

MOH Neonatology Services Improvement Program

Guidelines for Neonates Born to Mothers
with suspected or confirmed COVID - 19 infection

APPLIES TO

All the Health care professional working in NICU, LRDR & OR

DISCLAIMER:

These recommendations will be changed frequently based on available evidence about the best practices in caring of neonates (≤ 28 days old) born to pregnant woman with confirmed or suspected SARS-CoV-2 infection, the virus that causes Coronavirus disease 2019 (COVID-19).

INTRODUCTION:

The Transmission of SARS-CoV-2, to neonates is thought to be predominately to occur primarily through respiratory droplets during the postnatal period when neonates are exposed to mothers or other caregivers with SARS-CoV-2 infection. Limited published reports have raised concern about possible intrauterine, intrapartum, or peripartum transmission. Approximately 2-5% of infants born to mother with positive COVID-19 have positive SARS-CoV-2 positive test in the first 24-96 hrs. Their immature immune system leaves newborns vulnerable to other Severe respiratory viral infections, which may cause severe disease among neonates.

Based on current limited evidence as of 1/ /08/2020, this document provides interim guidance for the management of infants born to mothers with confirmed or suspected COVID-19 infection.

Neonates born to the mothers who are suspected or confirmed COVID-19 infection can be divided to three main groups:

1. Healthy baby
2. Asymptomatic infected (or mild disease) neonate born at or near term who does not require neonatal intensive care.
3. Symptomatic or high-risk neonates requiring neonatal intensive care admission.
(preterm infants (<37 weeks' gestational age) and neonate born with comorbidities may be at higher risk of severe illness from COVID-19).

AIM & SCOPE, TARGETED POPULATION, END USERS, SETUP, METHODOLOGY, CONFLICT OF INTEREST & FUNDING

This guideline Aims to update and standardize the health care practice within L&D and NICU for suspected or confirmed COVID 19 neonates from the moment they are born till they are discharged from NICU based on the local policies, procedures and hospital setups.

It doesn't cover the pediatric population nor patients in PICU.

Targeted population: suspected or confirmed mothers with COVID 19 infection and their first degree relatives

Targeted End users: Neonatologists, Obstetricians, midwives, L&D nurses, NICU Nurses, other health care practitioners dealing with suspected or confirmed COVID 19 infection

Setups: L&D, NICUS that care for suspected or confirmed cases with COVID 19 infection

Methodology: a group of experts have reviewed and summarized the best available evidence (mainly observational studies, experts' opinion recommendation, and international guidelines), they were translated into recommendations using a voting system, guide was then reviewed by a team of experts from NICU, Obstetrics, Infectious diseases consultants.

Conflict of interest: None

Funding: None

Clinical Manifestations:

- Clinical Findings:** Neonates with COVID-19 infection are classified according to the presence or absence of apparent symptoms and signs. The clinical manifestations may be asymptomatic, mild, or severe. Clinical findings, especially in premature infants, are non-specific. Therefore, it is important to closely monitor vital signs, respiratory and gastrointestinal symptoms and signs.
- The signs may include:**
 - Temperature instability: the temperature of an infected infant may be elevated, depressed, or normal.
 - Respiratory and cardiovascular signs may include tachypnea, grunting, nasal flaring, increased work of breathing (WOB), apnea, cough, or tachycardia.
 - Other findings may include poor feeding, lethargy, vomiting, loose stools, and abdominal distension
- Laboratory finding:** Laboratory examinations may be non-specific. Complete blood count (CBC) may show normal or decreased leukocyte counts, or decreased lymphocyte counts. Other findings may include:
 - mild thrombocytopenia
 - elevated levels of creatine kinase, alkaline phosphatase, alanine aminotransferase, aspartate aminotransferase, and lactate dehydrogenase

4. **COVID-19 can be detected by PCR:**

- a. Upper respiratory tract (URT; nasopharyngeal and oropharyngeal),
- b. Lower respiratory tract (LRT; an endotracheal aspirate, or bronchoalveolar lavage)
- c. The blood by serology test
- d. The Stool by PCR

5. **Radiography findings:**

- a. Chest radiograph or lung ultrasound is likely to show pneumonia
- b. Abdominal radiograph may show the characteristic radiographic features of intestinal ileus.

