Duke University Hospital and Duke Regional Hospital COVID-19 Management Guidelines for Asymptomatic Term and Late Preterm Newborns

Below are guidelines for management of asymptomatic newborns born to a mother with suspected or confirmed SARS-CoV-2 infection. These guidelines are adapted from and supplemental to the "Duke Newborn Nursery (NBN), Intensive Care nursery (ICN) and Birth Center COVID-19 Management Guidelines for Newborns and Infants" by Samia Aleem, Kamlesh Athavale, Ronald N. Goldberg, C. Michael Cotten for the ICN COVID-19 Executive Committee.

There will be ongoing revisions based on available data and recommendations from local and public health authorities.

I. This policy applies to:

Term and late preterm asymptomatic newborns that would otherwise be admitted to the mother-baby units at either DUH or DRH.

II. Definitions:

SARS-CoV-2: Novel Coronavirus that causes COVID-19.

COVID-19: symptomatic respiratory illness caused by the SARS-CoV-2 virus**.**

PUI: person under investigation for COVID-19.

III. Background information:

Coronavirus disease 2019, abbreviated as COVID-19, is a disease caused by the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). Relatively few cases of COVID-19 caused by SARS-CoV-2 infection have been reported in children compared with the total number of cases in the general population. Current literature suggests that SARS-CoV-2 infection in neonates is uncommon, and when identified, it tends to cause asymptomatic or mild symptoms. While serious illness in neonates has been reported (Coronado Munoz A et al NEJM 2020, Diaz et al, Anales de Pediatria 2020), to date there have been no known cases of an infant who has died during the initial birth hospitalization as a direct result of SARS-CoV-2 infection.

Risk to Newborn:

1) Perinatal transmission of SARS-CoV-2 from mother to neonate is due to postnatal exposure to mother's respiratory secretions. Evidence suggests that antenatal or vertical transmission from mother to fetus is rare.

2) Currently available data show that approximately 2-5% of infants born to women with COVID-19 near the time of delivery have tested positive in the first 24-96 hours after birth. The likelihood that an infant has a positive PCR test for SARS-CoV-2 is similar for infants who are separated from their mothers and for infants who room-in with mothers using infection prevention measures (Salvatore et al, Lancet Child Adolesc Health 2020). We do not know what if any risk is posed to infants of a pregnant woman with COVID-19, however there appears to be a low risk of perinatal transmission with strict infection control practices (Salvatore et al, Lancet Child Adolesc Health 2020).
3) We do not know if mothers with SARS-CoV-2 or COVID-19 can transmit the virus via breast milk. Limited studies indicate that the virus is not detected in breast milk. Rates of SARS-CoV-2 in neonates do not seem to be affected by infant feeding method.

IV. Prevention of transmission:

Early evidence supports transmission of SARS-CoV-2 by respiratory droplet and not by airborne transmission; however, a more recent report indicates potential for aerosol spread (van Doremalen et al, *NEJM* 2020). Where available, isolation rooms with negative air pressure should be used for the care of symptomatic patients with confirmed or suspected COVID-19 requiring critical care. These rooms may be limited or unavailable at many centers, and should be reserved for patients with COVID-19, as well as person under investigation (PUIs), who require respiratory procedures or support (e.g., invasive suctioning beyond regular in-line suctioning, CPAP, mechanical ventilation) that may result in mechanical aerosolization of respiratory secretions.

According to the DUHS inpatient ICU guideline, (https://covid-19.dukehealth.org/) **Special Airborne Contact** isolation will be used. This combines airborne and enhanced droplet precautions, and includes:
1) N95 respirator mask or powered air purifying respirators (PAPR) replacing the standard procedural face mask
2) Eye protection (Goggles or face shields must be used with N95 respirators for eye protection; PAPRs provide eye protection)
3) Gown
4) Non-sterile gloves
5) Shoe covers

The proper technique for donning and doffing personal protective equipment (PPE) can be found here: https://covid-19.dukehealth.org/PPE

V. Management of Infant born to SARS-CoV-2 positive/PUI mother immediately after delivery:

As more is known about the risk of infection and outcomes for neonates, expert guidance on management of infants born to mothers with known or suspected SARS-CoV-2 has evolved. In accordance with the most recent AAP guidance (updated on 7/22/2020), we recommend that infants born to mothers with SARS-CoV-2 room-in with their infants.

