

# Impact of Covid 19 on neonatal care

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## Abstract/Synopsis:

The entire world is reeling under the effects of the novel corona virus pandemic. As it is a new infection, our knowledge is evolving constantly. In this article, we summarize in a concise manner the current approach to this infection in relation to newborn babies. We discuss the basic aspects of the infection, the approach to novel corona virus disease 2019 (Covid 19) positive pregnant women, the likely presentation in newborns (as per current knowledge) and the approach to the management of such cases.

## Impact of Covid 19 on neonatal care

Since December 2019, when the novel corona virus related infections were reported in the Wuhan province in China, the world has witnessed a situation never seen before. Since 11th March 2020, the disease has been declared a pandemic by WHO <sup>(1)</sup>. There has been a high case fatality rate in some regions of the world. As it is a new infection and disease characteristics are still being elucidated in many settings, the exact protocols that we follow in different age groups will need regular updates. In this article, we summarize the current situation relating to neonates with infection or at risk of the infection.

## Mode of delivery:

The high rate of cesarean section deliveries (CSD) in Chinese reports is concerning <sup>(2)</sup>, however subsequent reports from different countries have not confirmed any need to consider CSD apart from the obstetric and maternal condition based decisions <sup>(3)</sup>.

## Mode of transmission of infection to neonates:

Early Chinese reports suggested that vertical transmission of SARS-CoV-2 does not occur <sup>(4)</sup>. There have been reports of perinatal spread especially where the mother is symptomatic just prior to delivery-this could be explained by the relatively high viral load in symptomatic mothers <sup>(5)</sup>. Postnatal transmission from parents or carers who have the infection (or are asymptomatic carriers) is the commonest reason a baby may get infected. The role of breast milk in spreading is also being debated, as there have been reports of breast milk being positive for the virus where the mother was symptomatic around delivery <sup>(6)</sup>. However, the WHO as well as other bodies like the Canadian pediatric society <sup>(7)</sup> and RCPCH encourage breast feeding.

## Team members:

Strict precautions related to personal protective equipment (PPE) should be followed with social distancing measure within the team

should be stressed. Breaks should be spread out so colleagues don't eat or drink with each other without mask. If any member of the team has symptoms or has an infected family member, they should self-isolate and test. PPE shortages are reported worldwide, and this should be considered in decision making.

## Approach to situations where mother is covid positive or is symptomatic with suspected infection:

From the obstetric and neonatal team point of view, a clear plan has to be put in place preferably including the parents in the discussion-the following should be discussed <sup>(8)</sup>:

1. Full PPE as per guidelines for all healthcare personnel involved in delivery process and attending the delivery (resuscitation of newborn). Be careful when baby needs suction, intubation or mask ventilation as these are aerosol generating procedures. It is recommended to move babies between areas in incubator as far as feasible.
2. Avoid close contact with mother soon after birth (skin to skin care not given)-delayed cord clamping should be done as per protocol.
3. If mother is not symptomatic, baby can be roomed in with mother with safe distance of 6 feet (2 meters) between her bed and the crib. Except while feeding and during cares, baby should be in the crib.
4. Mother should wear gloves while handling baby (preferably) and should wear a mask while approaching or holding the baby or during feeding.
5. Breast feeding options should be discussed. If mother is symptomatic, we could consider giving formula, and expressing and discarding the milk during the symptomatic phase. If mother is asymptomatic, we could either breast feed directly with mask during feeds, or mother could express wearing mask and an unaffected relative/carer could feed the baby with expressed breast milk (EBM).
6. Where the mother is symptomatic, especially if she is unwell to look after the baby, it is better to consider separation till mother is asymptomatic and baby can then be transferred to her.
7. If baby and mother are well, testing the baby is not necessary

unless any concerns. If baby is tested due to symptoms and is Covid 19 positive, we need to manage in an isolation area of the NICU, and once asymptomatic, it should be feasible to manage such babies at home. Routine repeat tests may not be needed as long as they are isolated and monitored adequately.

### Management of babies who are Covid 19 test positive:

Since community spread is noted in most countries, any symptomatic baby presenting with fever, diarrhea, unexplained respiratory distress and other manifestations should have Covid 19 PCR test sent. In some cases, the babies have presented with fever, loose stools, respiratory distress but majority are asymptomatic. Even if the baby's test is positive, management is according to current protocols for management of symptomatic newborn with isolation precautions, antibiotics as indicated, respiratory support as indicated. Antipyretics like paracetamol can be used as normally indicated. Such babies should be nursed in incubators.

As high flow nasal cannula therapy and nasal CPAP are aerosol generating procedures, such babies should be in incubators, with expiratory flow tubing preferably within the incubator, and all staff should wear appropriate PPE. Babies who are asymptomatic with a positive test for Covid 19 could be managed with the parents (rooming in). Babies are unlikely to be infectious unless aerosol generating events like crying or sneezing, but healthcare workers should wear full PPE while handling them. Stool may be infective as well, and precautions are essential while handling stools.

The severe disease in adults is a result of an uncontrollable host inflammatory response, a cytokine storm and luckily, this is less pronounced in children as a group including neonates and that could be a factor behind the milder manifestations in this age group. The Kawasaki like inflammatory syndrome described in older children has not been noted in newborns but we should be alert to record and publish such presentations if we encounter them. There are no reports so far regarding experience with antivirals and use of immunomodulators like hydroxychloroquine in neonates so far.

The recent Recovery study<sup>(9)</sup> in a mainly adult population (unpublished as of now) has reported improvement in patients needing oxygen or ventilatory support with use of steroids, and if a newborn is sick with Covid related complications, this could be a factor to consider, though not evidence based yet.

### NICU visiting policy and milk storage, skin to skin care, breast feeding in NICU:

Since community transmission places any individual at risk of being asymptomatic and carrying the virus, it is advisable to minimize visiting hours (and allow only parents to visit). Skin to skin care and direct breast feeding while in NICU may need to be minimized in open layout NICUs. Unfortunately, one of the negative effects of this practice would be exposure to bottle feeding, as cup feeding or syringe feeding needs closer contact and possible aerosol exposure.

### Conclusion and Recommendations:

The current crisis is a unique situation faced by the medical fraternity the world over. It is very important to share information and publish unique presentations, as well as contribute wholeheartedly to the

data collected by registries<sup>(10)</sup> like the EPICENTRE (EsPnIc Covid pEdiatric NeonaTal Registry), Vermont Oxford Network (VON) and the American Academy of Pediatrics Section on Neonatal-Perinatal Medicine (SONPM) tool in US, and BAPM tool (UK). As clinicians, we need to be alert to new information emerging which will guide us in further management-there is a website with all recent resources related to perinatal covid<sup>(11)</sup>, <https://perinatalcovid19.org/> freely available. As more neonates are affected with acute disease, it is possible we will see a broader spectrum of problems and we should be alert to new presentations. Local teams should work together to formulate guidelines suitable to their system, so they can overcome the challenges by working together.

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