COVID-19

Maternal and newborn care guidelines

30 April 2020

The National Department of Health approved the attached guidelines for distribution. They have also been endorsed by the National Committee for Confidential Enquiry into Maternal Deaths (NCCEMD), the National Perinatal Mortality and Morbidity Committee (NaPeMMCo), the South African Society of Obstetricians and Gynaecologist (SASOG), the Society of Midwives of South Africa (SOMSA) and the South African Society of Anaesthesiologists (SASA).

This document has been collated by the SAMRC/UP Maternal and Infant Health Care Strategies Unit, a division of the University of Pretoria Research Centre for Maternal, Fetal, Newborn and Child Healthcare Strategies.

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B. Managing pregnant women

B1. Pregnant women COVID-19 algorithm (NDOH) (updated April 2020)

PREGNANT WOMEN
COVID-19 ALGORITHM

1. PREGNANT WOMAN?

SCREEN ON ARRIVAL AT THE FACILITY (E.G. PHC CLINIC): COUGH, FEVER, SHORTNESS OF BREATH, TRAVEL HISTORY, COVID-19 CONTACT, TEMP CHECK

YES TO ONE OF THE ABOVE

NO

ISOLATE IMMEDIATELY FOR FULL HISTORY TAKING AND EXAMINATION

ELIGIBLE FOR TESTING

NO

CONTINUE ANC AS PER BANC PLUS

YES

CONCERNS DUE TO CONTACT WITH CONFIRMED CASE BUT ASYMPTOMATIC

TEST – ACCORDING TO NICD CRITERIA FOR PERSON UNDER INVESTIGATION (PUI)

CONSULT RELEVANT SENIOR NEWS (ON-SITE OR AT NEXT LEVEL OF EXPERTISE) TO DEVELOP MANAGEMENT PLAN

MANAGE AT HIGH RISK

2. MANAGEMENT OF HIGH RISK PREGNANT WOMEN

CONFIRMED COVID CONTACT

ASYMPTOMATIC

TRACE CONTACT

SELF ISOLATE FOR 14 DAYS RESCHEDULE ANC VISITS IF NO URGENT OBSTETRICS PROBLEMS

IF SELF ISOLATION AT HOME NOT FEASIBLE, REFER FOR ADMISSION TO QUARANTINE CENTRE

MEETS CRITERIA FOR PERSON UNDER INVESTIGATION (PUI)

TEST ACCORDING TO THE CASE DEFINITION

CONSULT RELEVANT OBSTETRIC AND/OR COVID EXPERTS (E.G. USE VULA APP) FOR ADVICE OR TRANSFER PLAN

MANAGE ACCORDING TO WHETHER DISEASE IS SEVERE OR MILD

OTHER OBSTETRIC COMPLICATIONS OR RISK FACTORS

CONSULT OBSTETRIC HIGH RISK CLINIC, PLAN VISIT SCHEDULE ACCORDING TO URGENCY OF OBSTETRIC REVIEW AND COVID STATUS

3. MANAGEMENT OF HIGH RISK PREGNANT WOMEN

YES

FEATURES OF SEVERE DISEASE? RESPIRATORY DISTRESS/SEPTIC SHOCK/ORGAN AFFECTATION?

NO

REFER DIRECT TO SPECIALISED COVID CENTRE WITH HIGH CARE AND ICU AND SPECIALIST MULTI-DISCIPLINARY TEAM

OBSTETRIC COMPLICATION/EMERGENCY

NO

SELF ISOLATE FOR 14 DAYS FROM TIME OF SYMPTOMS ISOLATE AT HOME WHERE POSSIBLE (RELIABLE CELLPHONE) RESCHEDULE ANC VISITS IF NO URGENT OBSTETRIC PROBLEM

IF SELF ISOLATION AT HOME NOT FEASIBLE, REFER FOR ADMISSION TO ISOLATION/QUARANTINE CENTRE

YES

REFER FOR ADMISSION TO LOCAL HOSPITAL AT APPROPRIATE LEVEL OF CARE ACCORDING TO OBSTETRIC PROBLEM MANAGEMENT OF OBSTETRIC PROBLEM IN ISOLATION

IF COVID BECOMES SEVERE REFER TO SPECIALISED COVID CENTRE

IF IN LABOUR

SEPARATE DELIVERY ROOM/DEDICATED STAFF/ THEATRE PRECAUTIONS FOR COVID IN CASE OF EMERGENCY CS DELIVERY

4. GUIDANCE FOR CHW DURING CONTACT TRACING

GUIDANCE FOR CHW DURING CONTACT TRACING

GENERAL SCREENING PROTOCOL

YES

ASK IF PREGNANT

NO

ASK ABOUT PREGNANCY GENERAL DANGER SIGNS

REFER TO ANTENATAL CARE HEALTH FACILITY FOR FURTHER ASSESSMENT/ MANAGEMENT

COVID-19 CONTACT/ SUSPECTED CASE

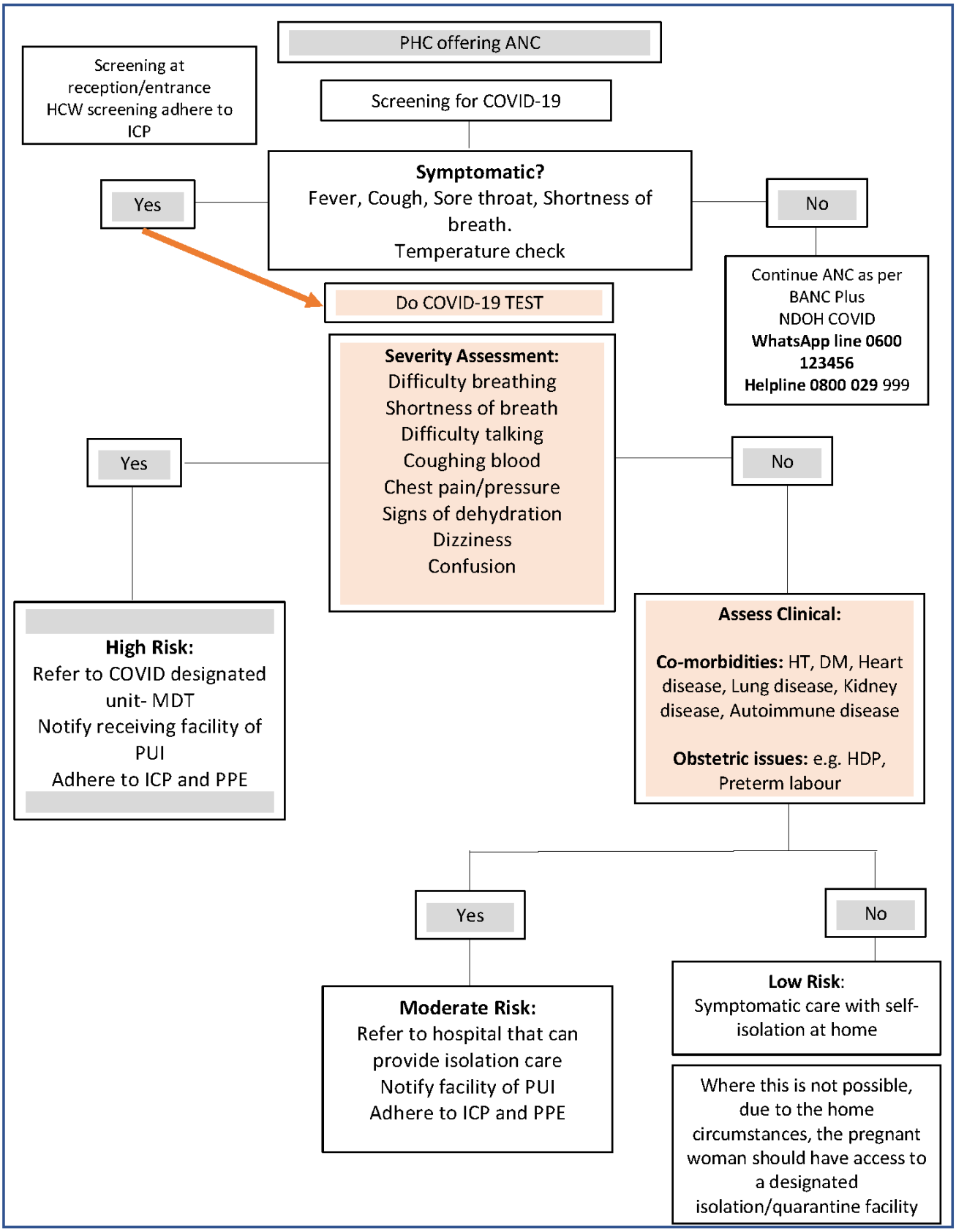
REFER TO COVID TESTING CENTRE IF MEETS NICD CRITERIA FOR TESTING. ARRANGE SELF-ISOLATION OR QUARANTINE. DELAY ANTENATAL CLINIC (ANC) ATTENDANCE IF NO PREGNANCY CONCERNS OR DANGER SIGNS. LIAISE WITH ANC TO PLAN DATE OF NEXT VISIT

