family
 - Compassionate reasons
 - Known negative impacts of separation on the neonate and their family

A harm risk reduction assessment should be done in collaboration with IPAC to determine family presence and how to facilitate bonding and attachment within the limitations of infection prevention and control.

- The family, particularly in the unfortunate situation when separation is required, will need support.
 - Engage support services early such as lactation consultant, social worker.
 - Provide newborn mementoes, photos
 - Engage with the family as often as possible
 - Consider using Facetime or similar platform to provide virtual connections between mother, family and the neonate
 - Due to maternal-neonatal separation, there is a risk of delayed or diminished bonding. Every effort is required to prevent or lessen this

Discontinuation of Infection Prevention:

- Discontinuation of precaution **ONLY** in consultation with IPAC and is based on the underlying disease process, microbiology test results and disease history within the family.

Discharge Considerations:

- Continue isolation if neonate is discharged prior to the end of the isolation period.
- If newborn tests positive for SARS-CoV-2 isolate until:
 - At least 10 days have passed since the onset of symptoms; AND
 - Fever has resolved without the use of fever-reducing medication: AND
 - Symptoms (respiratory, gastrointestinal, and systemic) have improved
- If newborn tests negative for SARS-CoV-2 isolate as a close contact and monitor for cold or influenza-like symptoms.
- Newborn of mother with confirmed COVID-19 is considered a close contact and should isolate with mother for 14 days to ensure the full incubation and infectious period has passed
 - Defer audiology screening while neonate is on infection precautions. If deferred until after discharge ensure follow-up plan is in place for assessment in the community.
 - Ensure confirmed COVID-19 status of mother and neonate are relayed to Public Health Nurse via the Maternal and Newborn British Columbia Community Liaison Record.



Communicate with IPAC and Public Health to discuss appropriate infection 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 in the neonate despite the resolution of symptoms.

References:

1. Puopolos, Karen, Hudak, Mark L. et al. "Management of Infants Born to Mothers with COVID-19", 2 April, 2020, American Academy of Pediatrics Committee on Fetus and Newborn, Section on Neonatal <https://downloads.aap.org/AAP/PDF/COVID%2019%20Initial%20Newborn%20Guidance.pdf>
2. Dong YY, Mo X, Hu YB et al. "Epidemiological characteristics of 2143 Pediatrics Patients with 2019 Coronavirus Disease in China". Pediatrics 2020 Mar [Epub]
3. Royal College of Paediatrics and Child Health. "COVID-19 – guidance for paediatric services". Updated 13th March, 2020.
4. Hospital Authority Central Committee on Infectious Diseases and Emergency Response, Hong Kong. "Interim Recommendation on Clinical Management of Paediatric Patients of Coronavirus Disease 2019 Infection". Effective 13th March, 2020.
5. Royal College of Obstetricians & Gynaecologists. "COVID-19 Virus Infection and Pregnancy". Downloaded 16th March, 2020.
6. Lu Q, Shi Y. "Coronavirus disease and neonate: what neonatologist need to know". Medical Virology 2020 Feb [Epub]
7. Wang LS, Shi Y, Xiao TT et al. "Chinese expert consensus on the perinatal and neonatal management for the prevention and control of the 2019 novel coronavirus infection 1st edition". Annals of Translational Medicine. 2020 February [Epub].
8. Neonatal Unit, Department of Paediatrics, Prince of Wales Hospital, Hong Kong. Management of newborns with COVID-19. 2020 March [personal communication]
9. Neonatal Unit, Department of Paediatrics & Adolescent Medicine, Queen Mary Hospital, Hong Kong. Management of infants with COVID-19. 2020 March [personal communication]
10. Kam KQ, Yung CF, Cui L et al. "A well infant with coronavirus disease 2019 with high viral load". Clinical Infectious Diseases. 2020 February [Epub].
11. Rasmussen SA, Smulian JC, Lednicki JA et al. "COVID 19 and Pregnancy: what obstetricians need to know". American Journal of Obstetrics & Gynecology. 2020 February [Epub]
12. Pediatric Committee, Medical Association of Chinese People's Liberation Army; Editorial Committee of Chinese Journal of Contemporary Pediatrics. "Emergency response plan for the neonatal intensive care unit during epidemic of 2019 novel coronavirus". Chi J Contemp Pediatrics 2020;22(2):91-95.
13. Working group for the Prevention and Control of Neonatal 2019-nCoV Infection in the Perinatal Period of the Editorial Committee. "Perinatal and neonatal management plan for prevention and control of 2019 novel coronavirus infection 1st edition". Chin J Contemp Pediatr. 2020; 22(2):87-90.
14. Section on COVID-19 Infection Precaution, BCCW Infection Control Manual.
15. Toronto Region Recommendations for management of Pregnant Women and Neonates with Suspected or Confirmed COVID-19. Version date: 17th March, 2020.
16. Alberta Health Service. COVID-19 (Novel Coronavirus, 2019-nCoV) Interim IPC Recommendations. Version date: 13th March, 2020



17. BC CDC – PICNet (Provincial Infection control Network of British Columbia). 2019 Novel Coronavirus: Aerosol Generating Medical Procedures in Healthcare Settings http://www.bccdc.ca/Health-Professionals-Site/Documents/2019-nCoV_AGMP_PICNet.pdf Version date: February 7, 2020
 18. BC CDC. Pregnant Women with COVID-19+ or PUI General Guidelines for Admission and Hospital Treatment. <http://www.bccdc.ca/Health-Professionals-Site/Documents/Pregnancy-COVID19-Hospital-Admission-Treatment.pdf> Version date: March 18, 2020
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