COVID 19 Neonatal Guidelines

NNF Kerala

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Dear friends,

Warm greetings from NNF Kerala!

This document outlines the guidelines for the Management of COVID 19 viral infection in neonates in Kerala. Novelty of the problem and scarcity of resources are bound to affect the results of our treatment in case of an outbreak in the coming days. While hoping that we will never have to encounter such a scenario, these guidelines are meant to address our bed-side concerns in case of such a necessity.

In case of an outbreak, scarcity of resources might be the order of the day. Lack of personnel, PPE, dedicated negative suction air curtained rooms and ventilators could all make our task very challenging for the management of the cases. It is suggested that we pool our resources in such a scenario and work as a team for the betterment of new-born infants of our state. NNF Kerala will be proud to assist you in such times to organize our collective management strategy in coordination with the governmental agencies and other organizations like IAP and KFOG.

These guidelines are prepared by Dr Binesh Balachandran, Dr Febi Francis and Dr Shabeer M.P with inputs from many of our seniors and colleagues. NNF Kerala wishes to express its profound gratitude to all of them! As these guidelines are based on the limited evidence available as of now, some of these recommendations may evolve with the accumulation of new evidence in the future to continue refining our clinical practice. It is suggested that you use these guidelines in accordance with the latest government regulations, ICMR advisories and FOGSI NNF IAP Clinical practice guidelines.

Let us resolve to work together in these difficult times!

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Introduction

Definition

- **Suspected COVID 19mother**
  - Symptomatic mother in perinatal period with history of travel to affected countries or affected states / places in India or history of contact with persons travelled to affected countries or affected states / places in India during the 14 days prior to onset of symptoms.

  Or
  - Symptomatic antenatal mother when no other etiology explains her clinical presentation.

  Or
  - A health care working antenatal mother in contact with confirmed COVID-19 case in last 14 days prior to onset of symptoms.

- **Confirmed COVID 19mother**
  - Mother with positive RT-PCR for COVID 19 irrespective of clinical signs and symptoms

- **Suspected COVID 19 infant**
  - Newborn born to the mothers with a history of COVID 19 infection between 14 days before delivery and 28 days after delivery, or the newborn directly exposed to those infected with COVID 19(including family members, caregivers, medical staff, and visitors)

- **Confirmed COVID 19 infant**
  - Diagnosis of COVID 19 infection can be confirmed if 1 of the following etiological criteria is met IRRESPECTIVE OF
    I. Respiratory tract or blood specimens tested by real-time fluorescence polymerase chain reaction (RT-PCR) are positive for COVID 19 nucleic acid;
    II. Virus gene sequencing of the respiratory tract or blood specimens is highly homologous to that of the known COVID 19 specimens.

Viral Transmission

- Transmission via **droplets and touch/ fomites**
- Air born spread can occur with aerosols
- Fecal-oral: Possible
- Vertical transmission: unlikely, but cannot be ruled out

General Precautions

- Maternal contact / travel history /details of ANC/ spouse or relative travel details must be routinely asked and documented
- Social distancing (minimum 1 m) during postnatal rounds from bystanders / mother, while communicating with mother and examining the baby
- Face mask usage should be routine during rounds / OPDs / counselling/interaction
- 100% Hand hygiene compliance to be ensured and monitored
- Use non-dominant hand for opening doors
- Parent counselling area to be shifted outside the NICU
- Periodic disinfection of all the door handles (every 2-4 hrly) during working hours
- X ray film casket in a dedicated cover , while inside NICU
- Restrict the bystander number to 1 or none with the mother during rounds
- Social distancing (minimum 1 m) between the team members (doctors/ nurses/ support staff etc) during rounds at any patient care area

PPE

- Respiratory protection: Triple layered surgical mask
  N95 face masks are needed when performing an aerosol-generating procedure or in an area where neonates are being provided respiratory support by CPAP device/ ventilator or during resuscitation (including at delivery)
- Eye protection: Goggles or face shield
- Body protection: long-sleeved water-resistant gown
- Hand protection: Gloves
- Feet protection: Shoe cover
- **Donning & Doffing** areas to be ear marked near labour room/ OT/ isolation NICU
- Donning & Doffing training as per guidelines should be given to all staff members