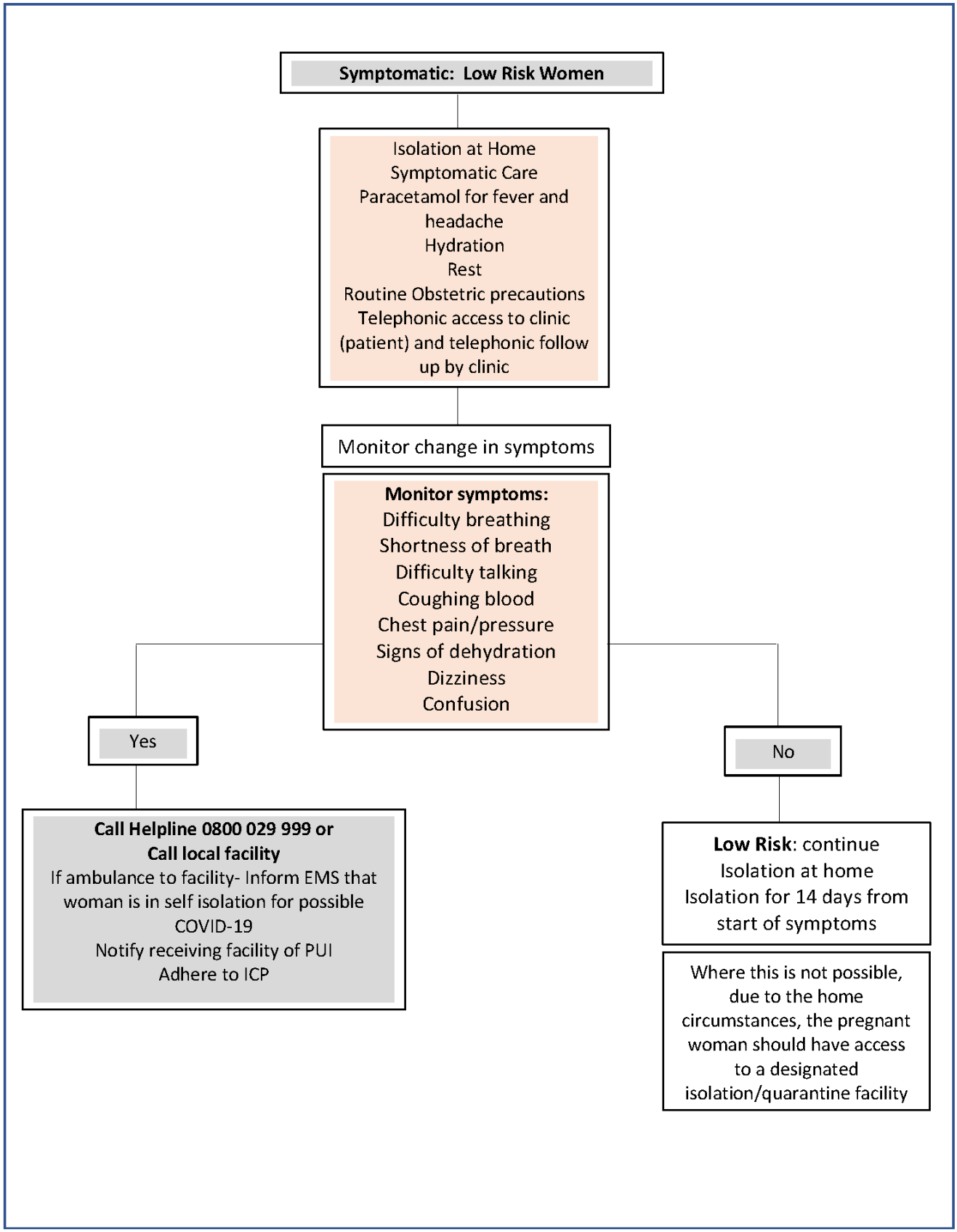
health

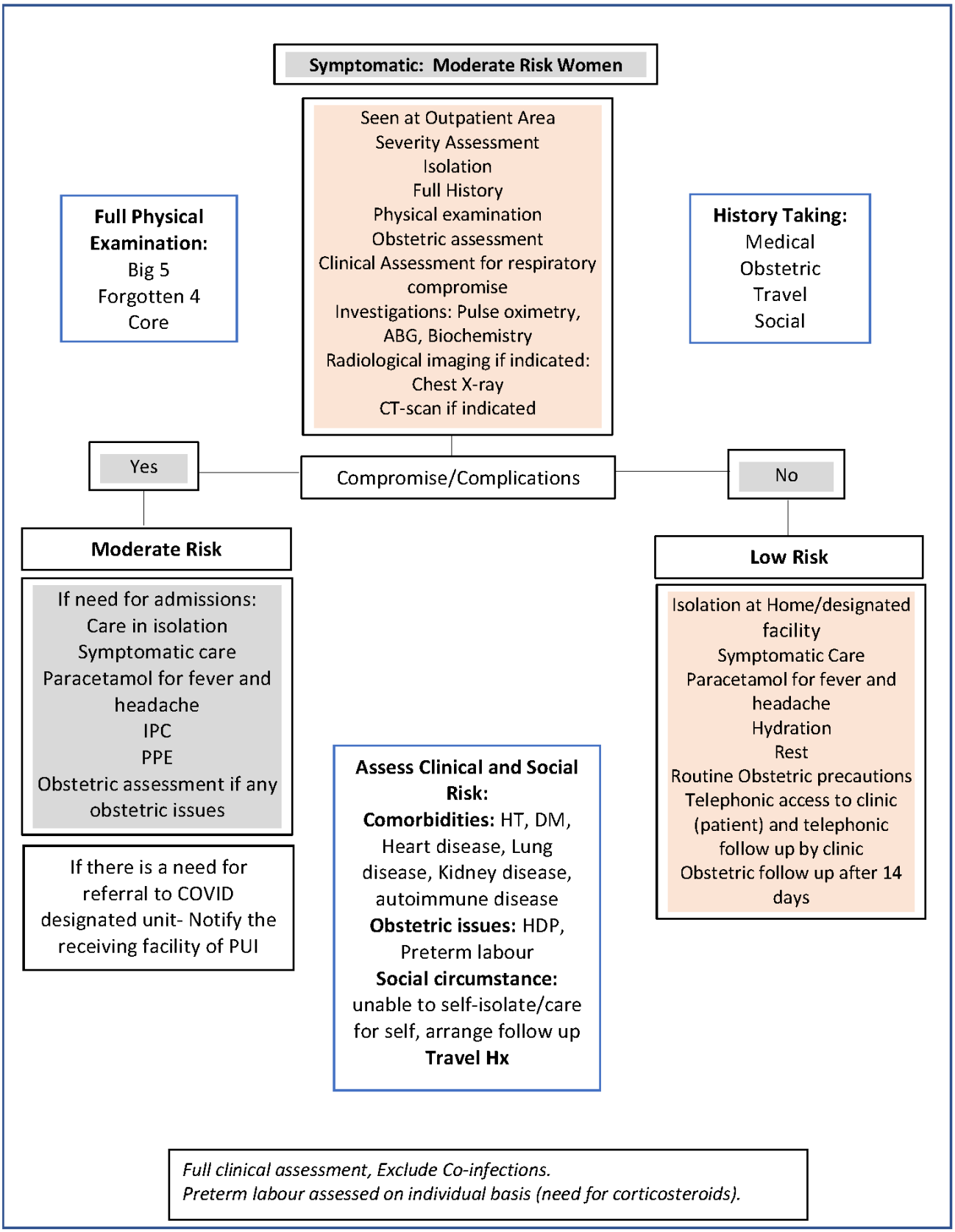
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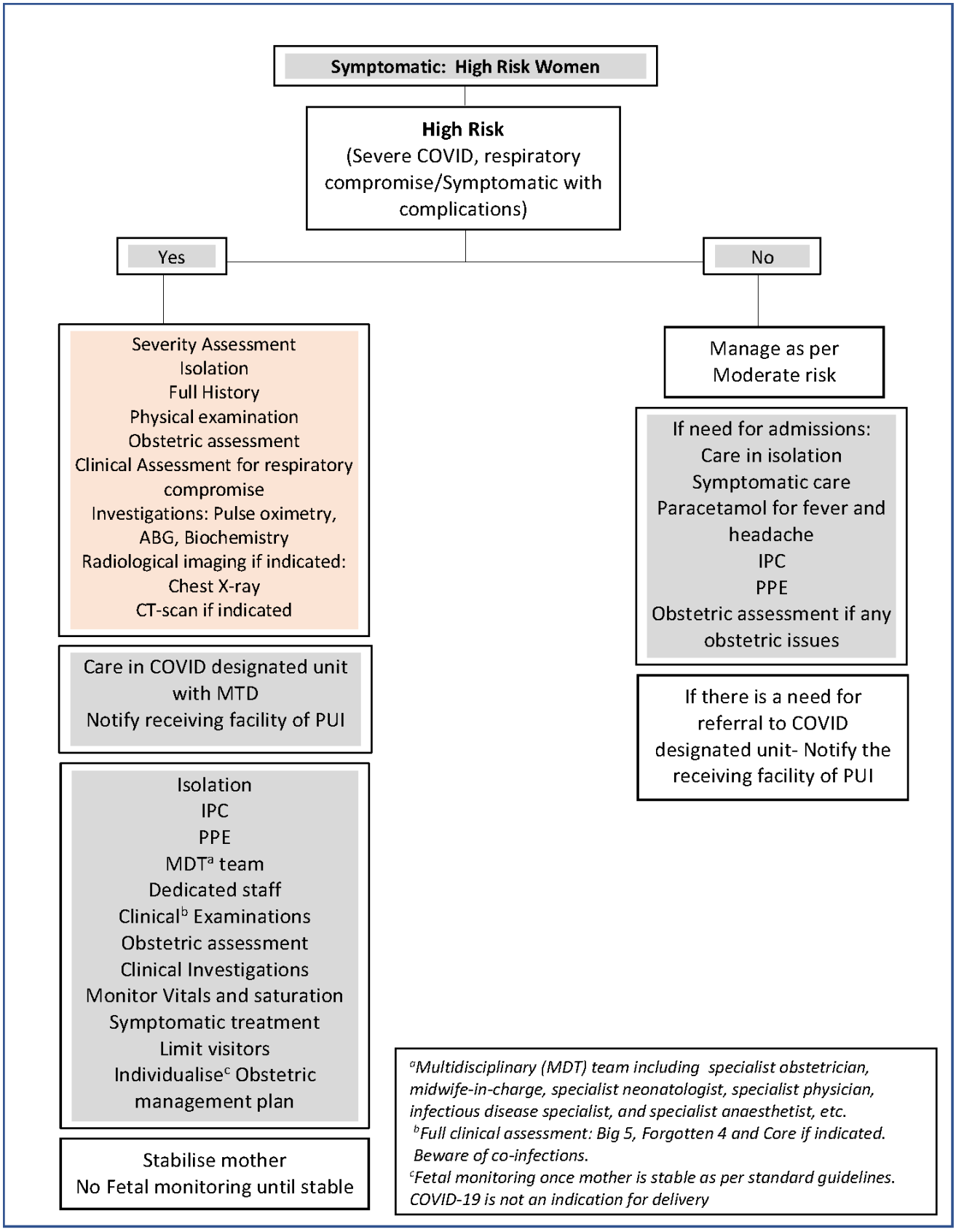
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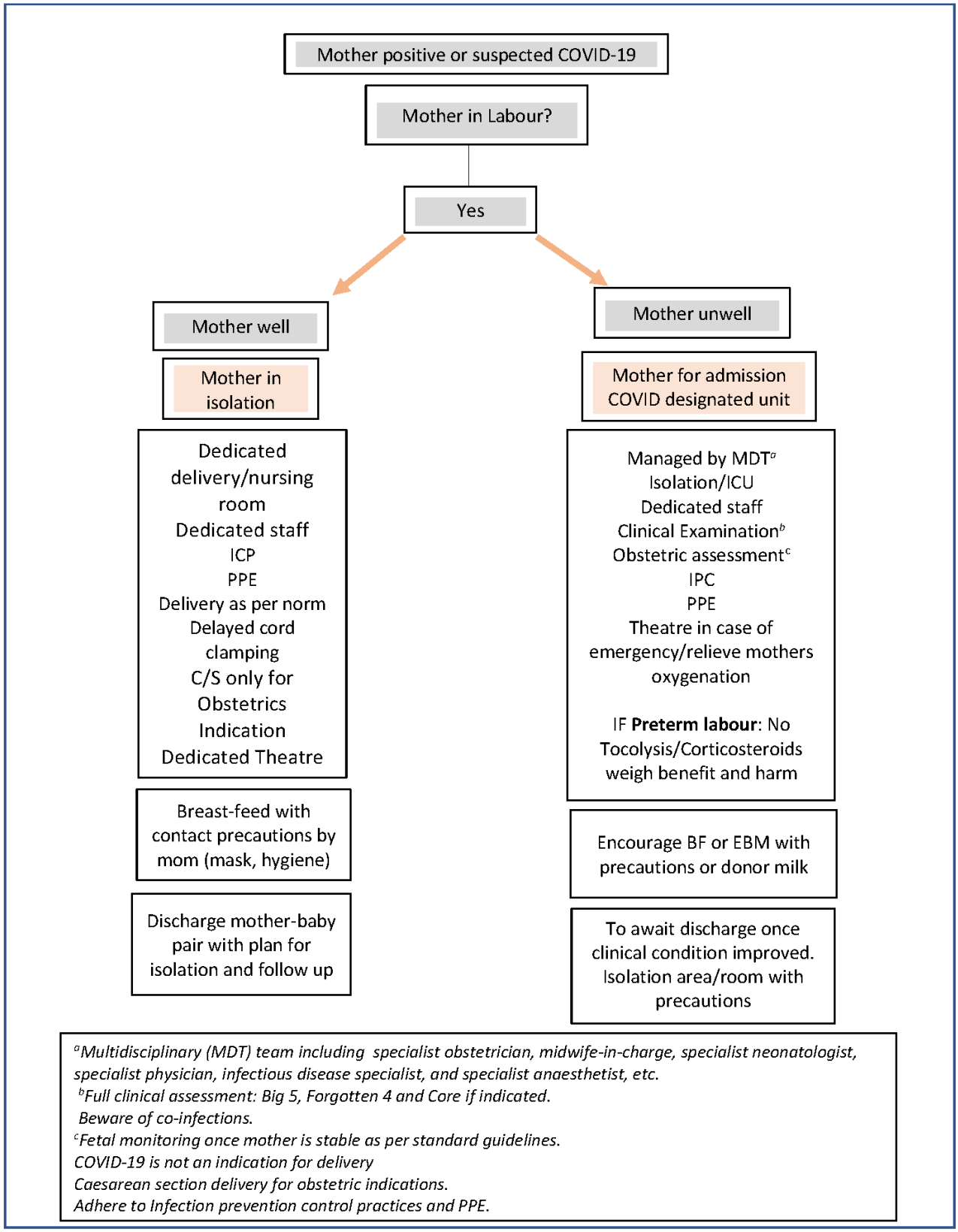
B2. Algorithms for pregnant women with COVID-19 (updated 8 April 2020)

