Framework and Guidelines for Maternal and Neonatal Care during a Crisis

COVID-19 response

Draft document (Version 2.2)

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Updates on Version 2.1, 15 April 2020

Please note: all appendices have new numbers.

A few appendices have been updated (see dates associated with each document)

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This framework document has been collated and produced 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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How to use this document

This document is not meant to be read from the beginning to the end. It has been developed in such a way that you can just read the parts relevant to you.

The aim of this document is to facilitate communication and provide information for all levels of care in a crisis involving maternal and neonatal care. COVID-19 is such a crisis. It also contains a checklist and dashboard which will help groups and individuals ensure they have completed the tasks/actions required of them.

The document has three main chapters with a number of sections each. The first chapter gives the structure behind the framework. The second relates to interfaces that are important in making decisions regarding the crisis and the third outlines the tasks and actions required at different levels of the health system from managers, clinicians and other health care and support personnel. In the table below you can click on any of the sections relevant to you and you will be taken straight to that section. The documents that provide the content for the tasks and actions (e.g. algorithms) are listed at appendices (A to F) in the table of contents. When you reach a relevant section, you can access them by clicking on the links provided in that particular section.

How do I know where to go to?

Designation	Relevant sections
Health system levels	
Manager at the national Department of Health	Interfaces: 2.1; 2.2; 2.3; 2.4; 2.5 Tasks and actions: 3.1
Manager at a provincial health department	Interfaces: 2.1; 2.2; 2.3; 2.4; 2.5; 2.6; 2.8 Tasks and actions: 3.2
Manager at the district level	Interfaces: 2.3; 2.4; 2.5; 2.6; 2.7; 2.8 Tasks and actions: 3.3; 3.4
Manager at the sub-district or cluster level	Interfaces: 2.3; 2.4; 2.5; 2.6; 2.7; 2.8 Tasks and actions: 3.3; 3.4
Clinicians at district, sub-district or cluster level (DCST and MCWH)	Interfaces: 2.4; 2.6; 2.7; 2.8 Tasks and actions: 3.3; 3.4
Manager or clinician at health facility level	
Primary health care clinic or community health centre	Interfaces: 2.6; 2.7 Tasks and actions: 3.5; 3.13; 3.14; 3.15
District hospital	Interfaces: 2.6; 2.7 Tasks and actions: 3.6; 3.13; 3.14; 3.15
Regional hospital	Interfaces: 2.6; 2.7 Tasks and actions: 3.7; 3.13; 3.14; 3.15
Provincial tertiary or national central hospital	Interfaces: 2.6; 2.7 Tasks and actions: 3.8; 3.13; 3.14; 3.15
Designated COVID-10 hospital or quarantine facility	Interfaces: 2.6; 2.7 Tasks and actions: 3.9; 3.13; 3.14; 3.15
Manager or clinician providing particular services	
Antenatal care	Interfaces: 2.6; 2.7 Tasks and actions: 3.10; 3.13; 3.14; 3.15

Intrapartum care	Interfaces: 2.6; 2.7 Tasks and actions: 3.11; 3.13; 3.14; 3.15
Postnatal care	Interfaces: 2.6; 2.7 Tasks and actions: 3.12; 3.13; 3.14; 3.15

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Abbreviations

ANC	Antenatal Care
CEO	Chief Executive Officer
CHC	Community Health Centres
COVID-19	Coronavirus Disease 2019
DH	District Hospital
EMS	Emergency Medical Services
HCW	Health Care Worker
ICU	Intensive Care Unit
INOSS	International Network of Obstetric Survey Systems
IT	Information Technology
MCWH	Maternal, Child and Women's Health
MEC	Member of the Executive Council
NCH	National Central Hospital
NDOH	National Department of Health
NGO	Non-governmental Organisation
NICD	National Institute for Communicable Diseases
NLE	Next Level of Expertise
PDOH	Provincial Department of Health
PHC	Primary Health Care
PNC	Postnatal Care
PPE	Personal Protective Equipment
PTH	Provincial Tertiary Hospital
PUI	Person under Investigation
RH	Regional Hospital
SA	South Africa
WBOT	Ward-Based Outreach Team

1. Introduction

This document is a framework on how to respond to crises that involve maternal and newborn care. This framework will use the response to the COVID-19 infection as an example.

In crisis everyone needs to be involved and each health care manager and health care worker needs to:

1. know what to do, (i.e. have clear guidelines on tasks to be performed);
2. have the means to do it (i.e. have resources to perform tasks); and
3. then do it (i.e. monitor and evaluate to ensure tasks are performed).

For this, decision making and communication are essential.

To make appropriate decisions an advisory team of experts in the field needs to be appointed to advise decision makers.

1.1. Key principles

In a crisis there are two major factors:

1. A decision-making process that all adhere to and act on (decision made taking into consideration information from experts in the field);
2. A communication process that is frequent and does three things:
    a. Communicate the decision made;
    b. Get feedback from sites to communicate accurate progress and information; and
    c. Use feedback to make new decisions and communicate them.

Below is a framework of what decisions need to be made, what information needs to be spread and what the tasks that follow from it so that each person can act appropriately and in a coordinated way to beat the crisis.

1.2. Framework for the guidelines

The framework for maternal and perinatal care during a crisis was adapted from the stages-of-change model found to be useful for the strategic planning of scale-up activities in other maternal and perinatal care programmes in South Africa (Figure 1). During a crisis situation the same steps are needed in an accelerated fashion. This model also serves as a basis for developing checklists of the status of an emergency rollout plan and where bottlenecks are found. The stages-of-change model is complemented by a diagram illustrating the health communication pathways in the country (Figure 2) and a conceptualisation of the interfaces to consider in the planning and rollout of an emergency plan (Figure 3).

1.2.1. Stages of change

The stages-of-change model has two phases (see Figure 1):

- Three stages in the pre-implementation phase, i.e. preparing for all the necessary measures to be in place before an action plan could be launched; and
- Three stages in the implementation phase of the action plan.

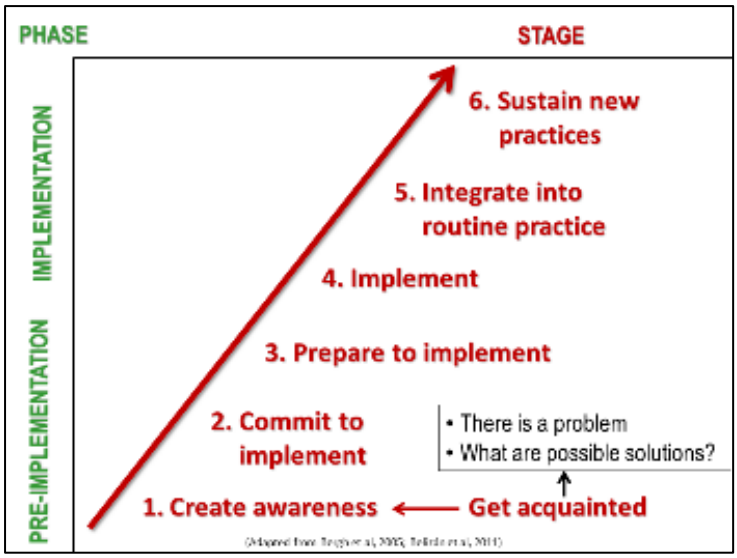

Figure 1. Stages-of-change model

The first important point is that policy makers and managers need to get acquainted with the problem and possible solutions and measures to contain the crisis, in this case the spread of COVID-19 among pregnant and postnatal women and their newborns. These solutions and special measures are then converted into consistent messages targeted at making various groups aware of the problem and the containment measures (stage 1), from all the levels of the health system and health facilities to the community.

Stage 2 entails the commitment to implement an action plan to fight the crisis. This commitment spans across all levels of the health system from the Command Control Council to individual health care staff members. Commitment includes political will, the drafting of action plans and accompanying regulations, and the allocation of resources (transport, equipment, additional human resources). In stage 3, the commitments are put into practice, for example procuring and moving equipment and orientating staff in various aspects of the emergency plan.

Implementation starts when the first patients are received for isolation and treatment (stage 4). The new measures then have to become standardised and adapted as new evidence emerges (stage 5). If the crisis continues for a long time or some of the solutions become part of routine health care beyond the crisis, measures to ensure containment of the crisis should be regularly assessed for relevance and quality (stage 6).

The stages of change do not follow a strict linear trajectory and there could be interaction between stages, with one part of the action already in the implementation phase whereas other parts of the action are still in the planning phase. The change stages must be re-enacted at each level of care to get all health care providers and community on board.

1.2.2. Communication pathways

For developing a logical action plan it is important to be familiar with the communication pathways, which are illustrated in Figure 2. Please note the pathways include all levels of care and there is a

two-way communication: communication of decisions and guidelines; and feedback from the sites to the higher levels. The numbers in this figure refer to the interfaces as shown in Figure 3.

