وزارة الصحة
Ministry of Health

MOH Neonatology Services Improvement Program

Saudi MOH Guideline for Neonate Born to Mothers with suspected or Confirmed COVID-19 infection

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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 for pregnant patients with confirmed or suspected novel Coronavirus 2019 (COVID-19) disease.

INTRODUCTION:

Current evidence is consistent with low rates of peripartum transmission and is inconclusive about in utero transmission from mothers with COVID-19 to their newborns.
Neonates can acquire COVID 19 after birth. 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 12/04/2020, 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 between 14 days before delivery and 28 days after delivery can be divided to two main groups:

1. Healthy asymptomatic neonate born at or near term who does not require neonatal intensive care.
2. Symptomatic or high-risk neonates requiring neonatal intensive care.

AIM AND SCOPE:

This expert opinion guideline with limited data used to assist Health Care Practitioners attending deliveries and managing neonates born to mothers who are suspected or confirmed COVID-19 infection.

Note: This guideline will **NOT** cover the management of neonates directly exposed to those who are suspected or confirmed COVID-19 infection (including family members, caregivers, medical staff, and visitors).

CLINICAL MANIFESTATION:

1. **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:
   a. Temperature instability: the temperature of an infected infant may be elevated, depressed, or normal.
   b. Respiratory and cardiovascular signs may include tachypnea, grunting, nasal flaring, increased work of breathing (WOB), apnea, cough, or tachycardia.
   c. Other findings may include poor feeding, lethargy, vomiting, loose stools, and abdominal distension.

1. 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:
   a. mild thrombocytopenia
   b. elevated levels of creatine kinase, alkaline phosphatase, alanine aminotransferase, aspartate aminotransferase, and lactate dehydrogenase

2. **COVID-19 can be detected in the**:
   a. Upper respiratory tract (URT; nasopharyngeal and oropharyngeal),
   b. Lower respiratory tract (LRT; an endotracheal aspirate, or bronchoalveolar lavage)
   c. The blood
   d. The stool

3. <u>Radiography findings:</u>
   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 OF NEONATES:

Preparation prior to delivery:

1. Delivery should be conducted in isolation room.
2. Mode of delivery should not be affected by the presence of COVID-19

3. 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.

4. Refer to the most senior on-call in NICU.

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. The neonatal team must put on personal protective equipment (PPE) before entering the Delivery Room.

8. Resuscitation of the baby preferably to be in a separate room

9. Commonly used neonatal resuscitation equipment should be readily available (eg located in disposable grab bags) to avoid taking the full resuscitation trolley into the room unless required.

10. A designated resuscitator, transport incubator and single use equipment (preferable) should be used.

Immediate care of the neonate after delivery:

1. The Obstetric nurse should hand the neonate to the Neonatal team.

2. The stabilization of the neonate should be according to the Neonatal Resuscitation Program (NRP) Guidelines.

3. Delayed cord clamping (DCC) is not recommended.

4. Post stabilization, the neonate should be transferred into the designated transport incubator without undergoing any non-urgent neonatal care.

5. All non-urgent neonatal care and examination should be carried out in the isolation room e.g. weighing, immunization.

6. All neonates should be separated from their mothers with **NO SKIN TO SKIN** contact.

7. The equipment used should undergo terminal cleaning or disposed of based on universal recommendations following a biohazard decontamination protocol.

Healthy asymptomatic Neonate

1. Newborns should be separated at birth from mothers with suspected or confirmed COVID-19 infection.

2. If the same neonatal team who attended the delivery is also attending to the neonate in the isolation room, they should perform hand hygiene, remove the PPE used during the transfer and use new PPE.

3. Infants born at or near term who are well-appearing at birth may be admitted to designated isolation room physically separate from healthy newborns unaffected by maternal COVID-19. An incubator is not required for isolation unless indicated.

4. Newborns should be bathed as soon as reasonably possible after birth to remove viruses potentially present on skin surfaces.

5. If a single room is not available, or if the COVID exposed infant census requires cohorting, infants should be maintained at least 6 feet apart and/or placed in air temperature-controlled incubator.

6. Promptly notify infection control team

7. Laboratory and radiography investigations:
   a. CBC, C-reactive protein (CRP)
   b. Chest radiograph.

8. **If the mother's result is tested negative** for COVID-19 infection:
   1. Breast feeding and rooming in with mother is allowed.
   2. Discharge the baby with follow up.
   3. The neonate must be monitored until Day 28 of life.