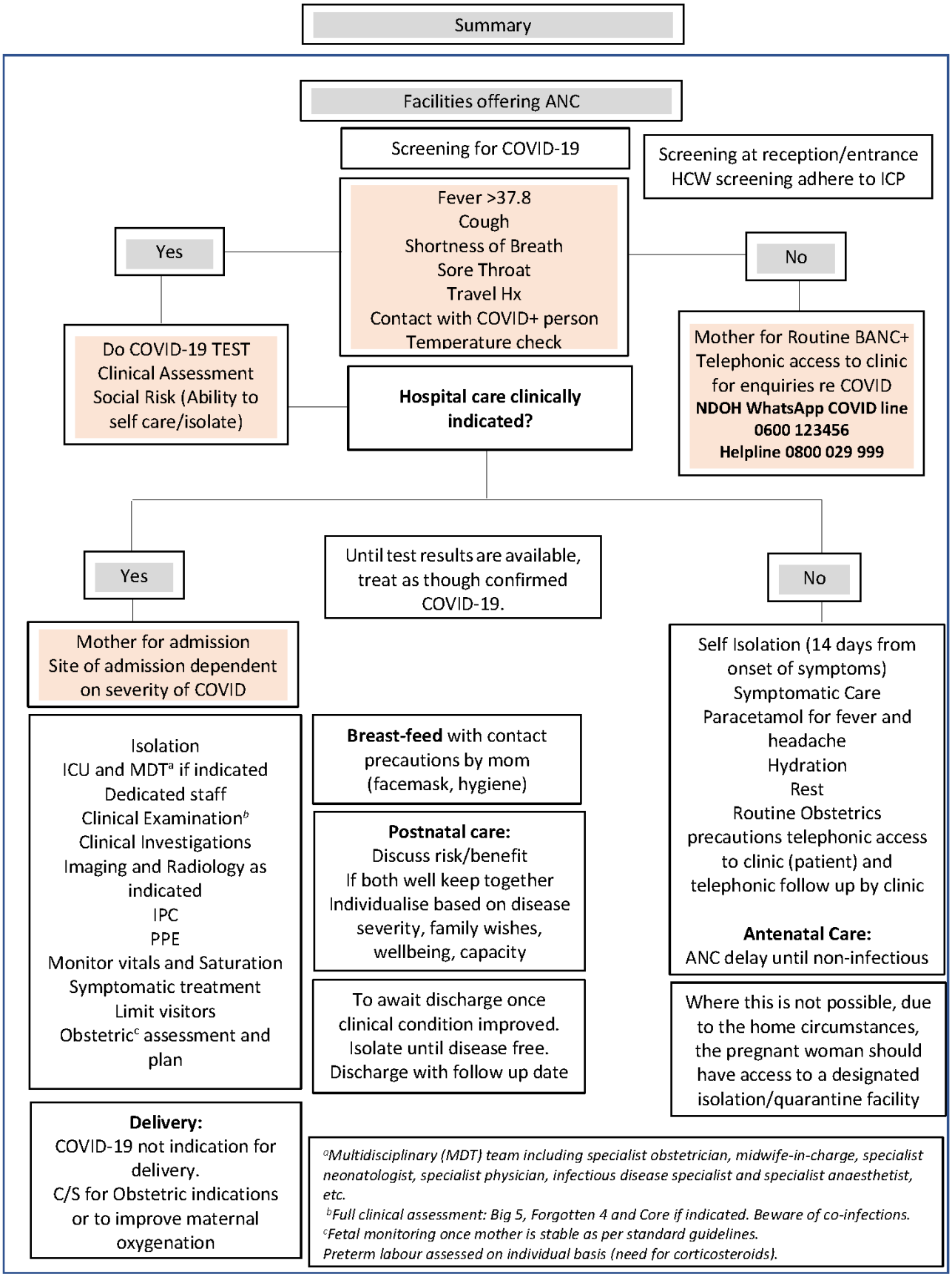



Symptomatic: Low Risk Women
Isolation at Home
Symptomatic Care
Paracetamol for fever and headache
Hydration
Rest
Routine Obstetric precautions
Telephonic access to clinic (patient) and telephonic follow up by clinic
Monitor change in symptoms
Monitor symptoms:
Difficulty breathing
Shortness of breath
Difficulty talking
Coughing blood
Chest pain/pressure
Signs of dehydration
Dizziness
Confusion
Yes
No
Call Helpline 0800 029 999 or
Call local facility
If ambulance to facility- Inform EMS that woman is in self isolation for possible COVID-19
Notify receiving facility of PUI
Adhere to ICP
Low Risk: continue Isolation at home
Isolation for 14 days from start of symptoms
Where this is not possible, due to the home circumstances, the pregnant woman should have access to a designated isolation/quarantine facility


Symptomatic: Moderate Risk Women
Seen at Outpatient Area
Severity Assessment
Isolation
Full History
Physical examination
Obstetric assessment
Clinical Assessment for respiratory compromise
Investigations: Pulse oximetry, ABG, Biochemistry
Radiological imaging if indicated:
Chest X-ray
CT-scan if indicated
Full Physical Examination:
Big 5
Forgotten 4
Core
History Taking:
Medical
Obstetric
Travel
Social
Yes
Compromise/Complications
No
Moderate Risk
Low Risk
If need for admissions:
Care in isolation
Symptomatic care
Paracetamol for fever and headache
IPC
PPE
Obstetric assessment if any obstetric issues
If there is a need for referral to COVID designated unit- Notify the receiving facility of PUI
Isolation at Home/designated facility
Symptomatic Care
Paracetamol for fever and headache
Hydration
Rest
Routine Obstetric precautions
Telephonic access to clinic (patient) and telephonic follow up by clinic
Obstetric follow up after 14 days
Assess Clinical and Social Risk:
Comorbidities: HT, DM, Heart disease, Lung disease, Kidney disease, autoimmune disease
Obstetric issues: HDP, Preterm labour
Social circumstance: unable to self-isolate/care for self, arrange follow up
Travel Hx
Full clinical assessment, Exclude Co-infections.
Preterm labour assessed on individual basis (need for corticosteroids).


Symptomatic: High Risk Women
High Risk
(Severe COVID, respiratory compromise/Symptomatic with complications)
Yes
No
Severity Assessment
Isolation
Full History
Physical examination
Obstetric assessment
Clinical Assessment for respiratory compromise
Investigations: Pulse oximetry, ABG, Biochemistry
Radiological imaging if indicated:
Chest X-ray
CT-scan if indicated
Care in COVID designated unit with MTD
Notify receiving facility of PUI
Isolation
IPC
PPE
MDT[a] team
Dedicated staff
Clinical[b] Examinations
Obstetric assessment
Clinical Investigations
Monitor Vitals and saturation
Symptomatic treatment
Limit visitors
Individualise[c] Obstetric management plan
Stabilise mother
No Fetal monitoring until stable
Manage as per Moderate risk
If need for admissions:
Care in isolation
Symptomatic care
Paracetamol for fever and headache
IPC
PPE
Obstetric assessment if any obstetric issues
If there is a need for referral to COVID designated unit- Notify the receiving facility of PUI
[a]Multidisciplinary (MDT) team including specialist obstetrician, midwife-in-charge, specialist neonatologist, specialist physician, infectious disease specialist, and specialist anaesthetist, etc.
[b]Full clinical assessment: Big 5, Forgotten 4 and Core if indicated. Beware of co-infections.
[c]Fetal monitoring once mother is stable as per standard guidelines. COVID-19 is not an indication for delivery


Mother positive or suspected COVID-19
Mother in Labour?
Yes
Mother well
Mother in isolation
Dedicated delivery/nursing room
Dedicated staff
ICP
PPE
Delivery as per norm
Delayed cord clamping
C/S only for Obstetrics Indication
Dedicated Theatre
Breast-feed with contact precautions by mom (mask, hygiene)
Discharge mother-baby pair with plan for isolation and follow up
Mother unwell
Mother for admission COVID designated unit
Managed by MDT[a]
Isolation/ICU
Dedicated staff
Clinical Examination[b]
Obstetric assessment[c]
IPC
PPE
Theatre in case of emergency/relieve mothers oxygenation
IF Preterm labour: No Tocolysis/Corticosteroids weigh benefit and harm
Encourage BF or EBM with precautions or donor milk
To await discharge once clinical condition improved. Isolation area/room with precautions
[a]Multidisciplinary (MDT) team including specialist obstetrician, midwife-in-charge, specialist neonatologist, specialist physician, infectious disease specialist, and specialist anaesthetist, etc.
[b]Full clinical assessment: Big 5, Forgotten 4 and Core if indicated.
Beware of co-infections.
[c]Fetal monitoring once mother is stable as per standard guidelines.
COVID-19 is not an indication for delivery
Caesarean section delivery for obstetric indications.
Adhere to Infection prevention control practices and PPE.


Summary
Facilities offering ANC
Screening for COVID-19
Screening at reception/entrance
HCW screening adhere to ICP
Fever >37.8
Cough
Shortness of Breath
Sore Throat
Travel Hx
Contact with COVID+ person
Temperature check
Yes
No
Do COVID-19 TEST
Clinical Assessment
Social Risk (Ability to self care/isolate)
Hospital care clinically indicated?
Mother for Routine BANC+
Telephonic access to clinic for enquiries re COVID
NDOH WhatsApp COVID line 0600 123456
Helpline 0800 029 999
Yes
Until test results are available, treat as though confirmed COVID-19.
No
Mother for admission
Site of admission dependent on severity of COVID
Isolation
ICU and MDT[a] if indicated
Dedicated staff
Clinical Examination[b]
Clinical Investigations
Imaging and Radiology as indicated
IPC
PPE
Monitor vitals and Saturation
Symptomatic treatment
Limit visitors
Obstetric[c] assessment and plan
Breast-feed with contact precautions by mom (facemask, hygiene)
Postnatal care:
Discuss risk/benefit
If both well keep together
Individualise based on disease severity, family wishes, wellbeing, capacity
To await discharge once clinical condition improved.
Isolate until disease free.
Discharge with follow up date
Self Isolation (14 days from onset of symptoms)
Symptomatic Care
Paracetamol for fever and headache
Hydration
Rest
Routine Obstetrics precautions telephonic access to clinic (patient) and telephonic follow up by clinic
Antenatal Care:
ANC delay until non-infectious
Where this is not possible, due to the home circumstances, the pregnant woman should have access to a designated isolation/quarantine facility
Delivery:
COVID-19 not indication for delivery.
C/S for Obstetric indications or to improve maternal oxygenation
[a]Multidisciplinary (MDT) team including specialist obstetrician, midwife-in-charge, specialist neonatologist, specialist physician, infectious disease specialist and specialist anaesthetist, etc.
[b]Full clinical assessment: Big 5, Forgotten 4 and Core if indicated. Beware of co-infections.
[c]Fetal monitoring once mother is stable as per standard guidelines.
Preterm labour assessed on individual basis (need for corticosteroids).

B3. Managing the pregnant woman during the COVID-19 pandemic in South Africa: A clinical guide for health workers and clinical managers (updated 29 April 2020)

Also consult Appendix D1: Maternity and reproductive health services in South Africa during the COVID-19 pandemic: Guidelines for provincial, district, facility and clinical managers

Updated 29 April 2020

This summary is based on a combination of available evidence and expert opinion. This is an evolving situation and this summary is a living document that may be updated if or when new information becomes available.

