NEST360°
Newborn Essential Solutions and Technologies

RESPONDING TO THE COVID-19 PANDEMIC: Resources Compiled by NEST for Use in Hospital-Based Newborn Care

Last updated on 15 May, 2020

USE INSTRUCTIONS

Intended use of this guidance is to aid clinicians and hospital staff to manage COVID-19 response efforts in newborn care units in sub-Saharan Africa. The guidance material includes a combination of NEST-developed and compiled documents from various organizations and institutions. It also links to further information developed by national bodies. To view the complete document see the NEST360° COVID-19 Resources webpage.

DISCLAIMER: COVID-19 guidance continues to evolve rapidly. We intend to update the material as new resources become available and will work with others to bring together the best available information. As such, we include a qualifier of "Last Updated on [date]" as reference. We encourage use of this guidance alongside local operational policies developed by your institutions and organizations.

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RISK TO NEONATES AND INFANTS:

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COVID-19 GUIDANCE:
A FEW FACTS ABOUT COVID-19 IN CHILDREN

REFERENCE – WHO: openwho.org/channels/covid-19

#1 WORLDWIDE
ONLY 1% OF ALL COVID-19 CASES ARE CHILDREN < 10 YRS OF AGE

→ Incubation period is 2 (0-2) days.
Boys and girls are equally affected.

#2 **VERY FEW CHILDREN DEVELOP SEVERE COMPLICATIONS**

→ 16% are asymptomatic
41% have a fever
48% a cough
46% have pharyngitis

#3 **THERE IS NO REPORTED CASE OF MOTHER TO CHILD VERTICAL TRANSMISSION OF COVID-19**

→ A few neonates are reported to have become COVID-19 positive a few days after delivery to a positive mother.

A few have become ill after discharge; it is assumed that COVID-19 was acquired in the community.

#4 IN INFANTS AND NEONATES
THE CLINICAL SIGNS ARE NON-SPECIFIC:

→ Temperature may be raised, low, or normal.

GIT signs are poor feeding, diarrhoea and vomiting, and abdominal distension.

OTHER SIGNS:

A CXR may show pneumonia; an abdominal XR may show paralytic ileus.

LFTs may be moderately deranged, FBC may show a lymphopenia.

The CRP may be slightly raised and renal function may be affected.

#5 **BREASTMILK DOES NOT CONTAIN COVID-19 VIRUS**

COVID-19 GUIDANCE:
RESOURCES

1 GENERAL PEDIATRIC/NEONATAL

American Academy of Pediatrics: https://services.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/

CDC: https://www.cdc.gov/coronavirus/2019-ncov/hcp/inpatient-obstetric-healthcare-guidance.html

WHO (general): https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance

2 PREGNANCY/NEONATAL SPECIFIC

Consortium sharing neonatal specific resources from around the globe: https://perinatalcovid19.org

American Academy of Pediatrics: https://services.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/faqs-managementof-infants-born-to-covid-19-mothers/

Royal College of OB/GYN: https://www.rcog.org.uk/en/news/national-guidance-on-managing-coronavirus-infection-in-pregnancy-published/

Vermont Oxford Network: https://public.vtoxford.org/covid-19/

WHO: https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected

3 KANGAROO MOTHER CARE SPECIFIC

Infographics from WHO: https://www.who.int/reproductivehealth/publications/emergencies/COVID-19-pregnancy-ipc-breastfeeding-infographics/en/

4 BREASTFEEDING

https://www.isrhml.com/i4a/pages/index.cfm?pageid=3368

Academy of Breastfeeding Medicine: https://www.bfmed.org/index.php?option=com_content&view=article&id=138&fbclid=IwAR0hk75%20Jv9MNareDxlsoDLdguJxqlpVtARDytf3lMEeMsRFMwyA43DjiVbw

National Perinatal Society (graphics/posters): http://nationalperinatal.org/COVID-19#breastmilk

Infographics from WHO: https://www.who.int/reproductivehealth/publications/emergencies/COVID-19-pregnancy-ipc-breastfeeding-infographics/en/

International Lactation Consultant Association: https://ilca.org/covid-19/

UNFPA statement: https://www.unfpa.org/press/unfpa-statement-novel-coronavirus-covid-19-and-pregnancy