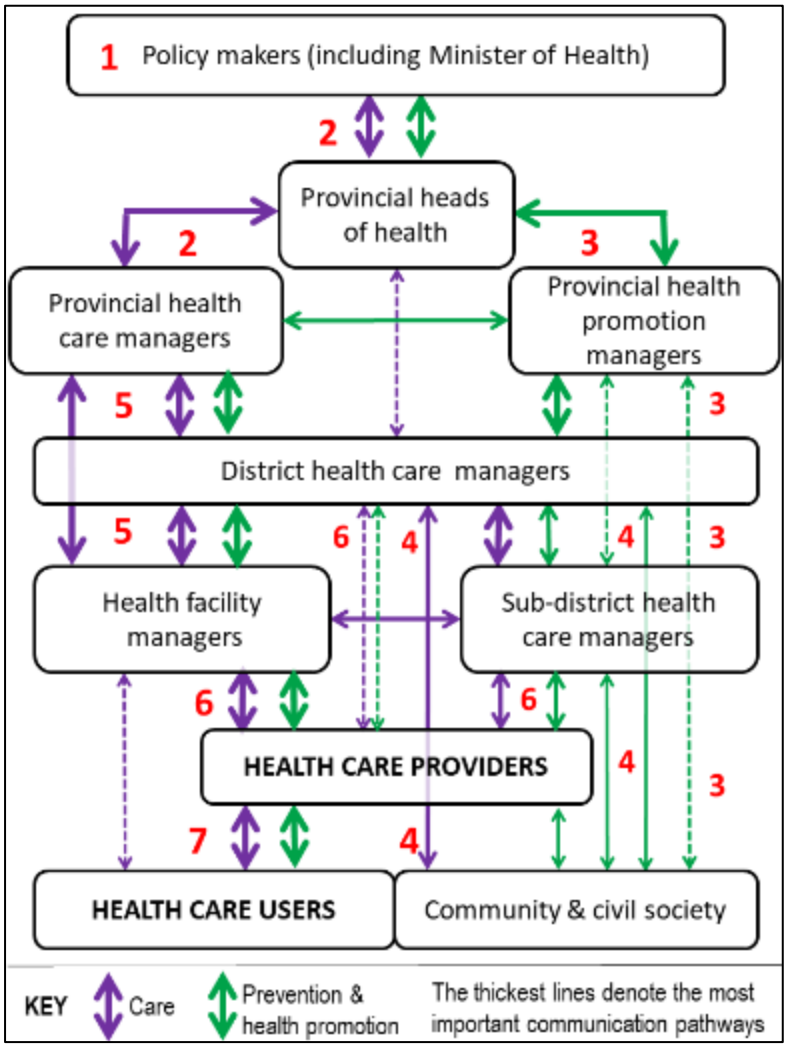

Figure 2. Pathways of communication in the health system

1.2.3. Interfaces for content decisions

Figure 3 is a presentation of the interfaces where content decisions need to be made, for example:

- What are the health care messages?
- What are the resources required at clinic, hospital and COVID-19 hospital level?
- What are the protocols to manage a pregnant and postnatal woman?
- What are the referral routes? etc.

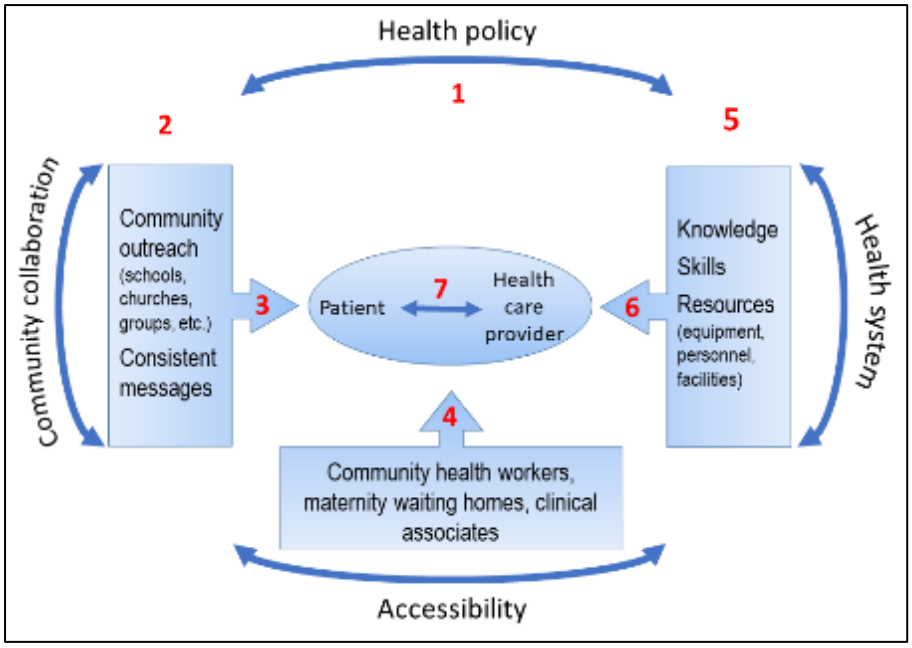

Figure 3. Interfaces in the provision of maternal and perinatal care in a crisis situation

The seven interfaces in Figure 3 can be summarised as follows:

1. **Policy makers ↔ National head of health ↔ Provincial heads of health**
   - Decide on policy
   - Convey policy
2. **National head of health and health care managers [MCWH] ↔ Provincial heads of health ↔ provincial health care managers ↔ District health care managers**
   - Convey policy
   - Decide and/or convey strategy and communication of health messages
3. **Provincial and district health care managers ↔ Health promotion managers ↔ Community**
   - Develop appropriate health messages
   - Provide constant and consistent messages
4. **Provincial and district health care managers ↔ Community**
   - Enable policy to be implemented by …
   - Ensuring community access to health care (e.g. ambulances for pregnant women and women in labour and postnatal transfers)
5. **Provincial and district heads of health ↔ Sub-district and facility health care managers**
   - Convey policy
   - Decide on the allocation of resources necessary to implement policy
6. **District/Sub-district and facility health care managers ↔ Health care providers**
   - Convey policy
   - Provide essential resources (including staff)
   - Provide knowledge and skills necessary to implement policy to health care workers
7. **Health care providers ↔ Health care users**
   - Provider implements knowledge and skills and uses resources (e.g. protocols) to provide care to the patient within policy guidelines, including preventative measures and psychological well-being

- Adequate information to enable discussion with and appropriate decision-making by the patient

The interfaces diagram directed the tasks required per interface (chapter 2), whereas the stage-of-change model formed the basis for the development of the tasks and actions required by the different levels of the health system and by officials and individuals (chapter 3). The appendices contain the documents that provide the content for the decisions, tasks and actions.

Chapter 2 summarises the actions needed at each interface. There are links to the content of the information that must be conveyed, e.g. the referral protocols. Chapter 3 gives the tasks/actions requested from groups or individuals at each level of care and each service. The tasks/actions tables enable anyone to quickly see what they need to do by going to their specific level and getting the information relevant for them. For quick referral, see the table on how to use this document that is provided after the table of content. It can also act as a checklist and a dashboard that can help ensure all actions are completed.

Please note:

Some of the documents attached as appendices may get updates as we learn more about COVID-19 over the time to come. Please be on the lookout for updated versions and also watch the national and provincial health webpage for updates.

For professionals: https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/

For the public: https://sacoronavirus.co.za/

Provincial webpages with information on COVID-19:

Western Cape: https://www.westerncape.gov.za/department-of-health/coronavirus

Kwazulu-Natal: http://www.kznhealth.gov.za/coronavirus.htm

North West: http://health.nwpg.gov.za/index.php/coronavirus.html

2. Interfaces in the provision of maternal and perinatal care in a crisis situation

2.1. Interface 1: Policy

Interaction level	Action	Facilitator(s)	Motivation
National Department of Health (NDOH), politicians, civil society, professional bodies and academic institutions	1. Appoint advisory team of experts to draft and regularly update guidelines for managing maternity and neonatal services during the COVID-19 pandemic. 2. NDOH to engage major stakeholders about providing information to all women of reproductive age about COVID-19 and reproductive health matters. 3. NDOH to speak to major stakeholders about encouraging pregnant and postnatal women to attend antenatal and postnatal care and to take precautions. 4. NDOH to issue a circular to clinical managers on the management of staff and the availability and use of clinical protocols on the management of COVID-19. 5. Each MEC for Health to ensure the provincial Head of Department circulate the COVID-19 guidelines and get feedback as to the implementation process. 6. NDOH to provide guidelines and means to provinces to access appropriate resources and to get appropriate resources to appropriate areas, including access to emergency funding for additional work streams that may be proposed. 7. NDOH to liaise with provinces to ensure that essential preventative health services continue to be provided during the COVID-19 pandemic. This includes contraception and termination of pregnancy services, antenatal and postnatal care and colposcopy services. 8. NDOH must ensure that public transport is available to allow non-COVID-19 patients to access these preventative services. 9. Where there are low volume delivery units in urban areas, consideration must be given to consolidating the delivery sites within the area to improve cost-effectiveness and safety. 10. Ensure that routine care and essential care of all newborns continues, which includes using the Road to Health booklet, emphasising immunizations and ensuring that circular Minute 1 of 2012 (non-rotation of neonatal and maternity staff) is adhered to. 11. Set up a national database of COVID-19 positive mothers and babies.	Advisors, chairpersons of ministerial committees	COVID-19 is a global pandemic. NDOH and major stakeholders to commit to sharing information and enhancing health systems to aid prevention and management of COVID-19. NDOH must not lose sight of the fact that all other pathologies will continue to occur and the department of health must continue providing not just all emergency services but also essential preventative services, to avoid adverse outcomes from all causes (see action point 10).