COVID-19 and Pregnancy

Introduction

Coronavirus disease 2019 (COVID-19) is a respiratory tract infection caused by a newly emergent coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) ,that was first recognized in Wuhan, China, in December 2019.

> Pregnant and recently pregnant women with suspected or confirmed COVID-19 should be managed with supportive care, taking into account the immunologic and physiologic adaptations during and after pregnancy.

The biology

Coronaviruses are enveloped, non-segmented, positive- sense ribonucleic acid (RNA) viruses belonging to the family Coronaviridae. SARS-CoV-2 belongs to the same β-coronavirus subgroup as the SARS-CoV and the Middle East respiratory syndrome coronavirus (MERS-CoV), with which it has genome similarity of 80% and 50% respectively.

Epidemiology in pregnancy

The virus appears to have originated in Hubei Province in China towards the end of 2019.

Pregnancy is a physiological state that predisposes women to respiratory complications of viral infection. Due to the physiological changes in their immune and cardiopulmonary systems, pregnant women are more likely to develop severe illness after infection with respiratory viruses. Unlike Influenza and other respiratory illnesses, based on a limited number of confirmed COVID-19 cases, pregnant women do not appear to be at increased risk for severe disease. Current data is limited and diligence in evaluating and treating pregnant women is warranted. Special consideration should be given to pregnant women with comorbid medical conditions and COVID-19 until the evidence base provides clearer information. Over and above the impact of COVID-19 on a pregnant woman, there are concerns relating to the potential effect on fetal and neonatal outcome; therefore, pregnant women require special attention in relation to prevention, diagnosis and management.

Transmission

Most cases of COVID-19 globally have evidence of human-to-human transmission. However, there are recent cases that have appeared where there is no evidence of contact with infected people. The virus appears to spread readily, through respiratory droplets, fomites or faeces. Certain procedures such as intubation, bag and mask ventilation, and oropharyngeal swabbing may cause temporary

aerosolisation of the virus, increasing the risk of transmission to those in the vicinity. The virus is acquired through the mucous membranes of the eyes, nose, mouth and airways, either directly from droplets or aerosols or via hands which have picked up the virus from an infected person or surface or object.

No vertical transmission (in-utero or intrapartum transmission) has been documented to date. The virus has not so far been isolated from cord blood or amniotic fluid. Expert opinion is that the fetus is unlikely to be exposed during pregnancy. Any transmission to the neonate is therefore most likely to be after delivery, through close contact with the mother or other infected people. The virus has not been found in the breastmilk of mothers with COVID-19 infection, so for now breastfeeding is not thought to be a route of transmission.

Presentation in pregnancy

There is currently no known difference between the clinical manifestations of COVID-19 in pregnant and non-pregnant women or adults of reproductive age.

Effect on the Mother:

The majority of women will experience only mild or moderate cold/flu like symptoms. Cough (67.8%), fever (43.8% of cases on admission and 88.7% during hospitalization), and shortness of breath are other relevant symptoms (diarrhoea is uncommon -3.8%).

More severe symptoms such as pneumonia and marked hypoxia are widely described with COVID-19 in older people, the immunosuppressed and those with chronic medical conditions such as diabetes, hypertension, cancer and chronic lung and heart disease. Within the general population there is evolving evidence that there could be a cohort of asymptomatic individuals or those with very minor symptoms that are carrying the virus. Universal screening on admission in labour at two hospitals in New York in March/April 2020 (an area with high COVID-19 prevalence) found that 13.7% of asymptomatic women tested positive for COVID-19.

A high incidence of venous thrombosis and thromboembolic disease has been documented in patients with severe COVID-19 in the ICU setting (patients over 50years old), including cases of pulmonary embolism. An association between COVID-19 and venous thrombo-embolism has not been reported so far in pregnant women. However, as pregnancy is in itself a hypercoagulable state, it is reasonable to speculate that pregnant women with severe COVID-19 will be at high risk of this complication.

Effect on the Fetus:

There is currently no data suggesting an increased risk of miscarriage or early pregnancy loss in relation to COVID-19. As there is no evidence of intrauterine fetal infection with COVID-19 it is currently considered unlikely that there will be congenital effects of the virus on fetal development.

There are case reports of preterm birth in women with COVID-19, but many of these were due toiatrogenic delivery for maternal indications related to the infection. There were a few reports of fetal compromise and prelabour premature rupture of membranes.

Fever is common in COVID-19-infected patients. Previous data from other studies have demonstrated that maternal fever in early pregnancy can cause congenital structural abnormalities. However, a recent study in non-COVID-19 women, reported that the rate of fever in early pregnancy was 10%, and the incidence of fetal malformation in this group was 3.7%. Previous studies have reported no evidence of congenital infection with SARS-CoV, and currently there are no data on the

risk of congenital malformation when COVID-19 infection is acquired during the first or early second trimester of pregnancy.

Investigation and diagnosis

The process of COVID-19 testing and diagnosis is changing rapidly. Pregnancy does not alter the criteria for testing. Pregnant women should be investigated and diagnosed as per local criteria: www.nicd.ac.za and www.ndoh.gov.za

Prevention

Currently, there are no effective drugs or vaccines to prevent COVID-19. There are however several interventions that can prevent spread of the virus and confer protection from acquiring the virus.

- Any person with symptoms suggestive of the disease should be advised to and should take responsibility to isolate themselves from others. They should additionally wear a face mask. They should phone their local health facility or the National COVID-19 helpline (0800 029 999) to enquire about whether they should be tested for COVID-19.
- During the time of the COVID-19 pandemic, even asymptomatic people should wear some type of face mask (even a cloth mask) when leaving home for activities that will necessitate close interaction with others. This is to prevent transmission from asymptomatic infected people to others. Such activities would include using public transport, shopping, and attending health care facilities. This also applies to all staff working at health facilities.
- Maintain good personal hygiene: Wash hands and/or use hand sanitizer frequently. Avoid touching face (particularly eyes) with hands or fingers unless the hands have just been washed. This advice is applicable to everyone, and most especially to health workers on duty.
- Personal protective equipment (PPE) must be used by those working in the health care environment according to local guidelines.
- Citizens must abide by National "lock down" regulations. For those such as health workers who have to be at work despite the lock down, they must consciously avoid unnecessary close contact with others, such as greeting with handshakes, hugs and kisses. Any essential meetings that cannot be conducted remotely must ensure that participants maintain a 1.5 meter distance between each other and all participants must wear face masks

Notes on clinical management

For pregnant women the same infection prevention, investigation and diagnostic guidance applies, as for non-pregnant adults.

1. COVID-19 infection is not an indication for delivery, unless delivery is required as part of maternal resuscitation to improve maternal oxygenation, or to restore haemodynamic stability.
2. COVID-19 infection is not an indication for caesarean delivery. Women with COVID-19 infection should be allowed to deliver vaginally, unless there are clear obstetric indications for caesarean section. (WHO recommends that caesarean section should ideally be undertaken only when medically justified).
3. Shortening the second stage by assisted vaginal delivery can be considered if the woman is exhausted or has respiratory distress.

4. For suspected and confirmed cases of COVID-19 infection, intrapartum care, delivery and immediate postnatal care should be conducted in an appropriate isolation room. There must be dedicated midwives allocated to care for the woman and her newborn. These midwives must not be involved with managing other women in labour on the same shift. Appropriate personal protective equipment (PPE) must be worn by the midwives caring for the COVID-19 patient.

5. Induction of labour (IOL) is not routinely indicated for women with COVID-19, but should be performed for appropriate obstetric indications. The decision for IOL should involve an experienced obstetric doctor, to ensure that the IOL is definitely indicated. Where possible, it would be better to avoid labour and delivery until the woman has recovered from the COVID-19. For PUIs, where possible IOL should be delayed until the COVID test result is known.

6. Women scheduled for elective caesarean sections, who have contracted COVID-19 should if possible have the caesarean section postponed until 14 days after the onset of COVID-19 symptoms. PUIs should wait for the test result before a decision is made on the timing of the caesarean section. The postponing of elective caesarean sections should be overseen by an experienced obstetric doctor, to ensure that it is safe to do so, and to determine an appropriate monitoring/review schedule for the mother while awaiting the new date.

7. All pregnant women with COVID-19 or suspected COVID-19, who require admission because of the severity of their infection, should receive heparin thromboprophylaxis unless birth is expected within 12 hours, or there is a contraindication to heparin (e.g. antepartum haemorrhage). Either unfractioned heparin or low-molecular weight heparin can be used as per National Department of Health's Essential Medicines' List Clinical Guide. The decision for and appropriate dosing regimen of the heparin thromboprophylaxis should ideally be discussed by a MDT that includes a specialist obstetrician, specialist physician, and specialist anaesthetist/intensivist, taking into account haemorrhage risks, likely need for and mode of delivery, as well as thrombosis risk. Following delivery, once bleeding risk is no longer a concern, the heparin can be started/restarted, and continued until fit for discharge.

8. There is no evidence at present to support the use of heparin thromboprophylaxis in pregnant women with asymptomatic or mild COVID-19, not requiring admission.

9. For symptomatic relief of fever or headache, paracetamol is recommended. There are some concerns (not proven) that non-steroidal anti-inflammatory drugs, specifically ibuprofen, may worsen the course of COVID-19, and they should therefore not be used as first-line treatment for symptomatic relief.

10. Where preterm delivery is anticipated, there is a need for caution with the use of antenatal corticosteroids for fetal lung maturation in a critically ill patient, because steroids could potentially worsen the mother's clinical condition. The use of antenatal steroids should be considered in discussion with a multidisciplinary team (infectious disease specialists (where available), specialist physician, specialist obstetrician, maternal-fetal-medicine specialists (where available) and neonatologists). In cases where the woman presents with mild COVID-19, the clinical benefits of antenatal corticosteroid might outweigh the risks of potential harm to the mother. In this situation, the balance of benefits and harms for the woman and the preterm newborn should be discussed with the woman to ensure an informed decision, as this may vary depending on the woman's clinical condition, her wishes and that of her family, and available health care resources.

11. In the case of a Covid-19 infected woman presenting with spontaneous preterm labour, suppression of labour (to delay delivery in order to administer antenatal corticosteroids) should not be done.

12. Products of conception from miscarriages or terminations of pregnancy and placentas of COVID-19-infected pregnant women should be treated as infectious tissues and they should be disposed of appropriately.

13. Delayed cord clamping is still recommended following birth, provided there are no other contraindications. The baby can be cleaned and dried as normal, while the cord is still intact. COVID-19 has not been isolated from cord blood.

14. Mothers with suspected or confirmed COVID-19 should routinely be kept together with their newborn for bonding and breastfeeding, while applying necessary precautions for IPC (the mother should wear a mask and wash or sanitize her hands frequently). The mother/baby pair must remain in a designated isolation area. Depending on the facility, this might be the same room used by the mother during labour, or any alternative isolation ward where appropriate postnatal/neonatal care can be rendered.

15. For women expressing breast milk, hands must be washed before expressing. A dedicated breast pump/milk cups should be used. Follow recommendations for breast pump cleaning after each use (Rinse all expressing equipment in clean, running water before sterilizing). Consider asking someone who is well to feed expressed milk to the baby (mother can decant milk from her container into a clean container held by a healthy person to prevent transmission via the containers surface).

16. All newborn of women with suspected or confirmed COVID-19 need careful assessment at birth and monitoring, with referral to or consultation with the next level of expertise in selected cases. All babies will need neonatal follow-up and ongoing surveillance after discharge.

17. Routine neonatal criteria for admission to the neonatal nursery/NICU will apply. Expressed breast milk would be ideal for the baby in this situation, if the mother is not able to enter the neonatal nursery due to infection concerns.