Preparation

- There should be separate rooms for suspected, and confirmed cases
- If cared in single room, ensure adequate separation between the cohorts
- Isolation room with negative pressure ventilation is preferred for patients requiring aerosolization procedures (respiratory support, suction, nebulization)
- Diagnosis and treatment items (stethoscope, thermometer, etc.) and nursing facilities should be kept for their particular use
- Suspected or confirmed neonates are suggested to be placed in an incubator if possible

Disinfection

- First clean with soap and water solution or soaked cloth as appropriate before applying the disinfectant, if the equipment if visibly soiled
- 0.5% sodium hypochlorite (equivalent to 5000 ppm) can be used to disinfect large surfaces like floors and walls at least once per shift and for cleaning after a patient is transferred out of the area
- 70% ethyl alcohol can be used to disinfect small areas between uses, such as reusable dedicated equipment
- Hydrogen peroxide (dilute 100 ml of H_2O_2 10% v/v solution with 900 ml of distilled water) can be used for surface cleaning of incubators, open care systems, infusion pumps, weighing scales, standby equipments, ventilators, monitors, phototherapy units, and shelves. Use H_2O_2 only when equipment is not being used for the patient. Contact period of 1 hour is needed for efficacy of H_2O_2

Delivery Room Neonatal Management of Suspected / Confirmed COVID 19 Mother - NNF Kerala Guidelines

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Area Location

- Receive the newborn in an area outside the delivery room / operation room (Separate from normal resuscitation corner)
- If not in a different room, resuscitation area should be > 2 meter from mother (consider a *physical barrier - e.g., curtain)*
- **Donning & Doffing** area to be ear marked.

Team Members

- **Anticipate that the baby will require respiratory support***(to avoid panic)*
- Appropriately skilled neonatal team members should be present at delivery after Donning (wearing **PPE including N 95 mask)**
- Efforts should be made to *minimise team members (preferably 2 members),* Keep ready a **Help** (*'clean' staff member*) outside the room

Equipments

- Use Minimum Equipments & Consumables
- Arrange essential Equipment & Consumables as per NRP 2015
- Dedicated Radiant warmer & SpO_2 monitor
- Maintain Checklist
- PPV using self-inflating bag (Avoid T piece Resuscitator)
- If additional equipment is required, this can be passed to the team by Help

Resuscitation

- During Resuscitation follow NRP 2015 Guidelines
- **No Skin to Skin Contact**
- **No Delayed Cord Clamping**
- Routine Care - Drying , Eye care , Inj Vit K , Inj Hep B
- Bathe term stable neonates after routine care
- Check birth weight using separate weighing machine

Transport

- Transport the baby to designated area in a Closed incubator
- If incubator facility not available – Open care or cradles with cling wrap cover till reaching designated area
- Sick Neonate - Designated Isolation NICU for COVID 19
- Transport equipments to be disinfected promptly. Cling wrap should be disposed as presumed infected in appropriate bag as per COVID 19 Cleaning policy

- Antenatal & Labour Guidelines as per H & FW GoK dated 24th March 2020.
- Antenatal Steroids, Antenatal MgSO4 as per Routine Guidelines

Postnatal Management of **Stable Neonates** of **Suspected** COVID 19 Mother - NNF Kerala Guidelines

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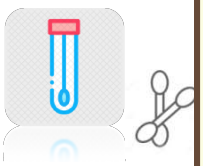
Area Location

- Keep the neonate **ROOMING IN** with the mother
- Mother & Neonate Dyad in a Designated Isolation Room
- Aim for 2 meter separation when mother not providing direct care for the baby
- One care taker who is not positive for COVID 19, not under direct contact with suspected or confirmed COVID 19 and not symptomatic is allowed in the room to take care of the neonate

Breast Feeding

- Direct Breast feeding after Hand and Breast Hygiene
- Triple layer Face Mask for the Mother while Breast Feeding
- Turn face away from the baby while coughing or sneezing during breast feeding

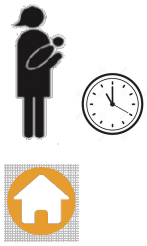


Swab For Viral Check

- No routine swabs taken from the neonate
- In Symptomatic Mother – Follow up mother's swab RT PCR results. If mother's RT PCR positive, take swabs from the neonate as per confirmed COVID 19 mother Guideline
- Asymptomatic -Monitor the mother , If mother having onset of symptoms of COVID 19, send swab from the mother for RT PCR & follow up
- No routine lab investigations required for the stable neonate