However, in recognition of the guidance issued by the CDC (updated 8/3/2020), every family where the mother is SARS-CoV-2 positive/PUI (symptomatic or asymptomatic) the family should be counseled by a Pediatric provider about the pros/cons of separation versus rooming in and should be offered the option of separating mother and infant if the family would prefer. The details of the conversation and the family's ultimate decision should be documented in the electronic chart. Using a shared decision-making model on a case-by-case basis, the decision of separation versus rooming-in should be made by the family and the Pediatric provider. The decision should take into consideration factors including the mother's desire for breastfeeding, the clinical condition of the mother and her ability to care for the infant, the unit census and the ability to accommodate separation and rooming-in, and the family's ability to maintain separation upon discharge, if desired.

A. Decision to Separate Mother and Infant:

1) At DUH, asymptomatic newborns will be admitted to the designated Peds isolation room(s) on 5100 or 5300, the General Pediatrics team will provide clinical care. Infants can be admitted to the ICN if the infant's clinical condition requires this.
2) At DRH, asymptomatic newborns will be located on 4300. These infants will be cared for by the Duke Pediatrics Nursery team.
3) Infant should be bathed using standard practices as soon after birth as is reasonable (do not wait until 24 HOL).
4) Per CDC recommendations, both mother and baby will remain in isolation and will be separated until cleared by Infection Control.(https://covid-19.dukehealth.org/documents/criteria-discontinuation-special-airborne-contact-isolation-confirmed-covid-19-patients)
5) If the mother is a PUI, and ultimately tests negative, the infant may return to the mother's room on L&D/postpartum
6) Infants who are PUIs cannot cohort with other PUI infants nor with SARS-CoV-2-positive infants.
7) Discuss with Infection Prevention if there is a need to cohort patients with confirmed SARS-CoV-2.
8) Feeding maternal breastmilk
    a. Mother may express breast milk (after appropriate hand hygiene) and face mask placement. This milk may be fed to the infant by designated caregivers.

b. Breast pump should be dedicated to the mother and not shared with others. Limit use of shared equipment for patients with confirmed SARS-CoV-2.. Breast pumps and components should be thoroughly cleaned in between pumping sessions using standard policies (clean pump with antiseptic wipes; clean pump attachments with hot soapy water).

B. Decision for Mother and Infant to Room In:

1) If the decision is made for mother and infant to room in, the infant may room in with mother while on appropriate isolation precautions.
    a. At DUH, this will be preferentially in room 5715 (or wherever they deliver if there are multiple PUIs in the Birthing Center) for the duration of their stay. Infant will be cared for by the Full Term Nursery team.
    b. At DRH, location for rooming in will on 4300. These infants will be cared for by the Duke Pediatrics Nursery team
2) The following CDC guidelines are to be employed while rooming in:
    a. Infant bassinet should stay 6 feet from mother and separated by a curtain or other physical barrier when not interacting with infant.
    b. Mothers should wear a mask and practice hand hygiene during all contact with their neonates.
    c. Mothers who choose to breastfeed should take measures, including wearing a mask and practicing hand hygiene, to minimize the risk of virus transmission while feeding

C. Medical Management of ICN and NBN infants born to mothers with proven or suspected SARS-CoV-2

1) All infants born to mothers who a have confirmed SARS-CoV-2 will be considered PUI and placed on Special Airborne and Contact isolation.
2) Vital signs should be obtained q 4hrs for the first 48 hrs of the infant's admission, and the infant should not be discharged prior to 48 hours old (even if the infant tests negative for SARS-CoV-2)
3) A designated, limited set of caregivers will be assigned to the infant, where possible. This will be discussed on a daily basis, and will depend on the number of patients, location, and provider and PPE availability.
4) Infant should be bathed using standard practices as soon after birth as is reasonable possible (do not wait until 24 HOL).
5) Testing for perinatal viral acquisition based on current CDC or North Carolina Department of Health guidelines should be done based on the availability of testing. Currently, screening all infants born to mothers with confirmed SARS-CoV-2 or PUIs soon after birth is recommended and should be performed when the neonate is >24 hours old.
6) Contact Hospital Infection control and the COVID Command Center per current hospital policy.
7) Testing on infants: Collect 1 nasopharyngeal (NP) sample for a PCR test. Lab-based PCR tests preferred over rapid tests in asymptomatic infants.

a. When to test: Testing will be obtained between 24 and 36 hours of age. Testing should not be obtained before 24 hours of age in order to avoid detection of transient viral colonization and to facilitate detection of viral replication.
b. Infants with anticipated prolonged stays (longer than 48 hours) may be tested a second time prior to discharge if clinical situation warrants.