18. If the mother is unwilling to breastfeed the baby or is unable to breastfeed the baby because she is critically ill, then for the option of the baby being taken home for care by the family should be investigated.

19. If the mother is unable to breastfeed the baby because she is critically ill, sourcing donor breast milk for the baby should be attempted.

20. When mother with COVID-19 and baby are both fit for discharge, they can be discharged home as long as home circumstances will allow self-isolation of the mother/baby pair. If this is not possible, referral to an alternative isolation/quarantine unit may be necessary.

21. For PUIs, every attempt must be made to obtain a COVID-19 test result before discharge to clarify isolation requirements post-discharge.

22. The postnatal visit schedule must be arranged before discharge. Discharge must be authorized by a senior team member. On discharge, the mother with COVID-19 must be provided with contact details of the relevant postnatal/neonatal care team member to call if she has any concerns before her next scheduled visit. The postnatal/neonatal team should also obtain contact numbers for the mother, so that telephonic follow-up can be conducted if required.

Common scenarios related to COVID-19 in pregnancy

Patient scenario	Management advice (Adapted for RSA from RCOG, ACOG, WHO and SASA recommendations)
1. Pregnant woman phones the health facility and asks if she must attend for her antenatal or postnatal visit. She has no symptoms suggestive of COVID-19	Ask the woman if she would prefer to be called back to save her airtime. Take a detailed history on the phone, asking about travel history, symptoms and contact with anyone who has COVID-19. Ask if she has been tested for COVID-19. Ask about any other problems or concerns she has regarding the pregnancy. If the history confirms that she has not recently returned from travel to a high-risk country for COVID, that she does not have COVID-19 symptoms and that she does not have a COVID-19 contact, then she should be advised to attend antenatal care or postnatal care as usual. Advise her that she should expect to be screened for COVID-19 on arrival at the facility, before joining the antenatal or postnatal clinic queue. Take the opportunity to re-emphasize general preventative measures for COVID-19 including handwashing, social distancing and wearing a cloth mask whenever leaving the house. She must be wearing such a mask when she attends for any antenatal or postnatal visits.
2. Pregnant woman phones the health facility and reports that she has symptoms of COVID-19	• Ask the woman if she would prefer to be called back to save her airtime. • Take a detailed history on the phone, asking about travel history, symptoms and contact with anyone who has COVID-19. Ask if she has been tested for COVID-19. • Assess severity of symptoms, including whether there is shortness of breath, whether she is able to eat and drink, whether she is able to do her normal household activities. • Ask about any other problems or concerns she has regarding the pregnancy. • Ask about her home circumstances • Consider calling another household member to get further information on the woman's condition and home circumstances. • If the woman meets the criteria for testing, make a plan for testing her for COVID, either through an

Patient scenario	Management advice
	outreach visit to her, or through her making a visit to the health facility. • If the woman is well (not short of breath and can conduct her normal household activities), and home circumstances allow, a plan can be made for her to self-isolate herself at home, until her test result comes back negative, or if positive, until 14 days after the onset of symptoms. For women who are advised to self-isolate, the current guidance is to: • Not go to school, work, or public areas • Not use public transport • Stay at home and not allow visitors • Ventilate the rooms by opening a window • Separate themselves from other members of their household as far as possible, using their own towels, crockery and utensils and eating at different times • If some interaction with a household member cannot be avoided, then wear a mask • Use friends, family or delivery services to run errands, but advise them to leave items outside. If home circumstances do not allow self-isolation at home, contact the local quarantine/isolation centre to discuss admission for isolation She can resume her routine antenatal visits after the isolation period has been completed. If there is any concern that she may have severe COVID-19, or if she has other obstetric problems requiring urgent assessment, a plan must be made for her to come for assessment at the health facility, where she must be attended to in isolation Transport to the health facility will in such cases usually be by ambulance, unless the woman has access to suitable private transport. The woman must ideally wear a face mask throughout the transfer period.

Patient scenario	Management advice
3. Pregnant woman phones the health facility and reports that she has no symptoms of COVID-19, but a close contact of hers has just been diagnosed with COVID	• Ask the woman if she would prefer to be called back to save her airtime. • Take a detailed history on the phone, asking about travel history, symptoms and details of the contact history. Ask if she has been tested for COVID-19. • Ask about any other problems or concerns she has regarding the pregnancy. • Ask about her home circumstances. • If the woman meets the criteria for testing, make a plan for testing her for COVID, either through an outreach visit to her, or through her making a visit to the health facility. • If the contact history is confirmed, and the woman remains well (not short of breath and can conduct her normal household activities), and home circumstances allow, a plan can be made for her to self-isolate herself at home, until 14 days after the last date of the contact • If home circumstances do not allow self-isolation at home, contact the local quarantine centre to discuss admission for isolation
4. General advice for a facility providing care to pregnant or postpartum women with suspected or confirmed COVID-19, in whom hospital attendance becomes necessary because of obstetric reasons	• The woman should be advised to attend via private transport where possible (e.g. by private car or on foot; not by meter taxi/Uber etc). All feasible precautions should be taken to protect any accompanying person from infection (the patient should wear a mask and maintain a distance of over 1m from others). • If the woman has no access to private transport, or if her current condition makes private transport inappropriate, then she should call for an ambulance. When calling for the ambulance the call centre must be informed that the woman is currently in self-isolation for COVID- 19 or possible COVID-19. • The woman should if possible call the facility in advance to alert them that she will be coming. If the woman is being brought by ambulance, then the EMS must inform the receiving facility that the patient they are bringing is a COVID-19 case, or a PUI. • On arrival at the health facility, the woman must, without joining any queue, immediately report to a staff member that she has COVID-19 or is a PUI, and explain the reason for her attendance. This should be done on the facility premises, but prior to entering the facility building. • All staff providing care should take personal protective equipment (PPE) precautions as per local guidance. If the woman is not already wearing a face mask, then she must be provided with one on arrival at the facility.

Patient scenario	Management advice
	• The woman should be met at the maternity unit entrance by staff wearing appropriate PPE. • The woman should immediately be escorted to an isolation room, suitable for the majority of care during her hospital visit or stay- For overnight stays, isolation rooms should ideally have an ante-chamber for donning and doffing PPE, and en-suite bathroom facilities. • Only essential staff should enter the room and visitors should not be allowed • Remove non-essential items from a clinic/ultrasound room prior to consultation. • All clinical areas used, including equipment such as ultrasound machines will need to be cleaned after use as per local guidance and IPC.
5. Woman presenting for care with unconfirmed COVID-19 but symptoms suggestive of possible infection	All health facilities including maternity departments with direct entry for patients and the public should have in place a system for identification of potential cases (screening for COVID-19 on arrival at the facility) as soon as possible to prevent potential transmission to other patients and staff. This should be at first point of contact (either near the entrance or at reception) to ensure early recognition and infection prevention and control. All women must be screened before sitting in the maternity waiting area. If woman shows symptoms suggestive of COVID-19 infection (e.g. cough or fever above 38°C) they should be tested as per NICD criteria. Until test results are available, they should be treated as though they have confirmed COVID-19; they must be given a surgical mask to wear and be immediately isolated from other patients. Health care workers attending to them must use PPE. Pregnant women may attend for obstetric reasons and be found on screening to have coincidental symptoms meeting current COVID-19 case definition. There are some situations where overlap between pregnancy symptoms and COVID-19 symptoms may cause confusion (e.g. fever with ruptured membranes/other systemic infection). A thorough examination is required. In cases of uncertainty seek additional advice and manage as a PUI. In the event of a pregnant woman attending with an obstetric emergency and being suspected or confirmed to have COVID-19, maternity staff must first follow IPC guidance. This includes transferring the woman to an isolation room and donning appropriate PPE. Once IPC measures are in place the obstetric emergency should be dealt with as the priority. Do not delay obstetric management in order to test for COVID-19.

Patient scenario	Management advice
	Further care, in all cases, should continue as for a woman with confirmed COVID-19, until a negative test result is obtained.
6. Attendance for routine antenatal care in a woman with suspected or confirmed COVID-19	Routine appointments for women with suspected or confirmed COVID-19 should be delayed until after the recommended period of isolation. Advice to attend more urgent pre-arranged appointments (fetal medicine, high risk clinic) will require a senior decision on urgency and potential risks/benefits. If it is deemed that obstetric or midwifery care cannot be delayed until after the recommended period of isolation, infection prevention and control measures should be arranged locally to facilitate care. All facilities providing maternity care must arrange local, robust communication pathways for senior maternity staff members to screen and coordinate appointments missed due to suspected or confirmed COVID-19. All women attending antenatal or postnatal care (ANC/PNC), not only those with COVID, must be provided with a phone/SMS/WhatsApp number through which they can liaise with a senior staff member at their ANC/PNC facility, to report symptoms, plan suitable dates for appointments, report transport difficulties preventing attendance etc. Furthermore, reliable contact details of any COVID-19 case or PUI must be obtained so that in cases where the woman will be managed through self-isolation at home, or in an isolation/quarantine facility, telephonic follow-up can be conducted by the ANC/PNC staff, to plan ongoing management.
7. Woman who develops new symptoms during admission (antenatal, intrapartum or postnatal)	The estimated incubation period of the virus is 0-14 days (mean 5-6 days); some woman may present asymptomatically, developing symptoms later during an admission. It is also possible that people may be infectious for one or two days before symptoms appear. Health professionals should be aware of this possibility (particularly those who regularly measure patient vital signs), and maintain standard infection prevention control measures for all patients (e.g. sanitiser or washing hands in between all patient contact). All in-patients should wear a mask. If they do not have their own, they can be provided with a surgical mask daily. All in-patients must be re-screened for COVID-19 daily. As soon as symptoms of COVID-19 become apparent, isolation of the patient must be arranged at the facility where she is admitted. Local guidance should be available on whom to contact for further assessment of the patient in the event of new onset respiratory symptoms or unexplained fever of or above 38°C.

Patient scenario	Management advice
	Testing for COVID must be arranged as soon as possible if NICD criteria for testing are met. Details of possible contacts (patients/staff) must be recorded.
8. Woman attending for intrapartum care with suspected/confirmed COVID-19 and no/mild symptoms Attendance in labour	All women who have attended antenatal care should have made a plan with the health care provider about the appropriate birthing site according to obstetric risk factors. At the time when the woman goes into labour, if she now has COVID-19 or suspects she may have COVID, then she should contact her maternity care facility to confirm where she must attend for labour and to discuss transport arrangements. Every woman should during antenatal care have been provided with a phone number to call in such situations (see box 6 above). If the woman is unable to contact her local facility, she should call the SA COVID-19 helpline 0800 029 999. If the woman cannot make a call or get through to the relevant number, she must attend her planned birthing facility and inform them of her possible diagnosis on arrival. All designated birthing facilities should have a plan in place to manage women with COVID-19 in labour. However, particularly if the woman has significant respiratory symptoms or is critically ill, then arrangements should be made for the woman to attend for labour at a specialised COVID-19 centre where she will have access to a multi-disciplinary specialist team. When a woman in labour who is a COVID-19 case or a PUI presents to the maternity unit, general recommendations about hospital attendance apply (see box 4). Once settled in an isolation room, a full maternal and fetal assessment should be conducted to include: • Maternal observations including temperature, pulse, blood pressure, respiratory rate and oxygen saturation (if saturation monitor is available), in order to assess the severity of COVID-19. • Confirmation of the onset of labour, as per standard care. • Fetal monitoring as per standard guidelines according to the obstetric risk factors. • If the woman has signs of sepsis, investigate and treat as per local guidelines on sepsis in pregnancy, but also consider COVID-19 as a cause of sepsis and investigate accordingly. (Look out for other co-infections)

Patient scenario	Management advice
	• Once a full assessment has been made, decide whether referral to a designated specialised COVID-19 centre is necessary. Consult the doctor at the specialised centre as required. • If COVID-19 not confirmed, test for COVID-19 after attending to any obstetric emergency. If labour is confirmed, then care in labour should ideally continue in the same isolation room.
9. Women with confirmed COVID-19 and moderate/severe symptoms The following recommendations apply in addition to those specified for women with no/mild symptoms. ***Women admitted during pregnancy (not in labour)***	Where pregnant women are admitted to hospital with deterioration in symptoms and suspected or confirmed COVID-19 infection, the following recommendations apply: • Admit/refer to a specialized COVID-19 hospital. A multidisciplinary team (MDT) – involving a specialist physician (infectious disease specialist where available), specialist obstetrician, midwife-in-charge, specialist neonatologist, neonatal-nurse in charge, virologist/microbiologist (where available) and specialist anaesthetist responsible for obstetric care should be arranged as soon as possible following admission. (The discussion and its conclusions should be discussed with the woman). The MDT must consider the following: • Most appropriate location of care (e.g. intensive care unit, isolation room in infectious disease/labour ward or other suitable isolation room) and lead specialty. • Concerns amongst the team regarding special considerations in pregnancy and newborns; e.g. thromboprophylaxis for the mother. • The priority for medical care should be to stabilise the woman's condition with standard supportive care therapies. • Radiographic investigations should be performed as indicated for the non-pregnant adult; this includes chest X-ray and/or CT of the chest. (Reasonable efforts to protect the fetus from radioactive exposure should be made, as per usual protocol). • The frequency and suitability of fetal heart rate monitoring should be considered on an individual basis, taking into consideration the gestational age of the fetus and the maternal condition. • Do not monitor the fetal condition in a woman with severe COVID-19, until she is stabilised. The presence of the fetal heart beat can be checked intermittently in such cases.