Delivery Room Management and Resuscitation:

1. Delivery should be conducted in isolation room with negative pressure (if not available use single room with Hepafilter).
2. Full maternal assessment done including temperature, oxygen saturation, RR, pain score, and obstetric examination.
3. Currently there is no evidence favoring one form of delivery over the other unless woman's respiratory condition requires urgent delivery.
4. The neonatal team should be informed as soon as possible of maternal admission of suspected or confirmed COVID 19 and the resuscitative and room equipment should be checked before the mother enters the room.
5. The number of health care workers handling the neonate should be kept to a minimum.
6. The neonatal team for resuscitation should be identified and prepared with the adequate time given to don personal protective equipment (PPE)
7. All Health care worker caring for these newborns should don PPE including a disposable gown, surgical mask, face shield, and gloves.
8. Continuous fetal monitoring.
9. **For newborns not predicted to need extensive resuscitation**, a competent neonatal delivery nurse enters the room immediately after delivery and evaluates gestational age, tone, color, and respiratory effort. If there is good tone with spontaneous breathing, the

nurse wraps the newborn with warm blankets and places her/him into a pre-warmed transport incubator and transfer the neonate to the designated isolation room in postnatal ward.

10. **For resuscitation of premature, high-risk, and newborns with anomalies** born to mothers with confirmed or suspected COVID-19, The neonatal team are required to perform stabilization they should use airborne, droplet, and contact personal protective equipment (PPE). This includes, gown, gloves, eye protection (goggles or face shield), and N95 respirator mask or an air-purifying respirator before entering the delivery room.
11. Resuscitation of the baby should be in a separate isolation room.
12. Commonly used neonatal resuscitation equipment should be readily available (e.g. located in disposable grab bags) to avoid taking the full resuscitation trolley into the room unless required.
13. The Obstetric nurse should hand the neonate to the Neonatal team.
14. The stabilization of the neonate should be according to the Neonatal Resuscitation Program (NRP) Guidelines.
15. **Delayed cord clamping** practices should continue as per usual center practice. (If implementing delayed cord clamping practices, mothers with COVID-19 should use a proper mask).
16. **Initial steps:** Routine neonatal care and the initial steps of neonatal resuscitation are unlikely to be aerosol-generating; they include drying, tactile stimulation, placement into a plastic bag or wrap, assessment of heart rate, placement of pulse oximetry and electrocardiograph leads.
17. **Suction:** Suction of the airway after delivery should not be performed routinely for clear or meconium-stained amniotic fluid. Suctioning is an aerosol-generating procedure and is not indicated for uncomplicated deliveries.
18. Before initiating PPV (positive pressure ventilation) or intubation, use a bag-mask device (or T-piece in neonates) with a HEPA filter and a tight seal. The Endotracheal tube must be clamped while Switch from Bag and mask ventilation to transport ventilator.

19. **Endotracheal medications:** Endotracheal instillation of medications, such as surfactant or epinephrine, are aerosol-generating procedures, especially via an uncuffed tube. Intravenous delivery of epinephrine via a low-lying umbilical venous catheter is the preferred route of administration during neonatal resuscitation.
20. Post stabilization, the neonate should be transferred to designated isolation room in NICU via the designated transport incubator with ventilator without undergoing any non-urgent neonatal care.
21. The equipment used should undergo terminal cleaning or disposed of based on universal recommendations following a biohazard decontamination protocol.
22. **SKIN TO SKIN** contact: All neonates should be separated from their mothers with **NO SKIN TO SKIN** contact.