2.2. Interface 2: Health care promotion messages

Interaction level	Action	Facilitator(s)	Motivation
NDOH, Provincial Department of Health (PDOH)	Ensure consistent messaging for pregnant and postnatal women and their families throughout all platforms [A]: 1. Every pregnant and postnatal woman to be provided information through platforms such as MomConnect: a) Take appropriate precautions at home and on visits to health facility to minimise infection risk (social distancing, hand washing etc) b) Attend clinic as scheduled c) Signs and symptoms of possible COVID-19 infections d) Importance of self-isolation e) Continuation of taking regular antenatal care medications f) Avoidance of unplanned pregnancy by using contraceptive methods, considering delaying a planned pregnancy until after the pandemic g) Looking after oneself and seeking care for mental health and social wellbeing (including domestic violence) [B1] 2. Precaution measures if exposed or symptomatic: [F2; F3] a) If exposed or infected to isolate for 14 days (postpone antenatal care until well, but if there is an obstetric emergency or severe COVID-19 symptoms patient to notify facility before arrival). b) If attending antenatal care, and is symptomatic to notify the appropriate facility prior to arrival. c) If attending antenatal care, and is exposed or symptomatic to wear a protective mask. d) Avoid using public transport if symptomatic. e) Use of the Emergency Hotline for advice: 0800 029 999; or the WhatsApp Support Line: 0600-123456 (https://sacoronavirus.co.za/). f) If in labour whilst in self-isolation, to call Emergency Hotline / Emergency Medical Services (EMS) / delivery facility prior to arrival. 3. All health care professionals and those who regularly meet pregnant and postnatal women should give consistent messages on the content listed above and should have access to the community messaging to ensure alignment of content.	Chairpersons of ministerial committees, National Maternal, Child and Women's Health (MCWH) cluster, National Communications officials	Pregnant and postnatal women should know how COVID-19 could affect pregnancy and what care will be provided, in order to provide reassurance and minimise panic. It is important for all to know the signs and symptoms of COVID-19, necessity for self-isolation, and when urgent care is required. Antenatal, delivery and postnatal care and breastfeeding are important and should continue with necessary precautions.

Interaction level	Action	Facilitator(s)	Motivation
	4. Ward-based outreach teams (WBOTs) and community health care workers (HCWs) to have access to the community messaging and regularly share consistent messages. 5. Secure budget for additional human resources required to develop community appropriate messaging in different languages and IT providers for dissemination by WhatsApp or zero-rated SMS. Secure budget to Public Service Announcements for national radio and TV of physical and mental health messages with helpline and other relevant resources. 6. Secure national broadcasting arrangements and journalist collaborations for Public Service Announcements. 7. Functional communication systems must be established between all pregnant and postnatal women attending care and their local health facility. Every pregnant and postnatal woman at booking must be provided with a cell phone, WhatsApp and/or landline number through which she can directly communicate with a senior staff member to ask for advice on attendance. 8. Contact details of any pregnant or postpartum woman who may have a confirmed or potential case of COVID-19 must be captured by the health facility and where the patient is well enough for care at home, regular follow-up by phone/WhatsApp must be done by the relevant health worker. 9. Disseminate messages, documents and protocols on management (of maternity services, contraception and HIV prevention) during the COVID-19 pandemic to all relevant facilities. [A; B1; B2; B3; C1; D1; F1; F5] 10. Ensure that the beneficial effects of breastfeeding are emphasised during the pandemic and all disaster situations. Breastfeeding to continue, with necessary precautions. Breastfeeding newborns and infants contributes to food security. [A] 11. While the risk for postnatal transmission is low, all efforts must be made to limit newborn to community exposure. Discourage visiting, kissing etc. [A] 12. Visitation policy to be clearly communicated and policy signage to be visible outside of all neonatal and maternal units.		

2.3. Interface 3: Communication with the community

Interaction level	Action	Facilitator(s)	Motivation
PDOH, District, Ward PHC team, School Health Programme, Department of Basic Education, NGOs, IT services	Set up a messaging system: 1. Identify target audiences for messaging, especially leaders – religious, traditional, community NGOs, civil society, youth organisations, as well as individual pregnant women. 2. Set up Messages for Mothers group to coordinate messaging and community communication strategy. 3. Identify mechanisms for messaging (social media, radio, TV, pamphlets/posters but not social gatherings). 4. Review COVID-19 literature and experiences to enable messages to be written, with mechanisms for validating them scientifically and making them appropriate for the South African context. 5. Write content of messages [A]: • COVID-19 knowledge and impact on pregnancy, postnatal care and breastfeeding; • Advice for self-care and contraception and HIV prevention; • Advice for mental health and social wellbeing, including violence protection; • Specific advice for seeking medical help for pregnancy complication and COVID-19 symptoms. 6. Adapt content to user-friendly messages and different media tools. Use professional plain language editing. 7. Translate to different languages (select which languages to prioritise with respect to population size). 8. IT support to modify existing SMS and WhatsApp platforms to disseminate messages and be accessible as part of Helplines; all to be free for consumer (zero rated). 9. Adapt message content in the light of new research findings, programme experiences and user feedback.	National and provincial MCWH cluster	Sharing consistent messages to the community will decrease anxiety and panic, and reassure the community that the HCWs are fully prepared and ready to assist. Messages need to be disseminated widely to different interest groups as well as pregnant and postnatal women, and the content should be adjusted for the specific target audience. Different methods of communication are appropriate for different socio-economic groups.

Interaction level	Action	Facilitator(s)	Motivation
	10. Adapt message content and activities to manage new crises/ epidemics. Develop linkages with national and community radio and TV for scheduled messaging slots. 11. Identify channels to improve understanding of community needs, questions and myths, and obtain direct feedback from NGOs, social networking resources, WBOTs, CHWs and key community leaders on community concerns. 12. Disseminate messages. 13. Experts to speak on national and community radio and on TV; pre-recordings to repeat. 14. Respond to consumer queries and inputs. 15. Set targets; monitor dissemination of communication tools; monitor community response. 16. NDOH Communications and Messages for Mothers group to continue with actions 9.-14. above.		

2.4. Interface 4: Access to care by the community

Interaction level	Action	Facilitator(s)	Motivation
All levels	**Awareness:** 1. Make health care professionals and community aware there is a COVID-19 problem and there are specific transport plans and criteria for pregnant and postnatal women, women in labour and newborns. 2. Make health care professionals and community aware that contraceptive services, including HIV prevention services, are still available and recommended. **Services:** 3. Antenatal care, delivery care and postnatal care must continue at all facilities as usual, with the addition of screening for COVID-19 of all women on arrival at the facility. The health facility must have an isolation cubicle where any potential case can be thoroughly assessed to determine whether testing or referral is indicated. [D1] 4. Identify COVID-19 hospitals and quarantine sites. This is an ongoing process and national and provincial directives should be consulted regularly for updates. 5. Ensure each PHC clinic and any other clinic managing pregnant and postnatal women must have: • a screening plan; • isolation areas; • infection prevention and control (IPC) measures; • personal protective equipment (PPE) and training material with easy access to reinforce proper donning and doffing of PPE; • established referral routes; • functional thermometers; • sanitising and decontamination products and training; • appropriate equipment **Where to manage confirmed and potential COVID-19 cases:** 6. COVID-19 cases / potential cases with mild disease in pregnancy can be managed as outpatients if self-isolation and telephonic follow-up is possible. [B2; B3; F5] 7. For mild COVID-19 cases / potential cases where self-isolation or telephonic follow-up is not possible, admission to a hospital with an isolation facility or to a quarantine site will be necessary.	Provincial MCWH directors, District clinical specialists and MCWH clinicians	All pregnant and postnatal women must be able to access routine antenatal care and delivery services, irrespective of their COVID-19 status, to ensure good outcomes. Without a screening plan, effective screening areas and isolation areas for the exposed and positive women, there can be no effective screening for COVID-19. Exposed and unexposed patients may contribute to spreading COVID-19 infection within health facilities. Similarly, without functional appropriate equipment, disease identification and management cannot be effectively implemented. District hospitals are often understaffed and under-resourced. It is important to ensure that all necessary equipment is available.

Interaction level	Action	Facilitator(s)	Motivation
	8. Special COVID-19 hospitals will have the expertise and ICU facilities to manage severe COVID-19 cases. Any patient with severe COVID-19 disease must be referred directly to the special COVID-19 hospital, not via interval levels of care. [B1] 9. Women in labour who are COVID-19 cases / potential cases with mild disease can deliver at the delivery site where they present. Delivery must be managed in an isolated area with dedicated midwives, who cannot also be managing other women in labour. [B2; C1] 10. One birth companion per patient is permitted in facilities, provided they have been screened for COVID-19 symptoms, are informed of COVID-19 prevention routines (e.g. handwashing) and infrastructure enables this (sufficient privacy, etc.) **Communication:** 11. Dedicated telephonic linkages for emergency consultations between facilities as well as between parents and facilities so as to avoid contact if not an emergency. 12. 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 confirmed or potential COVID-19 cases in pregnancy (e.g. using VULA App, WhatsApp, phone). 13. 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 doctor at this referral centre (e.g. using VULA App, WhatsApp, phone). Consideration should be given to convert VULA, WhatsApp and other applications to be data free (zero rated) for health care use. **Guidelines and protocols for the management and treatment of COVID-19:** 14. Screening forms for parents and babies to stratify risk on presentation. 15. Implement protocols on managing maternity services during the COVID-19 pandemic. [A; B1; B2; B3; C1; D1; F1; F5] 16. Protocols and standard of care required at each level of care including management and referral criteria. 17. All sites to develop infection prevention and control protocols. [F2; F3] 18. COVID-19 hospitals to develop protocol for psychological support for patients and staff. 19. Guidelines for routine neonatal follow-up on discharge such as weight checks and jaundice including where follow-up will occur and at what time periods and plan if follow-up required in the infectious period and when telephonic follow up is possible by discharging hospital 20. Criteria for down-referrals from tertiary hospitals to DHs and RHs for weight gain and feeding.		Delay in transport is a common problem and it is important to address it proactively.