Patient scenario	Management advice
	• If urgent delivery is indicated for fetal reasons, birth should be expedited as normal, as long as the maternal condition is stable. • If maternal stabilization is required before delivery, this is the priority, as it is in other obstetric emergencies. An individualised assessment of the woman should be made by the MDT team to decide whether urgent delivery of the baby is indicated, either to assist efforts in maternal resuscitation or where there are serious concerns regarding the fetal condition.
10. Care in labour – severe COVID-19; considerations apply to woman in spontaneous or induced labour:	A pregnant woman in labour with evidence of severe COVID-19 (e.g. breathing difficulties, decreased level of consciousness, with no other obvious cause after thorough history and examination) should be taken ideally by ambulance straight to a specialised COVID-19 centre. This is irrespective of whether the COVID-19 has been confirmed yet or not. When the woman is admitted to the designated labour ward, members of the multi-disciplinary team should be informed: specialist obstetrician, specialist anaesthetist, specialist physician, midwife-in-charge, specialist neonatologist and neonatal nurse in charge and infectious disease specialist if available, etc. Efforts should be made to minimise the number of staff members entering the room and units/facilities should develop a local policy specifying essential personnel for emergency scenarios. Maternal observations and assessment should be continued as per standard practice, with the addition of hourly oxygen saturations. (Aim to keep oxygen saturation >94%, titrating oxygen therapy accordingly) Fetal monitoring is not recommended until the mother's condition has been stabilised. The presence of the fetal heart beat can be checked intermittently Mode of birth should not be influenced by the presence of COVID-19, unless the woman's respiratory or haemodynamic condition demands urgent delivery to improve oxygenation. There is no evidence that epidural or spinal analgesia is contraindicated in the presence of corona viruses. If general anaesthesia is required, there is a risk of aerosolisation of the virus during the intubation procedure, for which appropriate infection prevention measures must be taken (see anaesthetic considerations in box 11) An individualised decision should be made regarding shortening the length of the second stage of labour with instrumental delivery in a

Patient scenario	Management advice
	symptomatic woman who is becoming exhausted or has respiratory distress.
11. When caesarean section (CS) is required for the woman with COVID-19	**The following guidelines apply:** • Birth partners should not accompany the patient in the theatre complex. • Platelet count should always be checked in preparing for the caesarean section. NOTE: Approximately one third of patients in a case series from Wuhan developed thrombocytopaenia (platelet count <150). This may have implications both for the anaesthetic and for the surgery. • Early warning for the senior anaesthetist of an impending caesarean section is essential in order to facilitate preparation of theatre and PPE. • Where possible, a senior anaesthetist should administer the anaesthesia. This is aimed at reducing theatre time, reducing the incidence of failed spinal anaesthesia and potentially reducing aerosol generation during intubation, if required. • The surgeon should also be at senior level in order to reduce the risk of operative complications and prolonged surgery, and thereby reducing the incidence of conversion of spinal anaesthesia to general anaesthesia. • Anaesthesia for these patients may be either regional or general anaesthesia (GA), as for non-COVID-19 patients. However, GA, which for CS requires endotracheal intubation, creates a greater risk for virus transmission to staff in theatre and for viral contamination of the theatre. If the anaesthesia machine is used either for a GA or for administration of supplemental oxygen, a hydrophobic filter must be used to prevent the machine being contaminated with the virus (≤ 0.05µm pore size). • All health care workers in the operating room providing care for PUI/COVID-19 positive patients undergoing caesarean section must wear full PPE (including an N95 mask and goggles or visor)– this is regardless of the type of anaesthesia, as any case done under spinal may have to be urgently converted to a general anaesthetic. This applies to surgeon, surgical assistant, scrub nurse, midwife (receiving baby), anaesthetist and anaesthetic assistant, and any other person who needs to be inside the operating room throughout the procedure.

Patient scenario	Management advice
	• Spinal anaesthesia remains the anaesthetic of choice in the absence of contra-indications. The patient should be wearing a surgical facemask for the duration of the perioperative period. • Donning PPE is mandatory for tracheal intubation; double glove if intubating the patient and remove the outer gloves once the endotracheal tube is secured. See SASA guidelines: https://sasacovid19.com. • Tracheal intubation is a high-risk procedure for staff, irrespective of the clinical severity of the disease. Where possible, video-laryngoscopy should be used as first-line. Avoid face mask ventilation unless needed. **Failed spinal guidelines:** • Senior anaesthetic advice should be sought in the event of a failed spinal. If the clinical circumstances permit, a second attempt at spinal anaesthesia is preferred within current ESMOE guidelines. These state that if there are no effects of the failed spinal within 20 minutes, a repeat spinal anaesthetic may be administered. In the event of partial effects, surgery should either be delayed for six hours (depending on indications for CS) or converted to GA. If delayed surgery is chosen, a repeat failed spinal anaesthetic should be converted to GA. Conversions to GA should be done within the current SASA guidelines for GA in the COVID-19 positive patient. • Where the need to deliver the baby is very urgent, either for fetal or maternal reasons, the perioperative team may make a decision to proceed straight to an urgent GA. In this event, the assistant and anaesthetist should remove gloves and sterilize hands with alcohol. N95 should be applied along with double gloves. Induction and intubation should proceed with all due speed. • **No induction should occur without all staff in the theatre having first donned PPE.** *Neonatal resuscitation post CS:* Consider neonatal resuscitation outside the operating theatre where possible. This may reduce exposure of the baby and staff resuscitating the baby to aerosols, and potentially minimize the unnecessary use of PPE. *Post-operative pain considerations:* A combination of paracetamol and an opiate should be routinely used as first-line for post-operative pain relief in the woman with COVID-19. Local anaesthetic around the incision is an additional option. Concerns regarding the use of NSAIDs in the Covid-19 positive patient are not yet

Patient scenario	Management advice
	proven by clinical data. Accordingly, NSAIDs may be used with caution in the absence of other contraindications, on an individual patient basis.

General advice for healthcare providers

a. The COVID-19 pandemic places most pregnant and postnatal mothers and their families under considerable social, economic and psychological strain. Many women will be at increased risk for food insecurity and domestic violence. Although staff too are likely to be highly stressed and deserve care, their engagement with mothers should always be respectful and empathetic.

b. During the pandemic, health care staff should not be working if they have any COVID-19 symptoms. They must be thoroughly assessed and if appropriate tested for COVID-19 and managed accordingly. All staff, clinical and non-clinical must be regularly screened for COVID according to NICD guidelines.

c. All healthcare providers should wear a surgical mask at work during any interactions with patients or colleagues. This is primarily to protect others as health workers are at high risk of contracting COVID-19 and may initially be asymptomatic.

d. For staff attending to pregnant women with COVID-19 or PUIs, the same PPE requirements apply as when attending non-pregnant adults with COVID-19. As with all pregnancies, irrespective of COVID-19 status, particularly during labour, there are risks of staff exposure to blood, urine, faeces and amniotic fluid. Routine IPC measures as required for managing all pregnancies and deliveries must therefore be strictly adhered to. However, staff can be reassured that the virus has not so far been detected in amniotic fluid or in breastmilk.

e. Health care staff who have been exposed unexpectedly, while without PPE to a COVID-19-infected patient, should be thoroughly assessed regarding exposure history, and if appropriate tested for COVID-19 and kept in quarantine or self-isolation for 14 days from the time of the contact.

C. Managing newborns

C1.Neonatal algorithm for mother positive or suspected COVID-19 (updated April 2020)