Neonatal Examination

- Routine physical examination should be done - @ birth, Daily rounds & @ Discharge
- Daily examination & monitoring with PPE with N 95 mask
- Monitor Vital signs Q6H
- Newborn Screening (TSH, SpO2 screening) as per routine
- Metabolic screening / Visual Birth Defect (VBD) screening may postpone



Discharge

- If mother's RT PCR Positive -Manage as per Confirmed COVID 19 mother Guideline
- Discharge early, if criteria for early discharge satisfies & maternal RT PCR is negative
- OAE may done on follow up after 2 wks (after Isolation period)
- BCG vaccination may done on follow up after 2 wks (after Isolation period)
- Explain Danger signs & Follow up plan clearly
- Telephonic clarification of doubts & apprehensions after discharge through **DISHA** helpline numbers

Postnatal Management of **Stable Neonates** of **Confirmed** COVID 19 Mother - NNF Kerala Guidelines

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Area Location

- If Isolation & Monitoring facilities are available **ISOLATE** the neonate from the mother
- One care taker who is not positive for COVID 19, not under direct contact with mother/ other suspected or confirmed COVID 19 and not symptomatic is allowed in the room to take care of the neonate
- Mother and baby can be roomed-in once mother has been tested and declared as clear of infection.

Or

- If isolation is not possible, keep the neonate **ROOMING IN** with the Mother
- Mother & Neonate Dyad in a designated isolation room
- Triple layer face mask & strict hand hygiene for the mother
- Aim for 2 meter separation when mother not providing direct care for the baby
- One care taker who is not positive for COVID19, not under direct contact with mother or other suspected / confirmed COVID 19 and not symptomatic is allowed in the room to take care of the neonate
- Donning & Doffing areas to be identified and used as per PPE COVID 19 recommendations

Feeding

- If neonate isolated from mother Expressed Mother's own Milk (MoM) feeding preferred
- Expression of breast milk by Breast pump or Manual method after Hand and Breast Hygiene
- EBM feeding by Cup or Paladai under strict aseptic precautions by care taker

Or

- Direct Breast feeding after Hand and Breast Hygiene
- Triple layer face mask for the mother while breast Feeding
- Turn face away from the baby while coughing or sneezing during breast feeding
- Direct breastfeeding without PPE can be resumed after 2 negative maternal RT PCR tests ≥ 24 hrs apart+ resolution of fever/symptoms or if infant is also positive for COVID 19

Swab for Viral check

- Under strict PPE COVID 19 recommendations
- **Time** - First sample **at 24 hrs** after birth, if negative send second sample **after 48 hrs** after wearing PPE with N 95 mask
- **Site** - Upper Nasopharyngeal swab
- **Procedure** - Insert a swab into nostril parallel to the palate. Swab should reach depth equal to distance from nostrils to outer opening of the ear.
  Leave swab in place for several seconds to absorb secretions. Slowly remove swab while rotating it. Place swabs immediately into sterile tubes containing 2-3 ml of viral transport media.

Postnatal Management of **Stable Neonates** of **Confirmed** COVID 19 Mother - NNF Kerala Guidelines

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Neonatal Examination

- Under Strict PPE COVID 19 recommendations after doing donning with PPE with N 95 mask
- Routine Physical Examination should be done - @ birth, Daily rounds & @ Discharge
- Daily examination & monitoring - Monitor Vital signs Q6H and symptoms of COVID 19 infection
- Newborn Screening (TSH, , SpO2 screening) as per routine
- Postpone Metabolic screening /VBD screening for 2 – 3 wks

Discharge

- If Neonate RT PCR positive & symptomatic - Manage as per Confirmed COVID 19 infant symptomatic Guideline
- If neonate isolated from mother from birth & 2 samples 48 hrs apart RT PCR Negative
  - Discharge to a healthy caretaker until mother has resolution of fever + improvement in signs/symptoms + two negative RT PCR test ≥ 24hrs apart
- If neonate not isolated from mother from birth & 2 samples 48 hrs apart RT PCR Negative
  - Keep with the mother with contact & droplet precautions until mother has resolution of fever + improvement in signs/symptoms + two negative RT PCR test ≥ 24hrs apart and Discharge with the mother
- If Mother & baby positive but asymptomatic –
  - Discharge early, if criteria for early discharge satisfies & strict home monitoring is possible
- OAE may done on follow up after 2 wks (after Isolation period)
- BCG vaccination may done on follow up after 2 wks (after Isolation period)
- Explain Danger signs & symptoms of COVID 19
- Explain Follow up plan clearly
- Telephonic clarification of doubts & apprehensions after discharge through **DISHA** helpline numbers