Interaction level	Action	Facilitator(s)	Motivation
	21. Plans to deal with the death of a woman or baby need to be developed for all levels of care and should include counselling, body storage and a burial plan protocol. **Transport and referral:** 22. Develop transport regulations at provincial level. 23. Transport between levels of care must be available including emergency transport facilities - liaise with the community and EMS to optimise transport and address potential concerns. 24. Identify routine antenatal care sites for epicentre areas and for non-epicentre areas. 25. Explain transport routes to sites providing routine antenatal care to the community. 26. Develop referral routes within the district in consultation with EMS. 27. Develop referral protocols for the district and district clusters in consultation with the apex hospital and COVID-19 hospitals within the national and provincial guidelines. - The national referral guidelines for mothers and babies are available [B1; B3; C1; D1; F5] - Referral can be facilitated by using the VULA App. - An example of a protocol for referral and management of patients is provided in Appendix [F1] (protocol Tshwane/Gauteng North regions). 28. Share the referral routes and referral criteria with all PHCs, CHCs, DHs, RHs, PTHs, NCHs and COVID-19 sites. 29. All PHCs, CHCs, DHs, RHs, PTHs, NCHs and COVID-19 hospitals to train staff on referral routes and referral protocols which include criteria. Posters of referral routes and criteria should be displayed at each site. [F5] 30. All sites to develop a programme to orientate new staff on referral routes and criteria. **Monitoring and evaluation:** 31. Develop national database for monitoring referrals and identifying problems. 32. Districts to develop data collection systems for using national monitoring tools and providing the data to provincial and national health departments. 33. All sites to analyse the data they receive and solve local problems and escalate problems they cannot solve. 34. Monitoring forms available (to be developed). [E1]		

2.5. Interface 5: Appropriate allocation of resources to health system

Interaction level	Action	Facilitator(s)	Motivation
NDOH, PDOH, District	1. Continue health care support for normal pregnancy, deliveries, neonatal and postnatal care. 2. Maternal and newborn services cannot be downscaled and should continue at every level of care appropriate to the level of acuity of the pregnancy problem, using the existing BANC+ referral guideline. [D1] 3. Family planning services, termination of pregnancy programs and essential gynaecology emergency and oncology services must be allowed to continue with appropriate screening of patients for COVID-19 before entry. During lockdown periods, mobile health services must be upgraded and equipped to deliver contraception and HIV prevention services. 4. Ensure sufficient personal protective equipment (PPE) for all health care workers and training material with easy access to reinforce proper donning and doffing of PPE. 5. Ensure each primary health care clinic and any other clinic managing pregnant and postnatal women must have: • screening tools; • information leaflets; • COVID-19 protocols; • basic medication; • functional thermometers; • infection prevention and control (IPC) measures; • next level of expertise (NLE) referral system; • transport system for women being referred to another health facility. **Human resources:** 6. Ensure midwife obstetric units and labour wards are appropriately staffed to cope with the current load and expected increased demand (more referrals to higher levels of care/COVID-19 centres) and longer post-delivery stay. Use the suggested minimum standard staffing documents. [F4] 7. Allow staff to work in a shift system with adequate days in between shifts to rest. Non-essential gynaecology services can be scaled down [D1] and these staff allocated to labour wards in hospitals.	National and provincial MCWH directors	The COVID-19 pandemic puts additional strain on health services. Maternal and neonatal morbidity and mortality will increase if deliveries and postnatal care are not prioritised among other health care needs during the COVID-19 pandemic. Without screening tools and equipment, effective screening cannot be performed. Maternal and perinatal outcomes will suffer if safe staffing levels for maternity care are not available, and if the appropriate equipment and tests for controlling the spread of COVID-19 are not available. HCWs will get ill if sufficient PPE is not provided.

Interaction level	Action	Facilitator(s)	Motivation
	8. Ensure that **no** staff member in a fully functioning obstetric or newborn/neonatal facility, ward or clinic is rotated or redeployed to other wards/clinics. Enforce circular Minute 1 of 2012 (non-rotation of staff). 9. Where there are vacant posts in the maternity section of health facilities, there must be fast-tracking of recruitment processes for new staff, and no barriers to the filling of vacant posts as long as the new staff are willing to manage COVID-19 cases. If new staff cannot be recruited to fill the vacant posts or when there is absenteeism due to COVID-19-related illness or isolation, overtime for existing staff, locums and agency staff must be used. **Support services:** 10. Support transport (Health Net) for mothers and babies to step-down facilities. 11. Facilitate and support transport of nursing and other support to staff to enable HCWs to come to work. 12. Ensure staff wellness service has adequate capacity for assisting with HCW stress and to provide testing for COVID 19 as required. Allocate budget to upgrade staff wellness programmes, as necessary, or to initiate new staff wellness programmes, when these do not exist.		

2.6. Interface 6: Knowledge and skills of health care providers

Interaction level	Action	Facilitator(s)	Motivation
PDOH, District, District clinical specialists and MCWH clinicians, Ward PHC team	1. Ensure every health care professional that deals with pregnant and postnatal women is familiar with COVID-19 guidelines for • screening; • testing; • diagnosis; • infection control and PPE protocols (including isolation requirements); • management at appropriate levels of care (based on obstetric factors and severity of COVID; • isolation. 2. Use national algorithm to triage pregnant and postnatal women with possible COVID-19 infection. [B1] 3. Develop a treatment plan for pregnant and postnatal women at local level [B2; B3; C1; F1; F5] including advice for breastfeeding, immunisations and contraception. 4. Appropriate use of PPE. [F2; F3] 5. COVID-19 training on clinical symptoms and signs, transmission, and management of COVID-19 maternal-infant pairs. 6. Training and knowledge of good infection prevention principles for all health care providers 7. Use national algorithm to manage delivery and breastfeeding [A; B2; C1; F1] 8. Each facility that deals with pregnant and postnatal women has the appropriate plans and protocols for • screening and testing; • isolation; • PPE; • access to consultation with the next level of expertise (NLE); • referral criteria and pathways; • follow-up of COVID-19 patients being managed at home. • referral and/or management.	District clinical specialists and MCWH clinicians, regional experts	Without knowledge and skills on screening, infection prevention and control, PPE effective screening and prevention cannot be performed. Without the appropriate plans/protocols screening, management and implementation will not be effective. Obtaining knowledge on understanding how to manage COVID-19 in mothers and babies will lead to better clinical care and outcomes. Understanding correct use of PPE will protect health care workers from getting ill with COVID-19.

2.7. Interface 7: Consultation skills

Interaction level	Action	Facilitator(s)	Motivation
District, District clinical specialists and MCWH clinicians	1. Ensure that all pregnant and postnatal women and babies and infants are • screened before or on arrival at the health facility; • treated with respect (with/without COVID-19). [A; B1; B2; B3; C1; F1; F5] 2. Ensure that all health care workers (HCWs) are familiar with latest COVID-19 guidelines and protocols (screening, management, infection prevention and control, PPE, COVID-19 referral route) 3. Ensure that all HCWs are • able to educate patients about COVID-19 and how to negotiate a pregnancy during the pandemic; • able to support lactation and refer lactation problems; • able to counsel all relevant patients about contraception and provide contraception for women during the COVID-19 pandemic; • able to assess the confirmed or potential COVID-19 case in person using PPE; [F2; F3] • prepared to provide telephonic follow-up and advice for confirmed or potential COVID-19 cases self-isolating at home; • accessible to provide appropriate advice to the lower levels of care regarding obstetric or COVID-19 issues. 4. Ensure that the next level of expertise (NLE) is defined and is available. [B3] 5. Parents and their babies need to be treated with respect and empathic care at all times, and the enormous additional stress of the crisis for them should be noted. Clinical leadership should acknowledge the additional strain on staff posed by the crisis, but should reinforce the professional obligation of respectful care.	District clinical specialists and MCWH clinicians	Important to potentially prevent disease spread. Screening at antenatal care will allow for detection of at-risk women, allowing testing and potentially preventing further spread. Informed and skilled HCWs will be able to offer appropriate care to affected women and protect unaffected women. Referral of affected women to the designated COVID-19 areas/units will help support the health system to align cases and resources. Lack of knowledge and skill may lead to avoidable morbidity and mortality. Effective training of staff ensures appropriate management of patients and resources while ensuring clinical excellence and quality of care.