NEONATAL ALGORITHM
FOR MOTHER POSITIVE OR SUSPECTED COVID-19



MOTHER POSITIVE OR SUSPECTED COVID-19

ISOLATE MOTHER, USE PPE

MOTHER WELL

MOTHER ILL, UNABLE TO CARE FOR INFANT

BABY ASSESSED IN LABOUR WARD OR THEATRE BY DOCTOR/MIDWIFE

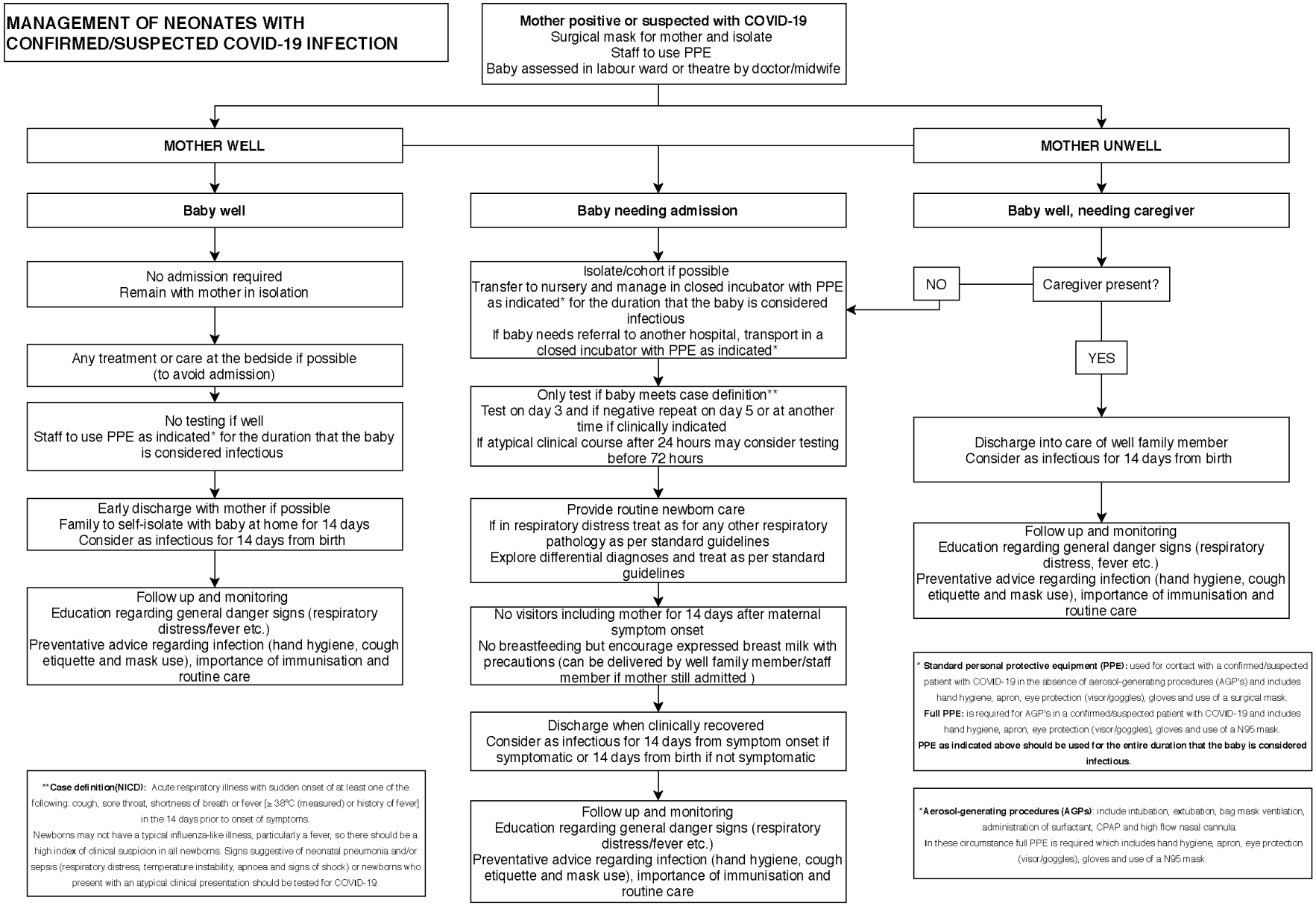
BABY WELL OR STABLE	BABY NEEDING ADMISSION	BABY WELL, NEEDING CAREGIVING
REMAIN WITH MOTHER IN ISOLATION	TEST FOR COVID, CONSIDER ALL AS INFECTIOUS FOR AT LEAST 14 DAYS AFTER SYMPTOM RESOLUTION DAYS	DO NOT TEST IF WELL. CONSIDER ALL AS INFECTIOUS FOR AT LEAST 14 DAYS
NO TESTING IF WELL	TRANSPORT IN OR ADMIT TO CLOSED INCUBATOR IN DESIGNATED ISOLATION AREA OR ROOM WITH FULL PRECAUTIONS	TRANSPORT IN OR ADMIT TO CLOSED INCUBATOR IN DESIGNATED ISOLATION AREA OR ROOM WITH FULL PRECAUTIONS
BREAST FEED WITH PRECAUTIONS	TREAT AS FOR ANY VIRAL RESPIRATORY INFECTION AND/OR TREAT OTHER PATHOLOGY	IF POSSIBLE, ENCOURAGE EBM WITH PRECAUTIONS
ANY TREATMENT OR CARE AT BEDSIDE IF POSSIBLE	MOTHER MAY NOT VISIT OR BF, ENCOURAGE EBM WITH PRECAUTIONS	EARLY DISCHARGE TO CAREGIVER WITH PRECAUTIONS, FOLLOW UP AS AT-RISK BABY
DISCHARGE WITH MOTHER FOR FOLLOW UP		

health
Department: Health
REPUBLIC OF SOUTH AFRICA

2030

Phila

C2. Management of neonates with confirmed/suspected COVID-19 infection (24 April 2020)


MANAGEMENT OF NEONATES WITH CONFIRMED/SUSPECTED COVID-19 INFECTION
Mother positive or suspected with COVID-19
Surgical mask for mother and isolate
Staff to use PPE
Baby assessed in labour ward or theatre by doctor/midwife
MOTHER WELL
MOTHER UNWELL
Baby well
Baby needing admission
Baby well, needing caregiver
No admission required
Remain with mother in isolation
Any treatment or care at the bedside if possible
(to avoid admission)
No testing if well
Staff to use PPE as indicated* for the duration that the baby is considered infectious
Early discharge with mother if possible
Family to self-isolate with baby at home for 14 days
Consider as infectious for 14 days from birth
Follow up and monitoring
Education regarding general danger signs (respiratory distress/fever etc.)
Preventative advice regarding infection (hand hygiene, cough etiquette and mask use), importance of immunisation and routine care
Isolate/cohort if possible
Transfer to nursery and manage in closed incubator with PPE as indicated* for the duration that the baby is considered infectious
If baby needs referral to another hospital, transport in a closed incubator with PPE as indicated*
Only test if baby meets case definition**
Test on day 3 and if negative repeat on day 5 or at another time if clinically indicated
If atypical clinical course after 24 hours may consider testing before 72 hours
Provide routine newborn care
If in respiratory distress treat as for any other respiratory pathology as per standard guidelines
Explore differential diagnoses and treat as per standard guidelines
No visitors including mother for 14 days after maternal symptom onset
No breastfeeding but encourage expressed breast milk with precautions (can be delivered by well family member/staff member if mother still admitted)
Discharge when clinically recovered
Consider as infectious for 14 days from symptom onset if symptomatic or 14 days from birth if not symptomatic
Follow up and monitoring
Education regarding general danger signs (respiratory distress/fever etc.)
Preventative advice regarding infection (hand hygiene, cough etiquette and mask use), importance of immunisation and routine care
NO
Caregiver present?
YES
Discharge into care of well family member
Consider as infectious for 14 days from birth
Follow up and monitoring
Education regarding general danger signs (respiratory distress, fever etc.)
Preventative advice regarding infection (hand hygiene, cough etiquette and mask use), importance of immunisation and routine care
**Case definition(NICD): Acute respiratory illness with sudden onset of at least one of the following: cough, sore throat, shortness of breath or fever [≥ 38°C (measured) or history of fever] in the 14 days prior to onset of symptoms.
Newborns may not have a typical influenza-like illness, particularly a fever, so there should be a high index of clinical suspicion in all newborns. Signs suggestive of neonatal pneumonia and/or sepsis (respiratory distress, temperature instability, apnoea and signs of shock) or newborns who present with an atypical clinical presentation should be tested for COVID-19.
* Standard personal protective equipment (PPE): used for contact with a confirmed/suspected patient with COVID-19 in the absence of aerosol-generating procedures (AGP's) and includes hand hygiene, apron, eye protection (visor/goggles), gloves and use of a surgical mask.
Full PPE: is required for AGP's in a confirmed/suspected patient with COVID-19 and includes hand hygiene, apron, eye protection (visor/goggles), gloves and use of a N95 mask.
PPE as indicated above should be used for the entire duration that the baby is considered infectious.
*Aerosol-generating procedures (AGPs): include intubation, extubation, bag mask ventilation, administration of surfactant, CPAP and high flow nasal cannula.
In these circumstance full PPE is required which includes hand hygiene, apron, eye protection (visor/goggles), gloves and use of a N95 mask.

D. Health services

D1. Maternity and reproductive health services in South Africa during the COVID-19 pandemic: Guidelines for provincial, district, facility and clinical managers (updated 30 April 2020)

Also consult Appendix B3: Managing the pregnant woman during the COVID-19 pandemic in South Africa: A clinical guide for health workers and clinical managers

Updated 30 April 2020

Abbreviations

ANC	Antenatal Care
BANC	Basic Antenatal Care
COVID-19	Coronavirus Disease 2019
CS	Caesarean Section
GA	General Anaesthesia
IOL	Induction of Labour
IPC	Infection Prevention and Control
MWH	Maternity Waiting Homes
NDOH	National Department of Health
NICD	National Institute for Communicable Diseases
NICU	Neonatal Intensive Care Unit
NSAID	Nonsteroidal anti-inflammatory drugs
PNC	Postnatal Care
PPE	Personal Protective Equipment
PUI	Person under Investigation

Non-emergency, but essential services that need to continue at the usual level of care throughout the COVID-19 pandemic:

- Contraception services (there may be a need to postpone some sterilization procedures; where this is the case, reliable contraception must be offered)
- Termination of pregnancy services
- Antenatal care, including BANC Plus and high-risk antenatal clinics
- Elective caesarean sections
- Postnatal care (includes review of both mother and baby)
- Gynaecological oncology services including colposcopy and LLETZ procedures, surgery for gynaecology cancers
- Immunisations (including influenza vaccine for pregnant mothers and routine immunisations for babies)

The exceptions are when the woman is:

1) A confirmed COVID-19 case*

2) A person under investigation (PUI) for COVID-19 (symptomatic)*

3) A contact of a confirmed case*

*Refer to latest NICD case definitions

In such situations, the required non-emergency service can be postponed as follows:

1) Confirmed case: until 14 days after the onset of symptoms (mild disease) or 14 days after stabilization of the condition (severe disease)

2) PUI: until COVID-19 is excluded, or if COVID-19 is confirmed, then until 14 days after onset of symptoms (mild disease) or 14 days after stabilization of the condition (severe disease)

3) Contact: until 14 days have passed since the last contact occurred, and no symptoms have occurred.

Services that can be postponed during a lock-down period:

Full (level 5) lock-down:

- Elective gynaecologic surgery
- Non-emergency, non-oncology gynaecology clinics
- Visits for routine pap smear screening (opportunistic pap smear screening can still be done if the woman has presented for an essential service such as antenatal care, contraception or antiretroviral treatment review)

At less than full lock-down levels, each facility must judge to what extent it can re-institute the above-listed non-emergency services, based on factors including the current COVID-19 patient burden in their region, the availability of relevant staff and space, and transport access for patients. Decisions in this regard must be communicated with and agreed by relevant health managers in the catchment area to ensure clear information is provided to health workers as well as to the community.

Emergency services that need to continue at the usual level of care throughout the COVID-19 pandemic:

- Intrapartum care, including vaginal births
- Emergency caesarean sections
- Management of any obstetric emergency
- Management of gynaecological emergencies, including those related to early pregnancy

When such cases present, the woman must be screened for COVID-19 symptoms. Confirmed or suspected COVID-19 cases must be assessed for severity of disease. Cases with severe COVID-19 will need referral to a designated centre with expertise and facilities to manage severe COVID-19. Cases

with mild disease can be managed in isolation at the usual level of care, with consultation as required with the next level of care.

Systems that need to be in place

- Contraception services must be accessible at all health care facilities. For women of reproductive age, the issue of family planning should be raised during all non-emergency health care interactions (not limited to maternity or gynae departments). Avoiding unplanned pregnancies is of particular importance during the pandemic, and those planning for a pregnancy should be advised to consider deferring their plans until the pandemic is over.

- All pregnant or post-partum women, especially those who are COVID-19 cases or PUIs should have access to a COVID-19 phone number/WhatsApp number through which they can contact their antenatal/postnatal clinic to discuss COVID-19 related care issues such as whether or not they should attend for scheduled visits. The relevant number must be provided to the woman at her first antenatal visit

- All facilities must also provide pregnant and postpartum women with the number for the NDOH COVID-19 WhatsApp support line (0600 123456) and the COVID-19 emergency Helpline (0800 029 999): Women should be advised that through the support line they can access a **COVID-19** community messaging system for information, advice about self-care, support and addressing queries. These are also available in different formats and languages on the SidebySide (www.sidebysideva.org) or the Perinatal Mental Health Project (https://pmhp.za.org). [A1]

- The antenatal and postnatal clinic must ensure they obtain contact details (address and preferably multiple phone numbers) for any pregnant woman who is a COVID-19 case or PUI. If these women are not admitted, then regular (e.g. weekly) telephonic follow-up should be conducted to plan the further management of the pregnancy with the woman (e.g. providing COVID-19 test results, scheduling of further antenatal visits, checking that there is no clinical deterioration)

- As from 1st May 2020, all people in South Africa are required to be wearing a face mask when they are in public spaces, where interaction with other people may occur. This can be a cloth mask or a scarf that covers the nose and mouth. This applies to all patients attending health facilities. It also applies to all staff on duty at health facilities.

- All health facilities must have a system for checking whether arriving patients are wearing a suitable mask. If the patient has no such mask, they must on arrival be provided with a surgical mask that they must wear throughout their visit to the facility.