8) Treatment of SARS-CoV-2 positive infants: Discussion with Pediatric Infection Control and Pediatric Infectious Diseases is required for confirmed SARS-CoV-2 positive patients, as the institutional as well as national guidelines continue to evolve.

D. Performance of Normal Newborn Care Tasks

1) Infant should be bathed using standard practices as soon after birth as is reasonable possible (do not wait until 24 HOL).
2) Physical exams of infants should be performed by providers wearing appropriate PPE. If infant is rooming in with mother, exam should be performed > 6 feet away from the SARS-CoV-2 positive/PUI mother.
3) Bilirubin measurements should be obtained as per the usual protocol with either transcutaneous or serum measurements in accordance with hyperbilirubinemia risk factors.
4) Hearing screens may be performed in the infant's room as usual, with appropriate cleaning of the hearing machines after use.
5) If equipment must be shared between multiple patients, it should be thoroughly cleaned per the current cleaning protocols between patients

E. Discharge Criteria

1) Considerations for when the infant is medically appropriate for discharge include:
    a. Optimally, infants whose infection status has been determined to be negative will be discharged home when otherwise medically appropriate to a designated healthy caregiver who is SARS-CoV-2 negative and does not have active COVID-19 symptoms. If such a caregiver is not available, manage on a case-by-case basis.
    b. Infants determined to be SARS-CoV-2-positive but asymptomatic may be discharged home after consultation with Infection Control, after a minimum inpatient observation period of 48 hours. **Contact Infection Prevention team to ensure the appropriate flag "Exposed to COVID-19" is included in the chart PRIOR to discharge.**
    c. We anticipate that there may be logistical difficulties in arranging frequent PCP follow-up of infants that are either SARS-CoV-2 positive or have a SARS-CoV-2 positive mother. As such, efforts should be made to ensure that the infant's bilirubin and weight loss are reassuring prior to discharge and hence would be unlikely to need frequent outpatient monitoring. These

infants should not be discharged if they would need a bilirubin to be obtained on a weekend, and they should not be directed to the Valvano Day Hospital for weekend bilirubin draws.

2) The infant's PCP office should be notified prior to discharge to discuss the location of the office visit and any changes to the check in process, in order to minimize exposure of other patients in the PCP's office. Where possible, the infant should be discussed with a nurse or provider at the PCP's office, rather than just a receptionist or administrative person.
3) An infant born to a mother who has SARS-CoV-2 at time of delivery but where the infant tests negative after 24 HOL should be considered a PUI for 14 days after birth. A mother who tests positive can discontinue her own isolation precautions 10 days after positive test, or 10 days after symptoms began, AND 24 hours since last fever without anti-pyretics. https://covid-19.dukehealth.org/documents/criteria-discontinuation-special-airborne-contact-isolation-confirmed-covid-19-patients

F. Visitation for infants born to women with confirmed or suspected SARS-CoV-2

1) Follow current SARS-CoV-2-19 Visitation in DUHS Birthing Centers policy https://covid-19.dukehealth.org/documents/duke-university-hospital-and-duke-regional-hospital-birthing-center-visitation-guidelines
2) Please refer to DUHS policy regarding PPE for visitors.
3) If the family chooses for mother and infant to be separated after birth, infant will be allowed (1) caregiver who will be confined to patient's room. The mother's designated support person may choose to leave the mother at this point and become the infant's caregiver as long as he/she remains asymptomatic. He/She will then be confined to the infant's room, and will not be allowed to return to mother's room. PPE guidelines for doffing and donning will be followed so that PPE is not worn in hallways. If preferable, another family member (i.e. grandparent) can be approved as a visitor for infant. This would be an exception to the Pediatric visitation policy, and would need approval from Command Center (See Pediatric SARS-CoV-2 visitation guideline).
4) If the family chooses rooming in, mother, support person and infant will all remain confined to the patients' room.