2.8. Monitoring and evaluation

Level of interaction	Action	Facilitator(s)	Motivation
District clinical specialists and MCWH clinicians, District and PDOH	Monitoring and evaluation to take place at different levels through the health system (from PHC to designated delivery unit). [E1] 1. Antenatally record all identified women: • all screened positive women; • all women formally tested; • women in self-isolation; • all women confirmed positive for COVID-19; • women referred to next level of expertise (NLE). 2. Designated COVID-19 units record: • all identified women; • all symptomatic women; • all COVID-19 positive women; • designated isolation women; • treatment course; • need for ICU; • need for intubation; • maternal outcome; • neonatal outcome; • neonatal COVID-19 infections; • neonatal COVID-19 NICU admissions; • duration of hospital stay; • duration ICU stay. 3. Amend protocols as required based on experience with the developing pandemic	District clinical specialists and MCWH clinicians	Without monitoring and evaluation there will be no accountability. This will speak to the implementation process, identify barriers and enhancers.

3. Tasks and actions required from the health system, officials and individuals

3.1. National Department of Health (Maternal and Neonatal Cluster) and the Minister of Health

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Messages should be consistent across all levels

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TASK / ACTION	PROGRESS	HYPERLINK
1. Explain to the country and the health system		
a) the danger of COVID-19 (also for pregnant and postnatal women and their babies) and strategies to mitigate risk		
b) the role of various levels of care of the health system in managing COVID-19, from PHC to special COVID-19 hospitals and quarantine sites		
c) The need for essential preventative health care services to continue even during lock-down (including contraception and termination of pregnancy services, antenatal, intrapartum and postnatal care, and oncology services)		
2. The ideal would have been to set up a pre-existing multi-stakeholder, but small, high-level task team prior to a crisis to be activated in the event of a crisis:		
a) Participants: clinicians, NDOH communications people, NGOs, media etc. – leader nominated prior to crisis		
b) Brief: • Develop consistent key messages for pregnant and postnatal and their newborns, including physical and mental health messages • Put approved messages on MomConnect and other relevant social media platforms and on national radio and TV platforms		[A]

TASK / ACTION	PROGRESS	HYPERLINK
3. Allocate COVID-19 hospitals and quarantine sites		
a) Liaise with provinces to designate COVID-19 hospitals and quarantine sites that can manage pregnant and postnatal women and their babies		
b) List sites to which women and their newborns will be transferred if they have COVID-19 or are to be quarantined		
c) Distribute this list to the appropriate levels in the health system		
4. Develop and enact a transport plan for pregnant women and women in labour with confirmed or potential COVID-19 infection to access health facilities separately as needed:		
a) Liaise with relevant stakeholders and role-players and consult with EMS to get commitment and buy-in with regard to the development of referral and transport plans		
b) Provide guidance to provinces on • the need for transport to various sites and • how to explain this to the health services and the community		
c) Develop the plan		
d) Provide regulations for transport for pregnant and postnatal women and newborns (to get to appropriate antenatal clinics or appropriate labour wards)		
e) Provide resources to ensure the transport plan works		
f) List sites where transport will be available from the community (taxi ranks, etc.) and publicise widely		
5. Inform pregnant and postnatal women		
a) on transport plan and sites for accessing care		
b) how to access transport to care sites		
c) how to access community messaging relating to the perinatal period		[A]
6. Develop referral criteria guidelines from which sites will develop their protocols		[B1]
a) Liaise with relevant stakeholders and role-players and consult with EMS		
b) Inform EMS and public transport services of the guidelines		
c) Oversee the implementation of referral criteria		
7. Assign a task team to develop screening, testing and clinical management guidelines:		
a) Liaise with relevant stakeholders and role-players and consult with EMS		
b) Request relevant information from the provinces of COVID-19 hospitals and quarantine sites		
c) Circulate the first version of the guidelines		

TASK / ACTION	PROGRESS	HYPERLINK
d) Revise, adapt and distribute any new version of the guidelines		
8. Develop guidelines to obtain resources necessary, and where necessary provide resources, to		
a) screen, test and manage pregnant and postnatal women exposed to or with covid-19 and their newborns		
b) develop consistent community messages for pregnant and postpartum women and their families (message development, editing, scientific checking, zero rating of online and mobile messaging, technical platform adaptation and radio station time)		
c) ensure access to contraceptive services, including mobile services		
d) ensure access to social and mental health support for women in the perinatal period		
e) provide lodging facilities for well COVID-19 negative mothers of sick neonates (and children), as well as for a COVID-19 positive mothers with a sick neonate in the neonatal unit		
9. Develop a simple national monitoring tool (in collaboration with bodies such as NICD and INOSS) for pregnant and postnatal women and their babies to a) assess numbers tested, diagnosed and referred for specialist care b) identify problems c) measure maternal and perinatal outcomes		[E1]
10. Obtain feedback from provinces to help solve problems		
11. Longer-term actions:		
a) Remind all health facilities that new staff needs orientation		
b) Monitor provincial and institutional readiness on a regular basis		
c) Ensure all provinces have staff wellness services available for assisting with HCW stress and to provide testing for COVID-19 as required		

3.2. Provincial Departments of Health (MCWH Cluster) and Provincial MEC

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TASK / ACTION	PROGRESS	HYPERLINK
1. Explain to the province and the health system		[A]
a) the danger of COVID-19 (also for pregnant and postnatal women and their babies) and strategies to mitigate risk		
b) the role of various levels of care of the health system in managing COVID-19, from PHC to special COVID-19 hospitals and quarantine sites		
c) The need for essential preventative health care services to continue even during lock-down (including contraception and termination of pregnancy services, antenatal, intrapartum and postnatal care, and oncology services)		
2. Receive guidance and provide inputs:		
a) Receive policy guidance from NDOH on the need for transport to various sites and how to explain this to the health services and the community		
b) Give inputs to NDOH for the development of the transport plan if requested		
3. Collaborate with NDOH in identifying and preparing COVID-19 hospitals and quarantine sites and distribute this list to the different levels in the provincial health system		
4. Provincial transport plan (including transport for pregnant women to get to appropriate antenatal and postnatal clinics and women in labour to get to appropriate labour wards):		[B1]
a) Liaise with relevant stakeholders and role-players and consult with EMS to get commitment and buy-in		
b) Request information from districts and hospitals to formulate responses to NDOH requests		
c) Adapt the national plan if needed		

TASK / ACTION	PROGRESS	HYPERLINK
d) Provide guidance to districts and hospitals on • the need for transport to various sites • how transport will work in the province and districts • how to explain this to the health services and the community		
e) Adapt national regulations for transport for pregnant and postnatal women and newborns		
f) Allocate resources to ensure the transport plan works		
g) List sites where transport will be available and publicise widely: • between health facilities and hospitals • from the community (taxi ranks, etc.)		
h) Inform provincial, metro and/or district public transport services of plan		
i) Interact with these services to solve problems if needed		
5. Referral and clinical guidelines:		[B1; B2; B3; C1; F1; F5]
a) Request relevant information from districts for the development of guidelines at the national level		
b) Provide relevant information to NDOH		
c) Liaise with and inform relevant stakeholders and role-players, including EMS, on guidelines as needed		
d) Disseminate guidelines to districts		
e) Require from hospitals and other sites to develop protocols for referral and clinical care		
6. Receive from NDOH referral criteria guidelines from which sites will develop their protocols (https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/)		
a) Liaise with relevant stakeholders and role-players and consult with EMS		
b) Inform EMS and public transport services of the guidelines		
c) Oversee the implementation of referral criteria		
7. Receive screening, testing and clinical management guidelines and further revisions from NDOH (https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/):		
a) Liaise with relevant stakeholders and role-players and consult with EMS		
b) If needed, strengthen guidelines to align with the provincial circumstances		
c) Disseminate guidelines and further revisions to districts and all hospitals		
8. Provide guidelines on how to obtain resources necessary to screen, test and manage pregnant and postnatal women exposed to or with COVID-19		

TASK / ACTION	PROGRESS	HYPERLINK
9. Implement referral criteria		
a) Inform sites of their functions as a receiving and referral site		
b) Oversee implementation at district and health facility level		
10. Inform pregnant and postnatal women		
a) on transport plan and sites for accessing care		
b) how to access transport to care sites		
c) how to access community messaging on COVID-19 relating to the perinatal period		[A]
11. National monitoring tool:		[E1]
a) Distribute the tool for collecting numbers for pregnant and postnatal women and their babies		
b) Set up data collection method		
c) Analyse data and identify problem areas		
d) Give feedback to NDOH		
e) Provide solutions and directives to districts if needed		
12. Longer-term actions:		
a) Remind all sites that new staff need orientation		
b) Monitor provincial, district and institutional readiness on a regular basis		
c) Ensure all districts and their health care facilities have staff wellness services available for assisting with HCW stress and to provide testing for COVID-19 as required		

3.3. District Management and district managers

Note: The tasks or actions required are collated from the interfaces where the tasks/actions is required and the levels of communication following the stages of change process. The PROGRESS can be marked like a dash board (D = Done, IP = In process, PA = Prioritise for action). The HYPERLINK takes you to the content (e.g. algorithm or poster for that particular task/action).