- All health facilities must have a process of screening all outpatients for COVID-19 before or as they arrive at the facility. If there are inadequate stocks of face masks to supply all patients, patient masks must be reserved those who screen positive for COVID-19.

- All facilities must have a designated isolation area, where outpatients (including pregnant women) that screen positive on arrival can be thoroughly assessed through history-taking

and clinical examination, to determine whether the patient meets the criteria for COVID-19 testing, and to plan further care, where necessary in consultation with or with referral to a higher level of expertise.

- All primary health care facilities must have a functional 24/7 communication system with the obstetric doctor at their direct referral hospital for consultations regarding further management of COVID-19 cases or PUIs in pregnancy (e.g. using VULA App, WhatsApp, phone).

- All designated birthing (delivery) sites should be able to identify potential COVID-19 cases, test for COVID-19, identify patients with severe COVID-19 disease and be able to manage intrapartum care (in an isolation room) in COVID-19 patients with mild disease. The District management should consider closing the birthing service at any low-volume birthing site (<50 births per month) in an urban (non-remote) area which cannot meet these requirements (there will need to be a minimum of 2 midwives working in labour ward on every shift). The birthing service for that community would then be consolidated at a better resourced neighbouring facility, with consideration of transfer of some midwives and/or doctors to the neighbouring facility to support the increased case burden there.

- Unless there are obstetric reasons for admission, pregnant or post-natal COVID-19 cases/ PUIs **with mild disease**, or asymptomatic contacts of confirmed COVID-19 cases should self-isolate at home. Where this is not possible, due to the home circumstances, the pregnant woman should have access to a designated isolation/quarantine facility, where she can stay until she tests negative or has passed the 14-day infectious period. If her next scheduled ANC /PNC visit falls within this isolation period, there needs to be telephonic or WhatsApp communication with the clinic to reschedule this visit.

- Facilities with waiting mothers areas (maternity waiting homes [MWH]) for pregnant women at term who have no means of transport to get to the facility when they go into labour, must ensure that appropriate infection prevention control (IPC) measures are enforced amongst the occupants of the MWH to minimise the chance of spread of the virus (hand-washing, social distancing and face masks for all etc). If a woman has COVID-19 or is a PUI, or has a confirmed contact, then she cannot be admitted to the MWH until infection has been excluded. The antenatal care provider must individualise a plan for the woman, e.g. admission for isolation in hospital, admission to a quarantine/isolation facility or self-isolation at home and admission to the MWH once the infectious period has passed.

- Pregnant women who are COVID-19 cases or PUIs, not in labour, who require admission to hospital, will need to be nursed in an isolation unit within the hospital. This could either be in a section of the hospital identified for all COVID-19 cases or PUIs, or in an individual cubicle within the maternity unit. Irrespective of the site, clear plans need to be made regarding the frequency of nursing observations and doctor's and/or midwife's rounds required. This will vary according to the gestational age and the reason for the admission.

- Pregnant or post-partum patients with confirmed or suspected COVID-19 with severe disease, in septic shock or in respiratory distress, should be referred as soon as possible for

inpatient care at a designated specialised COVID-19 treatment site with high-care and ICU facilities and a multi-disciplinary specialist team.

Where such patients present at a primary health care site, there must be direct transfer to the designated specialised COVID-19 treatment site, bypassing the interval levels of care (the interval level of care may have a role in telephonically assessing the severity of the case and facilitating transfer through communication with the specialised COVID-19 treatment site).

All hospitals must be aware of where their referral centre is for patients with severe COVID-19. Hospitals must have a functional 24/7 communication system with the relevant doctors at this referral centre (e.g. using VULA App, WhatsApp, phone).

- Labour in women who are COVID-19 cases or PUIs should be managed at the appropriate level of care based on existing risk factor criteria. Any woman with severe COVID-19 should be referred directly to the designated specialised site for managing severe COVID-19 cases.

  The COVID-19 case or PUI in labour must be managed in an isolated cubicle, by dedicated staff who cannot be assigned other duties for non-COVID-19 patients during the same shift.

- If a woman who is a COVID-19 case or suspect needs an emergency caesarean section, it should ideally be done in a designated theatre room exclusively reserved for COVID-19 cases. This may not be feasible at most hospitals and is not essential. If the theatre air conditioning system is functional, a break of 30 minutes is required after the COVID-19 case has left the theatre before the next case enters. This break will also allow mandatory decontamination of surfaces in theatre according to IPC guidelines. The recovery monitoring of the COVID-19 patient post-operatively should be done in the theatre room, not the recovery room (unless there is a dedicated recovery room for COVID-19 patients). When the patient is assessed as being well enough to leave the theatre, she must be transferred straight out of the theatre complex, bypassing the recovery room. Regular training drills must be conducted and documented so that all relevant staff are aware of the procedures and cleaning protocols.

- Post-delivery, if the baby is well, the mother and baby can be nursed together in isolation, preferably in the same cubicle where the mother delivered, with the same staff in attendance, unless the cubicle is required for a new woman in labour. Breastfeeding is encouraged.

- Discharge home should only be allowed after careful planning for care of mother and baby after discharge. This may require a longer post-delivery stay in-facility than for non-COVID-19 mother/baby pairs.

  For PUIs awaiting COVID-19 test results, the result should be obtained before the mother/baby pair is discharged, as this will clarify the necessary arrangements for post-discharge care.

  For confirmed cases, if the mother is well enough to manage in self-isolation with the baby at home, and her home circumstances are suitable for this, then she can be discharged, as long as contact can be maintained by the hospital or post-natal clinic via phone or

WhatsApp. The alternatives are to keep the mother/baby pair in isolation in a designated section of the facility or to refer to a designated isolation/quarantine facility until the period of infectious risk has passed.

- All health care workers should have access to a staff wellness programme for support, including COVID-19 testing, due to high levels of anxiety from working in this environment.
- All staff working at health facilities need to be regularly screened for COVID-19 as per DOH guidelines
- All cases of PUI need to be documented and confirmed COVID-19 cases need to be notified.

What is expected at each level of care for management of maternity and reproductive health services during the COVID-19 pandemic

PHC clinic:

- Safe working conditions for all staff, including appropriate personal protective equipment (PPE) for all staff according to PPE guidelines.
- Staff should receive regular (e.g. weekly) updates on the COVID-19 statistics, any new protocols and training on how to manage COVID-19 at their level of care. Simulation training (fire drills) is encouraged.
- Screening of all staff on arrival at work and before leaving (brief history and temperature check)
- Screening of all outpatients on arrival (brief history and temperature check)
- Face masks to be worn by all patients while attending the facility, and by all staff while on duty.
- Isolation cubicle for thorough assessment of those who screen positive, and for making initial management plan.
- Testing for COVID-19, or clear referral route to testing site.
- Clear referral criteria to higher levels of care for obstetric risk factors and complications.
- Clear protocols on managing COVID-19 or suspected COVID-19, including referral criteria to higher levels of care or to isolation/quarantine facility.
- Direct access to consultation with Obstetrics and gynaecology doctor at referral hospital (via VULA App/cellphone/WhatsApp).
- Either direct access or access via doctor at referral hospital, to doctor at specialised COVID-19 hospitals (for severe COVID-19 cases) and to doctor at isolation/quarantine facilities for those with mild disease or contact history who cannot self-isolate at home.

- Direct access for ANC/PNC patients to a senior staff member in the maternity department of the facility (via cellphone/ WhatsApp) for COVID-19 related queries (especially regarding scheduling of appointments).

- For COVID-19 cases, PUIs and contacts of confirmed cases, who are to be managed through self-isolation at home, the clinic must ensure contact details are obtained and that a system of routine follow-up via phone/WhatsApp is in place.

- Access to EMS transport able to transfer COVID-19 patients.

All designated birthing (delivery) sites, including midwife-run obstetric units:

All of the above (for PHC clinic), plus:

- Isolation facility for managing a COVID-19 patient or suspect during labour, delivery and immediate post-natal period.

- Adequate midwife and nurse staffing to allow dedicated staff (at least 1 midwife and 1 other nurse per shift) exclusively allocated to the care of the COVID-19 patient in labour and her newborn.

- For the woman in labour, a companion of her choice should be encouraged, due to the many proven obstetric and mental health benefits, but can only be allowed under the following conditions:

    - The woman in labour is not a COVID-19 case or a PUI.

    - The companion has been screened for COVID-19 on arrival at the facility and is screen negative.

    - The companion has been instructed about and is willing to comply with infection prevention precautions, including those that have been put in place because of the COVID-19 pandemic (wearing a mask etc).

    - The infrastructure of the labour ward allows for the companion to avoid close contact with any other patients in the ward.

    - The presence of the companion is not prohibited by any other local (provincial) regulation put in place for the COVID-19 pandemic.

Hospital with maternity service:

All of the above (for PHC clinic and delivery site), plus:

- Isolation facility for managing a pregnant or postpartum COVID-19 patient, or PUI, who needs inpatient care for non-COVID-19 reasons (e.g. pre-eclampsia). This could either be within the maternity complex or in a general ward designated for isolating COVID-19 patients. For each patient in this category there will need to be an individualized plan made and reviewed daily for frequency of observations required and frequency of ward rounds to be conducted by the obstetric doctor and/or the midwife.

- The operating theatre complex must have a functional air conditioning system with an adequate number of air exchanges per hour according to hospital standards to ensure that the virus would be cleared from the air following surgical cases involving patients with COVID-19.

- The hospital requires an isolation area within the neonatal nursery to care for a sick baby delivered from a mother with COVID-19.

Specialised COVID-19 hospital:

This is a hospital designated to receive referrals, from other facilities in a defined catchment area, of patients with COVID-19 (or PUIs) with severe features (particularly patients in septic shock or respiratory distress due to COVID-19). Requirements:

- Safe working conditions for all staff, including appropriate personal protective equipment (PPE) for all staff according to PPE guidelines.

- Referral criteria for accepting severe COVID-19 patients or PUIs.

- ICU and High-care facility available for COVID-19 patients.

- Specialists with the necessary skills to manage the COVID-19 patient with severe features

- Multi-disciplinary team including midwives, specialist obstetrician, specialist neonatologist and specialist anaesthetist for co-managing pregnant woman with severe COVID-19 and her newborn.

Isolation/Quarantine facility:

This is a facility to which people can be referred, from other facilities within a defined catchment area or from the community, for the purpose of isolation. Such a facility will take in people, including pregnant women and postpartum women with their newborn, who are well enough to be managed as outpatients but who need to be kept in isolation to reduce the risk of their transmitting COVID-19 to other members in the community. These would be people whose home circumstances make it impossible for them to self-isolate or self-quarantine at home. They would include asymptomatic people who have been in close contact with a confirmed COVID-19 case (see NICD case definition of a contact), as well as people with COVID-19 or PUIs with mild disease not requiring in-patient care. The facility could either be a designated section of a health facility, or a facility which has been entirely designated for isolation/quarantine purposes for the period of the COVID-19 pandemic.

Requirements:

- Safe working conditions for all staff, including appropriate personal protective equipment (PPE) for all staff according to PPE guidelines.

- Isolation facilities for multiple individuals including pregnant women and postpartum mother/baby pairs.

- Admission criteria and protocols for managing the isolation period.

- On-site doctor.

- Clear referral criteria and pathway for obstetric/neonatal complications.
- Direct access to consultation with obstetrician and neonatal doctor at referral hospital (via VULA App/cell phone/WhatsApp).
- Clear protocols on managing COVID-19, including referral criteria to specialised COVID-19 hospital.
- Direct access to doctor at specialised COVID-19 hospitals (for consultation and referral of COVID-19 cases who develop severe features)
- Access to EMS transport able to transfer COVID-19 patients for those who need transfer to another facility for obstetric or neonatal problems or for COVID-19 –related complications.

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