5 PPE RESOURCES

Videos on PPE and N95 fit testing: https://perinatalcovid19.org/videos/

CDC IPC in inpatient care settings: https://www.cdc.gov/coronavirus/2019-ncov/hcp/inpatient-obstetric-healthcare-guidance.html

University of Washington: https://covid-19.uwmedicine.org/Pages/default.aspx

WHO IPC/WASH: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/infection-prevention-and-control

6 REGULARLY UPDATED SUMMARIES OF RESEARCH TO-DATE

NEOCLEAR: https://perinatalcovid19.org/neoclear/

American Academy of Pediatrics up-to-date summary of COVID pediatric research to date: https://www.aappublications.org/sites/default/files/additional_assets/aap_files/COVID-19-Pediatric-Populations-Summary-from-AAP.pdf

American Academy of Pediatrics up-do-date summary of COVID data tools available: https://www.aappublications.org/sites/default/files/additional_assets/aap_files/COVID-19-Data-Tools-Summary-from-AAP.pdf

7 COVID-19 GENERAL INFORMATION VIDEOS CREATED BY PICTURING HEALTH

Picturing Health are creating public health information films to promote behaviour that can reduce the spread of coronavirus in Africa. They are also making films to contribute to the policy debate to help guide the response to the pandemic.

Here are links to recent videos:

Coronavirus message for communities: https://www.picturinghealth.org/coronavirus-message-for-communities/

COVID on the Breadline (long version): https://www.picturinghealth.org/covid-on-the-breadline/

COVID on the Breadline (short version): https://www.picturinghealth.org/covid-on-the-breadline-short/

RISK TO NEONATES AND INFANTS:

Proposed District and Unit Structure (Malawi Example)

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1 CONSIDERATIONS

Potential for in utero transmission exists; though currently there is not much information on COVID-19 acquired much earlier on in gestation.[3–6]

It is currently unclear if COVID-19 can cross through the transplacental route to the fetus. Studies have not detected SARS-CoV-2 in amniotic fluid, cord blood and breast milk of COVID-19 positive mothers. However, the virus has been detected from nasopharyngeal swab and anal swab specimens. Therefore, the vertical maternal-fetal transmission cannot be ruled out. Potentially, postnatal transmission, through airway droplets could be the major mother to baby transmission route.[7–9]

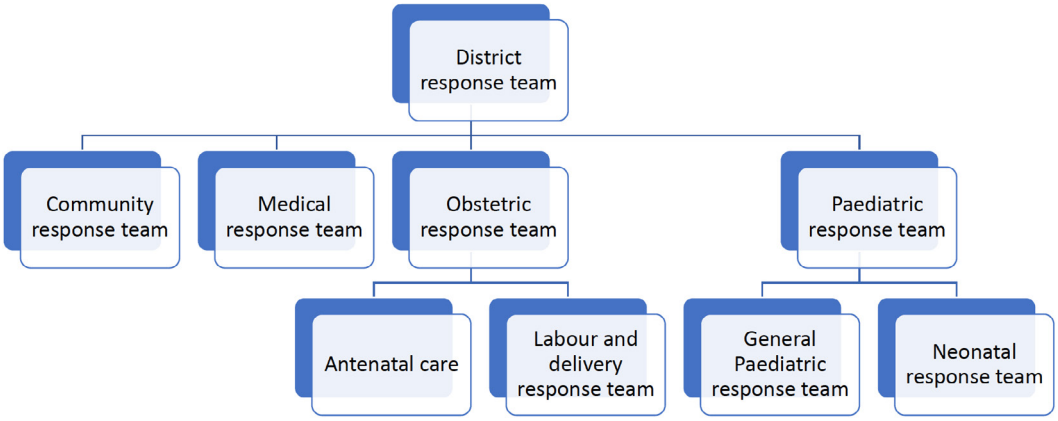
The goal is to minimize the risk of infection to baby; the risk of infection to staff and to provide appropriate clinical and nursing care to the newborn, in the setting of limitations in the availability of testing and PPE.

Resource limited environments rely on stringent risk – benefit assessment for decision making. Currently there is no reported case of mother to child vertical transmission of COVID-19. A few neonates are reported to have become COVID-19 positive a few days after delivery to a positive mother. A few have become ill with non-specific clinical symptoms and signs after discharge when it is assumed that COVID-19 was acquired in the community.