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TASK / ACTION	PROGRESS	HYPERLINK
1. Explain to the district and the health system		[A]
a) the danger of COVID-19 (also for pregnant and postnatal women and their babies) and strategies to mitigate risk		
b) the role of various levels of care of the health system in managing COVID-19, from PHC to special COVID-19 hospitals and quarantine sites		
c) The need for essential preventative health care services to continue even during lock-down (including contraception and termination of pregnancy services, antenatal, intrapartum and postnatal care, and oncology services)		
2. Receive guidance and provide inputs:		
a) Receive policy guidance from PDOH on the need for transport to various sites and how to explain this to the health services and the community		
b) Give inputs to PDOH for the development of a transport plan if requested		
3. Collaborate with NDOH and PDOH in identifying and preparing COVID-19 hospitals and quarantine sites and distribute this list to the different levels in the district health system		
4. District transport plan (including transport for pregnant and postnatal women to get to appropriate antenatal clinics and women in labour to get to appropriate labour wards):		[B1]
a) Liaise with relevant stakeholders and role-players and consult with EMS to get commitment and buy-in		
b) Request information from clusters and hospitals to formulate responses to PDOH requests		
c) Adapt the provincial plan if needed		

TASK / ACTION	PROGRESS	HYPERLINK
d) Provide guidance to clusters, sub-districts, hospitals and PHC facilities on • the need for transport to various sites • how transport will work in the district and between clusters and sub-districts • how to explain this to the health services and the community		
e) Follow provincial regulations for transport for pregnant and postnatal women		
f) Allocate resources to ensure the transport plan works		
g) List sites where transport will be available and publicise widely: • between health facilities and hospitals • from the community (taxi ranks, etc.)		
h) Inform district public, metro and other transport services of plan		
i) Interact with these services to solve problems if needed		
5. Inform pregnant and postnatal women		
a) of transport plan and sites for accessing care		
b) how to access transport to care sites		
c) how to access community messaging on COVID-19 relating to the perinatal period		[A]
6. Screening, testing, referral and clinical management guidelines:		[B1; B2; B3; C1; F1; F5]
a) Receive national and provincial guidelines (https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/)		
b) Disseminate guidelines to clusters, sub-districts and health facilities		
c) Liaise with and inform relevant stakeholders and role-players, including EMS, on guidelines as needed		
d) Develop, adapt and disseminate protocols received from NDOH and PDOH to be appropriate with the district's circumstances and within the national and provincial guidelines		
e) Require from hospitals and other sites to develop or adapt protocols for referral and clinical care		
7. Provide guidelines on how to obtain resources necessary to screen, test and manage pregnant and postnatal women exposed to or with COVID-19		
8. Implement referral criteria		
a) Inform sites of their functions as a receiving and referral site		
b) Oversee implementation at district and health facility level		

TASK / ACTION	PROGRESS	HYPERLINK
9. National monitoring tool:		[E1]
a) Distribute the tool for collecting numbers for pregnant and postnatal women and their babies		
b) Set up data collection method		
c) Analyse data and identify problem areas		
d) Give feedback to the PDOH		
e) Provide solutions and directives to clusters, sub-districts and health facilities if needed		
10. Longer-term actions:		
a) Remind all sites that new staff need orientation		
b) Monitor district, cluster and institutional readiness on a regular basis		
c) Ensure all facilities have staff wellness services available for assisting with HCW stress and to provide testing for COVID-19 as required		

3.4. Sub-districts, clusters and MCWH coordinators

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TASK / ACTION	PROGRESS	HYPERLINK
1. Explain to the sub-district and the health system		[A]
a) the danger of COVID-19 (also for pregnant and postnatal women and their babies) and how to mitigate risk		
b) the role of various levels of care of the health system in managing COVID-19, from PHC to special COVID-19 hospitals and quarantine sites		
c) The need for essential preventative health care services to continue even during lock-down (including contraception and termination of pregnancy services, antenatal, intrapartum and postnatal care, and oncology services)		
2. Receive guidance and provide inputs:		
a) Receive policy guidance from PDOH and District Management on the need for transport to various sites and how to explain this to the health services and the community		
b) Give inputs to PDOH and District Management for the development of a transport plan if requested		
3. Collaborate with District Management on the identified COVID-19 hospitals and quarantine sites.		
4. Sub-district transport plan (including transport for pregnant women to get to appropriate antenatal and postnatal clinics and women in labour to get to appropriate labour wards):		[B1]
a) Liaise with relevant stakeholders and role-players and consult with EMS) to get commitment and buy-in		
b) Request information from clusters and hospitals to formulate responses to district requests		
c) Adapt the district plan if needed		

TASK / ACTION	PROGRESS	HYPERLINK
d) Provide guidance to hospitals and PHC facilities on • the need for transport to various sites • how transport will work in between clusters and sub-districts • how to explain this to the health services and the community		
e) Follow provincial regulations for transport for pregnant and postnatal women		
f) Allocate resources to ensure the transport plan works		
g) List sites where transport will be available and publicise widely: • between health facilities and hospitals • from the community (taxi ranks, etc.)		
h) Inform district public, metro and other transport services of plan		
i) Interact with these services to solve problems if needed		
5. Screening, testing, referral and clinical guidelines and protocols:		[B1; B2; B3; C1; F1; F5]
a) Receive national, provincial and district guidelines		
b) Disseminate guidelines to hospitals and PHC health facilities		
c) Liaise with and inform relevant stakeholders and role-players, including EMS, on guidelines as needed		
d) Develop, adapt and disseminate protocols received from NDOH, PDOH and District Management to be appropriate with health facilities' circumstances and within the national and provincial guidelines		
e) Require from hospitals and other sites to develop or adapt protocols for referral and clinical care		
6. Provide guidelines to health facilities how to obtain resources necessary to screen, test and manage pregnant and postnatal women exposed to or with COVID-19		
7. Implement referral criteria		
a) Inform sites of their functions as a receiving and referral site		
b) Oversee implementation at sub-district, cluster and health facility level		
8. Inform pregnant and postnatal women		
a) of transport plan and sites for accessing care		
b) how to access transport to care sites		
c) how to access community messaging on COVID-19 relating to the perinatal period		[A]

TASK / ACTION	PROGRESS	HYPERLINK
9. National monitoring tool:		[E1]
a) Distribute the tool for collecting numbers for pregnant and postnatal women and their babies		
b) Set up data collection method		
c) Analyse data and identify problem areas		
d) Give feedback to District Management		
e) Provide solutions and directives to hospitals and PHC facilities if needed		
11. Longer-term actions:		
a) Remind all sites that new staff need orientation		
b) Monitor sub-district, cluster and institutional readiness on a regular basis		
c) Ensure all facilities have staff wellness services available for assisting with HCW stress and to provide testing for COVID-19 as required		

3.5. Community health centres, primary health care clinics and facility and maternity managers

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TASK / ACTION	PROGRESS	HYPERLINK
1. Explain to health care providers and users		[A]
a) the danger of COVID-19 (also for pregnant and postnatal women and their babies) and how to mitigate risk		
b) the role of various levels of care of the health system in managing COVID-19, from PHC to special COVID-19 hospitals and quarantine sites		
c) The need for essential preventative health care services to continue even during lock-down (including contraception and termination of pregnancy services, antenatal, intrapartum and postnatal care, and oncology services)		
2. Collaborate with District Management on the identified COVID-19 hospitals and quarantine sites		
3. Sub-district or cluster transport plan (including transport for pregnant women to get to appropriate antenatal clinics and women in labour to get to appropriate labour wards):		[B1]
a) Take note of the transport plan being developed		
b) Provide feedback and participate in the development of plans if requested		
c) Liaise with the community for commitment and buy-in		
d) Consult with EMS as needed		
e) Provide guidance to health care workers on • the need for transport to various sites • how transport will work in the district and between clusters and sub-districts • how to explain this to the community		
f) Follow provincial regulations for transport for pregnant women		

TASK / ACTION	PROGRESS	HYPERLINK
g) Request or allocate resources to ensure the transport plan works		
h) List sites where transport will be available and publicise widely: • between health facilities and hospitals • from the community (taxi ranks, etc.)		
i) Interact with public, metro and other transport services to solve problems if needed		
4. Inform pregnant and postnatal women		
a) of transport plan and sites for accessing care		
b) how to access transport to care sites		
c) how to access community messaging on COVID-19 relating to the perinatal period		[A]
5. Referral criteria and protocol:		
a) Train staff to use referral criteria		
b) Receive or develop and display posters of referral routes and criteria		
c) Oversee staff's implementation of referral criteria		
d) Liaise with and inform the community and EMS on transfer protocols as needed		
6. Clinical guidelines and protocols for screening, testing and managing pregnant and postnatal women and their infants exposed or with COVID-19:		[B1; B2; B3; C1; F1; F5]
a) Receive national, provincial and district guidelines and protocols		
b) Train staff to use protocols and criteria		
c) Display protocols		
d) Oversee staff's implementation of protocols		
e) Liaise with and inform the community and EMS on guidelines and protocols as needed		
f) Ensure that PPE is available to protect health care staff and patients		
7. Manage resources for clinical care and transfers:		
a) Request or allocate resources necessary to screen, test and manage pregnant and postnatal women exposed to or with COVID-19 in line with the guidelines provided		