Healthy asymptomatic Neonate

1. Newborns should be physically separated at birth from mothers with suspected or confirmed COVID- 19 infection.
2. The **Healthy Asymptomatic Neonate** should be admitted outside NICU to isolation room with negative pressure. If an isolation room with negative pressure is not available, admit in designated cohort room using Hepa filter in postnatal ward, infants should be placed in air temperature-controlled incubator and maintained at least 6 feet / 2metres apart.
3. Healthcare workers should use gowns, gloves, standard procedural masks, and eye protection (face shields or goggles) when providing care for well infants
4. Newborns should be bathed once the temperature is stable after birth to remove viruses potentially present on skin surfaces.
5. Promptly notify infection control team
6. **If the mother's result is tested negative for COVID-19 infection and the neonate is asymptomatic & stable:** Transfer the baby to the mother / discharge the newborn with follow up.
7. **If the mother's result is tested positive for COVID – 19 infections:** Collect the Oro /nasopharyngeal swab for the newborn at 24hours of age and Continue routine care.

8. **If the mother's result is tested positive** for COVID – 19 infections and the neonate 1st swab result is negative:
 1. Repeat the 2nd swab at 48 hours.
 2. **If the neonate 2nd swab result is tested negative and the neonate is asymptomatic**, discharge the baby with negative caregivers (after 2 consecutive negative results)
 3. If the neonate stays in the hospital, transfer the baby from the isolation room or discontinue the isolation only after 14 days.

9. **If the mother's result is tested positive** for COVID – 19 infections and the neonate 1st swab or 2nd swab result is Positive:
 1. Repeat the sample every 48 - 72 hours until the swab results turns negative.
 2. If the neonate is asymptomatic, discharge once negative for two consecutive samples to a COVID– 19 negative caregivers.

10. In order to minimize PPE use and potential exposures in the postnatal care, routine newborn tests such as screening for congenital heart disease, obtaining the newborn metabolic screen, and newborn hearing screening are performed together.

Symptomatic Neonate requiring Neonatal Intensive Care

1. Infants born requiring neonatal intensive care optimally should be admitted to a single patient room with negative pressure (or using Hepa filter).

2. If a single isolation room is not available, admit in designated cohort room using Hepa filter in NICU, infants should be placed in air temperature-controlled incubator and maintained at least 6 feet / 2metres apart.

3. Promptly notify infection control team

4. All attending healthcare workers must wear PPE before entering the room including a gown, surgical mask, face shield, and gloves.

5. **Droplet precautions** should be followed if the baby has respiratory illness where they will be in an incubator until improved. This means a surgical mask (fluid resistance), gown, gloves and eye protection (goggles).

6. N95 masks are NOT required for health care worker during the routine care of **Symptomatic Neonate** (if suspected or confirmed covid-19 positive mothers) even if they require CPAP/ HFNO / mechanical ventilation.

7. Surgical masks are adequate **except** in the aerosol-generating procedures. Surgical mask required when patient contact, usual practice of gloves with nappy changes AND wash hands thoroughly before and after handling the baby. It is acceptable to wear the mask for 4 hours or till your meal break as long as the mask remains dry. Note: surgical mask should be used as a routine practice.
8. For intubation or extubation / LISA or MIST / open suction / nasopharyngeal sampling - N95 mask and goggles need to be used as well as gown and gloves (full PPE).
9. Before initiating PPV or intubation, use a bag-mask device (or T-piece in neonates) with a HEPA filter and a tight seal. The Endotracheal tube must be clamped while Switch from Bag and mask ventilation to Mechanical ventilator.
10. All body fluids and linens are treated as potential biohazards.
11. Soiled linen should be disposed of according to COVID-19 Infection Prevention and Control Measures.
12. Lab investigations and diagnostic procedures should be requested based on the clinical condition of the baby as indicated.
13. **If the mother's result is tested negative** for COVID-19 infection, transfer out the neonate from the isolation room and continue the close monitoring & supportive care management.
14. **If the mother's result is tested positive** for COVID – 19 infections,
 1. Collect the naso / oropharyngeal swab for the newborn at 24 hours of age.
 2. Continue the close monitoring and supportive care management
15. **If the mother's result is tested positive** for COVID – 19 infections and the neonate 1st swab result is negative:
 1. Repeat the 2nd swab at 48 hours.
 2. **If the neonate 2nd swab result is tested negative, continue the** supportive care management.
 3. Transfer the baby from the isolation room or discontinue the isolation only after 14 days.