2 COVID-19 DISTRICT RESPONSE STRUCTURE

- Every district will have a centralized COVID-19 obstetric unit
- All suspected and confirmed COVID-19 pregnant women in district are cared for within the same district isolation unit where feasible, as the obstetric team can be helpful in providing care to other cases when there are no obstetric cases to be taken care of
- There should have a pre-arranged referral system for those who might require emergency obstetric surgeries e.g., caesarian section
- Every district COVID-19 response team should have staff with obstetric skills set to manage labour and delivery of COVID +ve or suspected COVID patients
- Every district COVID-19 response team should have staff with neonatal skills set to manage neonate from COVID +ve or suspected COVID patients
- Staff should be regularly screened and risk stratified
- Staff assessed to be high risk, should follow staff isolation protocol

2.1 PROPOSED DISTRICT RESPONSE STRUCTURE (MALAWI)



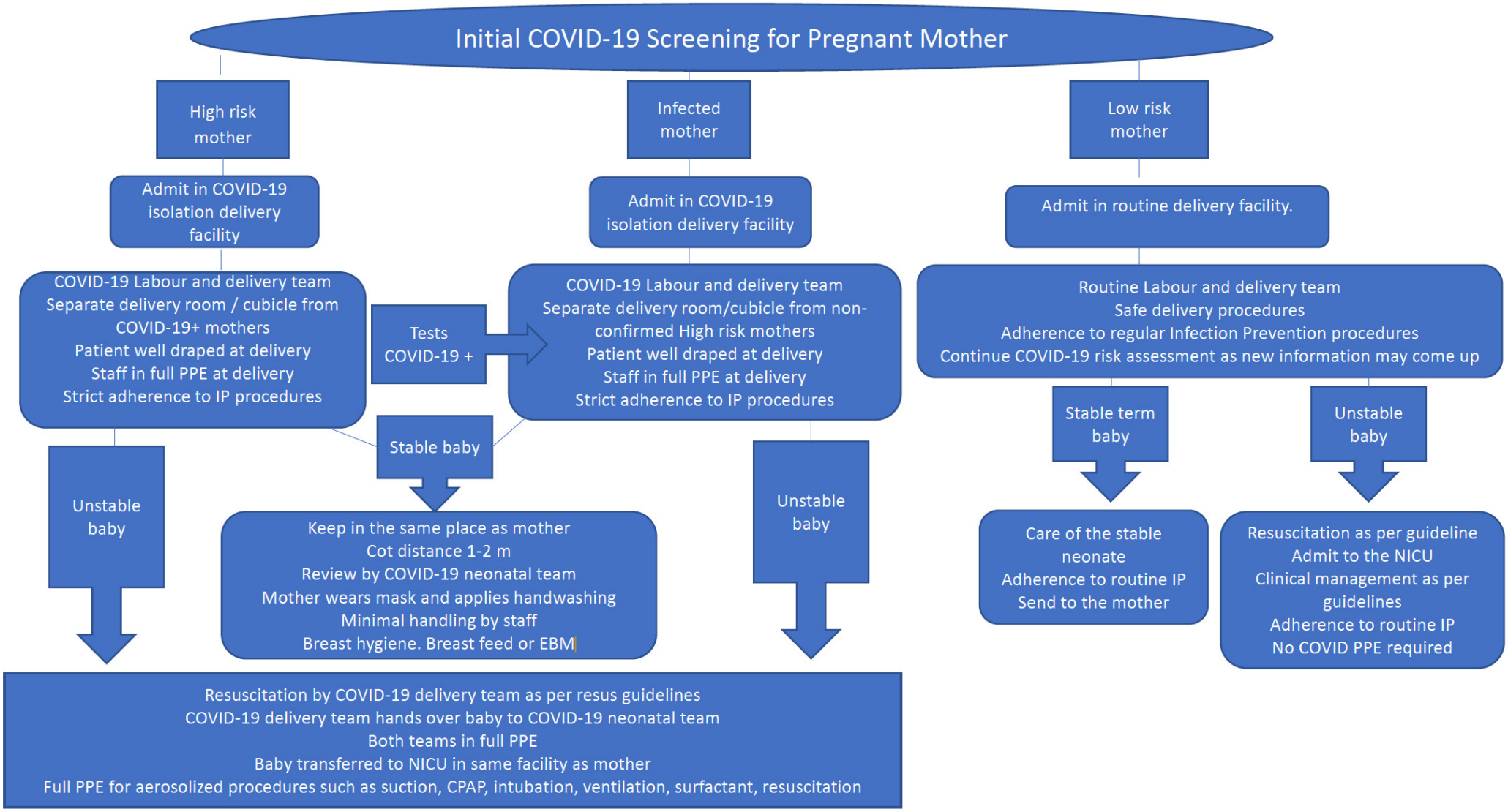
2.2 THE TEAMS

- Logistically the Paediatric team and the neonatal team remains one team, supervised by the district Paediatric response team
- Functionally, the Paediatric team and the neonatal team are different, depending on the presenting event
- The neonatal response team is activated when there is notification from the obstetric team of COVID-19 +ve or suspected patient
- The neonatal response team works closely with the labour and delivery team, which is supervised by the district obstetric response team
- The neonatal COVID response team works and coordinates with the district / facility NICU care team
- The labour and delivery team is responsible for delivery and resuscitation of the neonate in labour ward, as well as transfer to the NICU
- The neonatal team is responsible for the care of the neonate while in admission

2.3 SPACE

- Current general set-up at district hospital
- Screening will be conducted at entry point to the hospital or at the antenatal clinic
- COVID-19 low risk mothers still go through the routine flow
- COVID-19 high risk mothers and COVID-19 +ve mothers will be at a COVID delivery isolation and delivery centre
- The COVID-19 isolation and delivery centre will conduct labour, delivery and postnatal care
- Caesarian sections will be conducted at the main delivery theatre in the district hospital
- Babies are best cared for in the same facility as the mother
- It will be best to set up an isolation space and equipment for neonates in the COVID-19 delivery unit for neonates requiring care
- Resources could be shared between obstetric and neonatal staff such as PPE, changing room, nursing roles, IP facilities and routines
- Staff should be experienced and trained in HBB, COIN, NEST modules, COVID care, PPE

COVID-19 GUIDANCE:
PROPOSED DISTRICT RESPONSE STRUCTURE



3 LABOUR AND DELIVERY:

- Every woman coming to labour and delivery is assessed for symptoms of COVID-19
- If a pregnant woman is a suspected COVID-19 case, she is provided with a facemask, and referred to the COVID-19 isolation obstetric unit / separate delivery room
- The COVID-19 delivery team is notified
- Where feasible, **ONE WOMAN PER ROOM** and **ONE GUARDIAN PER WOMAN**
- In obstetric units with more than one delivery bed, place beds at least 1 meter apart
- Same team will attend to the mother, deliver the baby and care for the mother and the baby in delivery room
    - *Allow continuity, minimize staff exposure and rational use of staff and PPE*
- COVID-19 delivery team will make all the decisions, including the immediate care for mother and baby, following the set guidelines
- Once delivered, women are assessed whether they are high risk or low risk for puerperal complications
- Women with low risk for puerperal complications are discharged after 12 hours of normal delivery and tailored approach devised for high risk women
- COVID-19 delivery team will hand over neonatal care to COVID-19 neonatal team

4 DELIVERY ATTENDANCE FOR A HIGH RISK OR CONFIRMED COVID-19 +VE MOTHER

STAFF

- Experienced midwives trained in COVID-19, IP, PPE, HBB, COIN
- Obstetric clinicians trained in COVID-19, Ip, PPE
- Paediatric clinicians trained in COVID-19, IP, PPE, COIN
- Support cover – District Medical Officer
- Support cover – Paediatrician on call, central hospital
- If feasible, a designated person for the COVID-19 delivery, to minimize use of PPE through change – throughs and minimize contact with other patients while caring for a COVID-19 positive mother

EQUIPMENT

- Separately prepared, disinfected resuscitaire with all separate resus equipment in place
- Full PPE for the attending staff; including respirator masks and goggles
- Respirator mask for the mother

PROCEDURE

- Full PPE
- Keep distance unless when necessary to examine the mother
- Minimize invasive vaginal examinations
- Minimize activities that promote aerosolization = minimize airway manipulation, unless necessary, minimize instrument delivery

ON DELIVERY

- Full PPE
- No evidence yet to deviate from delayed cord cutting
- Briefly show the newborn to the mother, but keep a safe distance if the mother is not adequately masked
- Resuscitation in separate resuscitaire, set more than 2 meters away from the mother
- Routine care of the newborn and resuscitation procedures in delivery room
- Avoid suctioning unless thick meconium is blocking the airway
- Advise very gentle drying with warm cloth, to minimize abrasions on the baby's skin
- Keep the newborn well covered and warm
- Bathe the newborn with warm water as soon as possible after delivery