TASK / ACTION	PROGRESS	HYPERLINK
b) Receive additional resources from the district of PDOH		
c) Reallocate internal resources		
d) If required, provide lodging facilities for well COVID-19 negative mothers of sick neonates (and children), as well as for a COVID-19 positive mothers with a sick neonate in the neonatal unit		
8. Follow the generic guidelines for setting up COVID-19 services in individual facilities (https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/)		
9. Receive national monitoring tool:		[E1]
a) Set up data collection method in facility		
b) Analyse data and identify problem areas		
c) Give feedback to District Management		
d) Provide solutions and directives to health care workers if needed		
10. Longer-term actions:		
a) Ensure that all new staff receive appropriate orientation and training		
b) Self-assess institutional readiness on a regular basis		
c) Ensure facility has staff wellness services available for assisting with HCW stress and to provide testing for COVID-19 as required		

3.6. District hospitals and CEOs, medical and maternity managers

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TASK / ACTION	PROGRESS	HYPERLINK
1. Explain to health care providers and users		[A]
a) the danger of COVID-19 (also for pregnant and postnatal and their babies) and how to mitigate risk		
b) the role of various levels of care of the health system in managing COVID-19, from PHC to special COVID-19 hospitals and quarantine sites		
c) The need for essential preventative health care services to continue even during lock-down (including contraception and termination of pregnancy services, antenatal, intrapartum and postnatal care, and oncology services)		
2. Collaborate with District Management on the identified COVID-19 hospitals and quarantine sites		
3. Receive guidance and provide inputs:		
a) Take note of transport plan being developed		
b) Commit to participate in deliberations and the communication of the plan		
4. Sub-district or cluster transport plan (including transport for pregnant and postnatal women to get to appropriate antenatal clinics and women in labour to get to appropriate labour wards):		[B1]
a) Take note of the transport plan being developed		
b) Provide feedback and participate in the development of plans if requested		
c) Liaise with the community for commitment and buy-in		
d) Consult with EMS as needed		

TASK / ACTION	PROGRESS	HYPERLINK
e) Provide guidance to health care workers on • the need for transport to various sites • how transport will work in the district and between clusters and sub-districts • how to explain this to the community		
f) Follow provincial regulations for transport for pregnant women		
g) Request or allocate resources to ensure the transport plan works		
h) List sites where transport will be available and publicise widely: • between health facilities and hospitals • from the community (taxi ranks, etc.)		
i) Interact with public, metro and other transport services to solve problems if needed		
5. Inform pregnant and postnatal women		
a) of transport plan and sites for accessing care		
b) how to access transport to care sites		
c) how to access community messaging on COVID-19 relating to the perinatal period		[A]
6. Referral criteria and protocol:		
a) Train staff to use referral criteria and receive referred patients		
b) Receive or develop and display posters of referral routes and criteria		
c) Oversee staff's implementation of referral criteria		
d) Liaise with and inform the community and EMS on transfer protocols as needed		
7. Clinical guidelines and protocols for screening, testing and managing pregnant and postnatal women and their infants exposed or with COVID-19:		[B1; B2; B3; C1; F1; F5]
a) Receive national, provincial and district guidelines and protocols		
b) Train staff to use protocols and criteria		
c) Display protocols		
d) Oversee staff's implementation of protocols		
e) Liaise with and inform the community and EMS on guidelines and protocols as needed		
f) Ensure that PPE is available to protect health care staff and patients		

TASK / ACTION	PROGRESS	HYPERLINK
8. Manage resources for clinical care and transfers:		
a) Request or allocate resources necessary to screen, test and manage pregnant and postnatal women exposed to or with COVID-19 in line with the guidelines provided		
b) Receive additional resources from the district of PDOH		
c) Reallocate internal resources		
d) If required, provide lodging facilities for well COVID-19 negative mothers of sick neonates (and children), as well as for a COVID-19 positive mothers with a sick neonate in the neonatal unit		
9. Follow the generic guidelines for setting up COVID-19 services in individual facilities (https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/)		
10. Receive national monitoring tool:		[E1]
a) Set up data collection method in facility		
b) Analyse data and identify problem areas		
c) Give feedback to District Management		
d) Provide solutions and directives to health care workers if needed		
11. Longer-term actions:		
a) Ensure that all new staff receive appropriate orientation and training		
b) Self-assess institutional readiness on a regular basis		
c) Ensure facility has staff wellness services available for assisting with HCW stress and to provide testing for COVID-19 as required		

3.7. Regional hospitals and CEOs, medical and maternity managers

Note: The tasks or actions required are collated from the interfaces where the tasks/actions is required and the levels of communication following the stages of change process. The PROGRESS can be marked like a dash board (D = Done, IP = In process, PA = Prioritise for action). The HYPERLINK takes you to the content (e.g. algorithm or poster for that particular task/action).

Messages should be consistent across all levels

For resources and guidelines consult https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/ for health professionals and https://sacoronavirus.co.za/ for the public

TASK / ACTION	PROGRESS	HYPERLINK
1. Explain to health care providers and users		[A]
a) the danger of COVID-19 (also for pregnant and postnatal women and their babies) and how to mitigate risk		
b) the role of various levels of care of the health system in managing COVID-19, from PHC to special COVID-19 hospitals and quarantine sites		
c) The need for essential preventative health care services to continue even during lock-down (including contraception and termination of pregnancy services, antenatal, intrapartum and postnatal care, and oncology services)		
2. Collaborate with District Management on the identified COVID-19 hospitals and quarantine sites		
3. District or cluster transport plan (including transport for pregnant and postnatal women to get to appropriate antenatal clinics and women in labour to get to appropriate labour wards):		[B1]
a) Take note of the provincial, district and cluster transport plans being developed		
b) Provide feedback and participate in the development of plans if requested		
c) Liaise with the community for commitment and buy-in		
d) Emergency Medical Services (EMS): • Consult as needed • Provide training in new protocols as needed		

TASK / ACTION	PROGRESS	HYPERLINK
e) Provide guidance to health care workers on • the need for transport to various sites • how transport will work in the district and between clusters and sub-districts • how to explain this to the community		
f) Follow provincial regulations for transport for pregnant and postnatal women		
g) Request or allocate resources to ensure the transport plan works		
h) List sites where transport will be available and publicise widely: • between health facilities and hospitals • from the community (taxi ranks, etc.)		
i) Interact with public, metro and other transport services to solve problems if needed		
4. Inform pregnant and postnatal women		
a) of transport plan and sites for accessing care		
b) how to access transport to care sites		
c) how to access community messaging on COVID-19 relating to the perinatal period		[A]
5. Referral criteria and protocol:		
a) Train staff to use referral criteria and how to receive referred patients		
b) Receive or develop and display posters of referral routes and criteria		
c) Oversee staff's implementation of referral criteria and the reception of referred patients		
d) Liaise with and inform the community and EMS on transfer protocols as needed		
6. Clinical guidelines and protocols for screening, testing and managing pregnant and postnatal women and their infants exposed or with COVID-19:		[B1; B2; B3; C1; F1; F5]
a) Receive national, provincial and district guidelines and protocols		
b) Train staff to use protocols and criteria		
c) Display protocols		
d) Oversee staff's implementation of protocols		
e) Liaise with and inform the community and EMS on guidelines and protocols as needed		
f) Ensure that PPE is available to protect health care staff and patients		

TASK / ACTION	PROGRESS	HYPERLINK
7. Manage resources for clinical care and transfers:		
a) Request or allocate resources necessary to screen, test and manage pregnant and postnatal women exposed to or with COVID-19 in line with the guidelines provided		
b) Use protocols to obtain necessary resources to manage pregnant and postnatal women exposed to or with COVID-19		
c) Receive additional resources from the district or PDOH		
d) Reallocate internal resources		
e) Provide lodging facilities for well COVID-19 negative mothers of sick neonates (and children), as well as for a COVID-19 positive mothers with a sick neonate in the neonatal unit		
8. Follow the generic guidelines for setting up COVID-19 services in individual facilities (https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/)		
9. Receive national monitoring tool:		[E1]
a) Set up data collection method in facility		
b) Analyse data and identify problem areas		
c) Give feedback to District Management and PDOH		
d) Provide solutions and directives to health care workers if needed		
10. Longer-term actions:		
a) Ensure that all new staff receive appropriate orientation and training		
b) Self-assess institutional readiness on a regular basis		
c) Ensure facility has staff wellness services available for assisting with HCW stress and to provide testing for COVIDovid-19 as required		

3.8. Tertiary provincial or national central hospitals and CEOs, medical and maternity managers

Note: The tasks or actions required are collated from the interfaces where the tasks/actions is required and the levels of communication following the stages of change process. The PROGRESS can be marked like a dash board (D = Done, IP = In process, PA = Prioritise for action). The HYPERLINK takes you to the content (e.g. algorithm or poster for that particular task/action).