16. If the mother's result is tested positive for COVID – 19 infections and the neonate 1st swab result is Positive:
1. Continue close monitoring and supportive care management.
 2. Repeat the sample every 48 - 72 hours' intervals until the result turns negative
 3. If the neonate is fit for discharge, Discharge with COVID – 19 negative caregivers once negative for two Consecutive samples.
 4. Transfer the baby from the isolation room or discontinue the isolation after the 2 negative consecutive swab results.

Breast Feeding:

Mother breast milk is the best nutrition to a newborn. The main risk for infants of breastfeeding is the close contact with the mother, who is likely to share infective airborne droplets.

1. Breastfeeding is not contraindicated at this time.
2. Mothers should be informed about the benefits of breast milk and the risk of newborn infection with skin-to-skin contact.
3. If choose to breastfeed, mothers should perform hand hygiene before breastfeeding and wear a mask during breastfeeding.
4. If an infected mother chooses not to nurse her newborn, she may express breast milk after appropriate hand hygiene, and this may be fed to the infant by other uninfected caregivers.
5. Mothers of NICU infants may express breast milk for their infants during any time that their infection status prohibits their presence in the NICU. NICUs should make arrangements to receive this milk from mothers until they are able to enter the unit.
6. Breast pumps and components should be thoroughly cleaned in between pumping sessions based on the manufacture guidelines that must include cleaning the pump with disinfectant wipes and washing pump attachments with hot soapy water.

Parent visitation:

1. During the COVID-19 pandemic, most NICUs have appropriately limited parent presence and non-parent visitation. Such restrictions minimize the likelihood that vulnerable infants in the NICU will acquire an infection from a visitor with asymptomatic or symptomatic COVID-19. In addition, such policies protect the health and integrity of the specialized NICU workforce.
2. However, Parent visiting to NICU are allowed for 24/7.
3. Mother and father or any family members who Patient under investigation in regards to COVID 19 (PU) should not enter the NICU until their status is resolved.
4. Mother and father with confirmed COVID-19 should not visit NICU infants while able to transmit COVID 19 Infections.
5. If the neonate is diagnosed to be a confirmed case of COVID-19 infection and parents are tested negative for COVID -19 infection, the parents are not allowed to visit until the neonate has been confirmed negative.
6. Videoconferencing can be considered by NICUs who have limited visitation as a means for families to see their child as well as communicate with the healthcare team.

Newborn at Hospital discharge

1. Terminal cleaning and disinfection of the Isolation room should be done following discharge of the neonate.
2. The neonate must be monitored for the 14 days of incubation Period.
3. Parents/caregivers should be given full instructions to seek medical attention, if the neonate develop any symptoms or signs of disease within 14 days after delivery

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Neonate Born to Mothers with Suspected or Confirmed COVID-19 infection guideline flowchart

1. Admit in isolation room or cohort in room (with Hepafilter)
2. Nurse the neonates in an incubator
3. Routine or supportive care

Trace mother result

Mother result – Negative

Mother result - Positive

Asymptomatic & Stable

Symptomatic & unstable

Collect the Oro/nasopharyngeal swab for the neonate at 24Hr after birth

Transfer the baby to mother side or discharge with follow up

Transfer the baby out of isolation room and continue the supportive care.

Trace Neonate result

Neonate first swab result is Negative

Neonate first swab result is Positive

Symptomatic & unstable, continue the supportive management

Asymptomatic & stable

Asymptomatic & stable
Repeat the swab every 48 – 72 hrs until turns negative.

Symptomatic & unstable, continue the supportive management

Repeat second sample at 48hrs

Repeat the second swab at 48hrs

If the second swab result is negative, discharge the baby with negative

Discharge once negative for two consecutive samples with follow up

Repeat the sample every 48 – 72 hrs until the result turns negative

If the second result is negative, discontinue isolation after 14 days

Discontinue the isolation after two negative consecutive swab result