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continued

DELIVERY ATTENDANCE FOR A HIGH RISK OR CONFIRMED COVID-19 +VE MOTHER

THEATRE DELIVERIES

- Same COVID-19 delivery team composition
- Same scrubbing procedures
- **Full PPE before entering the theatre**

RESUSCITATION AND STABILIZATION

- Same COVID-19 delivery team
- Full PPE before entering the theatre room
- No change in resuscitation guidelines
- Neonatal resuscitation trolley at far end of the theatre, to minimize droplet contamination from the mother's droplets
- Early transfer of baby from delivery room or theatre

TRANSFERING THE NEWBORN TO THE WARD

- A midwife from the COVID-19 neonatal team waits outside the door of the deliver room / theatre to receive the baby
- A designated closed incubator or movable cot is used
- The COVID-19 delivery team hands over the baby to a waiting midwife (from COVID-19 neonatal team) at the door of the labour room / theatre
- **None of the delivery team staff should accompany the baby to NICU in their used PPE**

4
continued

DELIVERY ATTENDANCE FOR A HIGH RISK OR CONFIRMED COVID-19 +VE MOTHER

STABLE BABIES

- Keep in the same place as the mother
- The mother applies strict hand washing and wears a mask
- The mother applies IP and breast hygiene for breastfeeding or breast milk expression
- Minimal handling of the baby from staff
- If the mother is unwell, move the baby to an isolation room in the NICU
- A relation to take over care of the baby

UNSTABLE BABIES

- Keep in the same facility as the mother
- Provide all the available routine and advanced NICU care
- Designated care staff in full PPE while looking after the baby
- Provide stabilization and resuscitation as required as per clinical indications
- If need for intubation, ventilation and surfactant, staff apply full PPE
- Provide respiratory support based on local protocols in use
- Keep in the same facility as the mother
- If respiratory support required; nurse the baby in isolated cubicle or at the far corner of the room
- Minimal handling procedures

OUT-BORN BABY

- Every baby referred from a facility should have the mother's screening status confirmed using the most up to date tool
- Symptoms of COVID-19 (i.e. fever, difficult breathing/shortness of breath, or cough), and history of travel by parent or relation
- With local transmission confirmed, negative history of travel should not be reassuring at this stage
- At risk babies are admitted to COVID-19 isolation facility as above
- Non-risk babies admitted to NICU if required
- Adopt 'minimal handling' procedures, where babies are only examined when necessary
- Daily update of risk status, in case new information becomes available

COVID-19 GUIDANCE:
PROPOSED DISTRICT RESPONSE STRUCTURE

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TESTING

BOTH SYMPTOMATIC AND ASYMPTOMATIC HIGH RISK PATIENTS:

↓

24 hours
48 hours
NP and OP swab
Rectal swab

IF BOTH MOTHER AND BABY ARE POSITIVE AND STABLE, BUT ASYMPTOMATIC:

↓

Discharge
Follow quarantine rules at home

**IF MOTHER IS POSITIVE,
BUT BABY IS NEGATIVE AND STABLE:**

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Discharge baby to mother/caretaker
Mother practices precautions
Re-test baby in 2-3 weeks

SOURCES

1. Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected Interim guidance 13 March 2020
2. Neonatal Intensive Care Unit (NICU) Division E Women and Children's Services; NICU COVID-19 Policy - Attendance at delivery, Admission and Isolation Management
3. Neonatal Early-Onset InfectionWith SARS-CoV-2in 33 Neonates Born to Mothers With COVID-19 inWuhan, China. JAMA Pediatrics Published online March 26, 2020
4. INITIAL GUIDANCE: Management of Infants Born to Mothers with COVID-19 American Academy of Pediatrics Committee on Fetus and Newborn, Section on Neonatal Perinatal Medicine, and Committee on Infectious Diseases Date of Document: April 2, 2020
5. A contingency plan for the management of the 2019 novel coronavirus outbreak in neonatal intensive care units. The Lancet Child/adolescent April 2020
6. Association of Obstetricians and Gynaecologists in Malawi: AOGM GUIDANCE: COVID-19 IN PREGNANCY IN MALAWI
7. Malawi Paediatric COVID-19 Clinical Guidelines Version 2 April 2020_draft