Postnatal Management of **Sick Neonates** of **Suspected/Confirmed** COVID 19 Mother - NNF Kerala Guidelines

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Transport

- Transport the baby to designated area in a closed incubator
- If incubator facility not available – Open care or cradles with cling wrap cover till reaching designated area
- Ensure proper monitoring of vitals during transport, use a pulse oximeter
- Transport team should wearing PPE with N 95 mask

Area Location

- Should be managed in separate isolation facility
- Donning & Doffing area to be identified and used as per PPE COVID 19 recommendations
- Suspected COVID-19 cases and confirmed COVID-19 cases should ideally be managed in separate isolations
- Back up ventilator, CPAP and other equipments along with accessories must be ear marked and kept at all times *(Ready to transfer to area when need rises)*
- If not feasible to have separate facilities and the neonates with suspected and confirmed infection are in a single isolation facility, they should be segregated by leaving enough space between the two cohorts.
- Negative air borne isolation rooms are preferred for patients requiring aerosolization procedures (respiratory support, suction, and nebulization). If not available, negative pressure could also be created by 2-4 exhaust fans driving air out of the room.
- Isolation rooms should have adequate ventilation. If room is air-conditioned, ensure 12 air changes/ hour and filtering of exhaust air
- These areas should not be a part of the central air-conditioning

Team Members

- The doctors, nursing and other support staff working in these isolation rooms should be separate from the ones who are working in regular NICU/SNCU.
- The staff should be provided with adequate supplies of PPE.
- The staff also needs to be trained for Donning & Doffing (safe use and disposal of PPE)

Lab Testing & Swab for Viral check

- Under strict PPE COVID 19 recommendations
- **Time** - If symptomatic, specimens should be collected **as soon as possible** , Do a repeat test **after 48 hours** if initial sample is negative
- **Site - Upper Nasopharyngeal swab,** if intubated send **Tracheal aspirate** also
- CBC, Blood culture, Electrolytes, LFT and RFT can be done as and when required
- Procedure as mentioned above *(Page 7)*

Postnatal Management of **Sick Neonates** of **Suspected/Confirmed** COVID 19 Mother - NNF Kerala Guidelines

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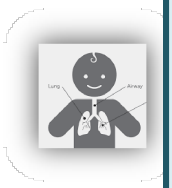
Supportive Care

- Closed incubators are preferred whenever feasible
- General supportive care including fluid and electrolyte management, shock management, use of antibiotics can be done as per standard guidelines/ unit policy
- Remember to also investigate and treat for non-COVID-19 pathologies



Respiratory Support

- Respiratory support for neonates with suspected/proven COVID-19 infection is guided by principles of lung protective strategy including use of non-invasive ventilation.
- NIPPV and High Flow Nasal cannulas should preferably be avoided *(Risk of aerosol generation is high)*
- Supplemental low flow oxygen, CPAP and Invasive ventilation can be used as per existing policy for respiratory support
- Staff with appropriate competencies should only undertake intubation.
- Inline suction with endo tracheal tubes should be used, where possible
- Healthcare providers should practice contact and droplet isolation and wear N95mask while providing care in the area where neonates with suspected/provenCOVID-19 infection are being provided respiratory support.

Specific Medications

- Antivirals or Chloroquine/Hydroxychloroquine – are **NOT recommended** in symptomatic neonates with confirmed or suspected COVID-19
- Use of adjunctive therapy such as systemic corticosteroids and intravenous gamma globulin is **NOT recommended** in symptomatic neonates with confirmed or suspected COVID-19
- Use of micronutrients such as Zinc or Vitamin A for immunomodulation is not backed by any evidence so far and hence is **NOT recommended**

Feeding

- Expressed breast milk can be introduced via feeding tube in a sick neonate as and when baby's general condition permits
- EBM feeding by cup or paladai can be done in more stable babies under strict aseptic precautions with adequate PPE for the care giver
- Direct breast feeding with PPE can be encouraged in more stable babies until mother and baby is tested negative twice 24 hours apart

Transfer & Discharge

- Transfer from isolation can be done when neonate once symptoms are resolved and baby is tested negative twice 24 hours apart
- If mother is still sick, discharge to a healthy care taker can be done if baby is tested negative twice 24 hours apart
- Discharge plans as per stable neonate Guidelines *(Page 8)*

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