9. **If the mother's result is tested positive** for COVID – 19 infection:
   1. Collect the Oro /nasopharyngeal swab for the newborn at birth.
   2. Continue with routine care.
   3. **If the neonate result is tested negative born to a mother with confirmed COVID 19 infection** (asymptomatic and stable), discharge once negative for two consecutive samples to a COVID – 19 negative caregivers.
   4. **If the neonate result is tested positive born to a mother with confirmed COVID 19 infection** (asymptomatic and stable):

1. Continue close monitoring and routine care management.
2. Repeat the sample every 48 - 72 hours until the result turns negative
3. Discharge once negative for two consecutive samples to a COVID – 19 negative caregivers.
4. Plan for frequent follow-up through 14 days after birth including parent's education.

Symptomatic Neonate requiring Neonatal Intensive Care

1. Infants born requiring neonatal intensive care optimally should be admitted to a single patient room (preferably negative pressure or using Hepa filter if available).
2. If a single room is not available, or if the COVID exposed infant census requires cohorting, infants should be maintained at least 6 feet apart and/or placed in air temperature-controlled incubator.
3. **Droplet and isolation 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).
4. N95 masks are NOT required for newly born babies (suspected or confirmed covid-19 positive mothers) even if they require CPAP/ HFNO / mechanical ventilation.
5. Surgical masks are adequate except in the following aerosol-generating procedures.
6. 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).
7. Once improved continue to nurse the baby in an incubator for 14 days. 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.
8. All attending healthcare workers must wear PPE.
9. All body fluids and linens are treated as potential biohazards.
10. In the isolation room, the neonate should be cleaned, weighed and immunized including given Vitamin K injection.
11. Soiled linen should be disposed of according to COVID-19 Infection Prevention and Control Measures.
12. Promptly notify infection control team
13. Laboratory and Radiological tests:
    1. CBC, CRP, Blood Culture
    2. Blood gas analysis, acid-base studies

3. Serum electrolytes, liver and kidney function with cardiac biomarkers
4. Chest radiograph. Lung ultrasound is recommended
5. Other investigations as needed

14. Medical management is according to neonatal unit guidelines in consultation with pediatric infectious disease team. Antibiotics to treat presumed sepsis should be considered until results are available

15. **If the mother's result is tested negative** for COVID-19 infection, continue the close monitoring and supportive care management.

16. **If the mother's result is tested positive** for COVID – 19 infection,
    1. Collect the naso / oropharyngeal swab for the newborn at birth.
    2. Continue the close monitoring and supportive care management

17. **If the high-risk neonate result is tested negative (born to a mother with confirmed COVID 19 infection)**, continue the close monitoring and supportive care management. Repeat second sample at 48 - 72 hours to confirm negative.

18. **If the high-risk neonate result is tested positive (born to a mother with confirmed COVID 19 infection):**
    1. Continue close monitoring and supportive care management.
    2. Repeat the sample every 48 - 72 hours intervals until the result turns negative
    3. Plan for Discharge to a COVID – 19 negative caregivers once negative for two Consecutive samples.

Breast Feeding:

1. The neonate should not receive direct breast milk until mother status has been confirmed to be negative of COVID-19.

2. Mothers should express breast milk (after appropriate breast and hand hygiene) and this milk may be fed to the infant by designated caregivers

3. 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.

Newborn birth 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 until Day 28 of life with the care giver.

3. Parents/caregivers should be given instructions to seek medical attention should the neonate develop any symptoms or signs of disease within 28 days after delivery.

Visiting Restrictions

1. Parent visiting not allowed in level 2 &3 care. Use phone and video modalities to keep contact.
2. For preterm babies/ babies requiring a long stay – their parents can only come to the unit once they have no symptoms for at least 7 days and 2 COVID-19 tests taken 24 hours apart are negative.
3. 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.

DECLARATION:

No conflict of interest

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

Admit in Isolation room
Close monitoring and supportive care for high-risk or sick babies

Trace mother result

Mother result - Negative

- Asymptomatic and stable
  - Discharge the baby with follow up
- If the neonate requires intensive care, continue the supportive management

Mother result - Positive

Collect the Oro /nasopharyngeal swab for the neonate at birth

Trace result - Neonate

Neonate result is Negative

- Symptomatic and unstable, continue the supportive management
  - Repeat 2nd sample at 48 - 72 hours
- Asymptomatic and stable
  - Discharge once negative for 2 consecutive samples with follow up

Neonate result is Positive

- Asymptomatic and stable neonate
  - Repeat the sample every every 48 hours until turns negative
  - Discharge once negative for 2 consecutive samples with follow up
- Symptomatic and unstable, continue the supportive
  - Repeat the sample every 48 - 72 hours until the result turns negative