Messages should be consistent across all levels

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TASK / ACTION	PROGRESS	HYPERLINK
1. Explain to health care providers and users		[A]
a) the danger of COVID-19 (also for pregnant and postnatal women and their babies) and how to mitigate risk		
b) the role of various levels of care of the health system in managing COVID-19, from PHC to special COVID-19 hospitals and quarantine sites		
c) The need for essential preventative health care services to continue even during lock-down (including contraception and termination of pregnancy services, antenatal, intrapartum and postnatal care, and oncology services)		
2. Collaborate with District Management on the identified COVID-19 hospitals and quarantine sites		
3. National, provincial, district or cluster (including transport for pregnant women to get to appropriate antenatal clinics and women in labour to get to appropriate labour wards):		[A2]
a) Take note of the provincial, district and cluster transport plans being developed or adapted from the national plan		
b) Provide feedback and participate in the development of plans if requested		
c) Liaise with the community for commitment and buy-in		
d) Emergency Medical Services (EMS): • Consult as needed • Provide training in new protocols as needed		

TASK / ACTION	PROGRESS	HYPERLINK
e) Provide guidance to health care workers on • the need for transport to various sites • how transport will work in the district and between clusters and sub-districts • how to explain this to the community		
f) Follow provincial regulations for transport for pregnant and postnatal women		
g) Request or allocate resources to ensure the transport plan works		
h) List sites where transport will be available and publicise widely: • between health facilities and hospitals • from the community (taxi ranks, etc.)		
i) Interact with public, metro and other transport services to solve problems if needed		
4. Inform pregnant and postnatal women		
a) of transport plan and sites for accessing care		
b) how to access transport to care sites		
c) how to access community messaging on COVID-19 relating to perinatal period		[A]
5. Referral criteria and protocol:		
a) Train staff to use referral criteria and how to receive referred patients		
b) Receive or develop and display posters of referral routes and criteria		
c) Oversee staff's implementation of referral criteria and the reception of referred patients		
d) Liaise with and inform the community and EMS on transfer protocols as needed		
6. Clinical guidelines and protocols for screening, testing and managing pregnant and postnatal women and their infants exposed or with COVID-19:		[B1; B2; B3; C1; F1; F5]
a) Participate in guideline and protocol development as requested		
b) Receive national, provincial and district guidelines and protocols		
c) Train staff to use protocols and criteria		
d) Display protocols		
e) Oversee staff's implementation of protocols		
f) Liaise with and inform the community and EMS on guidelines and protocols as needed		
g) Ensure that PPE is available to protect health care staff and patients		

TASK / ACTION	PROGRESS	HYPERLINK
7. Manage resources for clinical care and transfers:		
a) Request or allocate resources necessary to screen, test and manage pregnant and postnatal women exposed to or with COVID-19 in line with the guidelines provided		
b) Use protocols to obtain necessary resources to manage pregnant and postnatal women exposed to or with COVID-19		
c) Receive additional resources from the district or PDOH		
d) Reallocate internal resources		
e) Provide lodging facilities for well COVID-19 negative mothers of sick neonates (and children), as well as for a COVID-19 positive mothers with a sick neonate in the neonatal unit		
8. Follow the generic guidelines for setting up COVID-19 services in individual facilities (https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/)		
9. Receive national monitoring tool:		[E1]
a) Set up data collection method in facility		
b) Analyse data and identify problem areas		
c) Give feedback to District Management, PDOH and NDOH		
d) Provide solutions and directives to health care workers if needed		
10. Longer-term actions:		
a) Ensure that all new staff receive appropriate orientation and training		
b) Self-assess institutional readiness on a regular basis		
c) Ensure facility has staff wellness services available for assisting with HCW stress and to provide testing for COVID-19 as required		

3.9. COVID-19 hospitals and CEOs, medical and maternity managers

Note: The tasks or actions required are collated from the interfaces where the tasks/actions is required and the levels of communication following the stages of change process. The PROGRESS can be marked like a dash board (D = Done, IP = In process, PA = Prioritise for action). The HYPERLINK takes you to the content (e.g. algorithm or poster for that particular task/action).

Messages should be consistent across all levels

For resources and guidelines consult https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/ for health professionals and https://sacoronavirus.co.za/ for the public

TASK / ACTION	PROGRESS	HYPERLINK
1. Explain to health care providers and users		[A]
a) the danger of COVID-19 (also for pregnant and postnatal women and their babies) and how to mitigate risk		
b) the role of various levels of care of the health system in managing COVID-19, from PHC to special COVID-19 hospitals and quarantine sites		
c) the need for essential preventative health care services to continue even during lock-down (including contraception and termination of pregnancy services, antenatal, intrapartum and postnatal care, and oncology services)		
d) the implications of being a COVID-19 hospital		
e) what will be expected of health care workers, especially with regard to the treatment of pregnant and postnatal women		
2. National, provincial, district or cluster transport plan (including transport for pregnant and postnatal women to get to appropriate antenatal clinics and women in labour to get to appropriate labour wards):		[A2]
a) Take note of the national, provincial, district and cluster transport plans being developed		
b) Provide feedback and participate in the development of plans if requested		
c) Liaise with the community for commitment and buy-in		
d) Emergency Medical Services (EMS): • Consult as needed • Provide training in new protocols as needed		

TASK / ACTION	PROGRESS	HYPERLINK
e) Provide guidance to health care workers on • the need for transport to various sites • how transport will work in the district and between clusters and sub-districts • how to explain this to the community		
f) Follow provincial regulations for transport for pregnant and postnatal women		
g) Request or allocate resources to ensure the transport plan works		
h) List sites where transport will be available and publicise widely: • between health facilities and hospitals • from the community (taxi ranks, etc.)		
i) Interact with public, metro and other transport services to solve problems if needed		
3. Inform COVID-19 positive pregnant and postnatal women		
a) of transport plan and sites for accessing care		
b) how to access transport to care sites		
c) how to access community messaging on COVID-19 relating to the perinatal period		[A]
4. Referral criteria and protocols:		
a) Train staff on • referral criteria and protocols • measures to be in place for receiving referred patients		
b) Display posters of referral routes and criteria		
c) Oversee staff's reception of referred patients		
d) Liaise with and inform the community and EMS on transfer protocols as needed		
5. Clinical guidelines and protocols for screening, testing and managing pregnant and postnatal women and their infants exposed or with COVID-19:		[B1; B2; B3; C1; F1; F5]
a) Participate in guideline and protocol development as requested		
b) Receive national, provincial and district guidelines and protocols		
c) Train staff to use protocols and criteria		
d) Display protocols		
e) Oversee staff's implementation of protocols		
f) Liaise with and inform the community and EMS on guidelines and protocols as needed		

TASK / ACTION	PROGRESS	HYPERLINK
g) Ensure that PPE is available to protect health care staff and patients		
6. Manage resources for clinical care and transfers:		
(a) Request or allocate resources necessary to screen, test and manage pregnant and postnatal women exposed to or with COVID-19 in line with the guidelines provided		
(b) Use protocols to obtain necessary resources to manage pregnant and postnatal women exposed to or with COVID-19		
d) Receive additional resources from the district or PDOH		
e) Reallocate internal resources		
f) Provide lodging facilities for COVID-19 positive mothers with a sick neonate in the neonatal unit		
7. Follow the generic guidelines for setting up COVID-19 services in individual facilities (https://www.nicd.ac.za/diseases-a-z-index/covid-19/covid-19-resources/)		
8. Receive national monitoring tool:		[E1]
a) Set up data collection method in facility		
b) Analyse data and identify problem areas		
c) Give feedback to District Management, PDOH and NDOH		
d) Provide solutions and directives to health care workers if needed		
9. Longer-term actions:		
a) Ensure that all new staff receive appropriate orientation and training		
b) Self-assess institutional readiness on a regular basis		
c) Ensure facility has staff wellness services available for assisting with HCW stress and to provide testing for COVID-19 as required		

3.10. Antenatal care clinics and facility managers

Note: The tasks or actions required are collated from the interfaces where the tasks/actions is required and the levels of communication following the stages of change process. The PROGRESS can be marked like a dash board (D = Done, IP = In process, PA = Prioritise for action). The HYPERLINK takes you to the content (e.g. algorithm or poster for that particular task/action).

Messages should be consistent across all levels

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TASK / ACTION	PROGRESS	HYPERLINK
1. Explain to health care users (especially pregnant and postnatal women) and the community:		[A]
a) the danger of COVID-19 and how to mitigate risk		
b) the need for special COVID-19 hospitals, quarantine sites etc. and how this would affect clinic responsibilities		
c) the need for transport to various sites		
2. Take note of COVID-19 hospitals and quarantine sites that the antenatal care clinic will refer to		
3. Provide information when requested		
4. Transport plan:		[A2]
a) Take note of plan being developed and commit to participate in deliberations and the communication of the plan		
b) Take note of how transport will work in province, district and/or sub-district and prepare to implement		
c) List and display sites where transport will be available		
d) Interact with local public transport services if there is a need		
5. Inform pregnant and postnatal women		
a) of transport plan and sites for accessing care		
b) how to access transport to care sites		
c) how to access community messaging on COVID-19 relating to the perinatal period		[A]

TASK / ACTION	PROGRESS	HYPERLINK
6. Referral criteria and protocols		
a) Receive referral protocols		
b) Orientate all staff in the protocols and referral routes		
c) Display posters of referral routes and criteria		
d) Distribute list of sites where women and their newborns will be transferred to		
e) Communicate referral plan between EMS and sites in line with protocols		
7. Clinical guidelines and protocols for screening, testing and managing pregnant and postnatal women and their infants exposed or with COVID-19:		[B1; B2; B3; C1; F1; F5]
a) Obtain protocols		
b) Display protocols		
c) Orientate and train all staff members in the use of the protocols		
d) Implement these protocols		
8. Manage resources for clinical care and transfers pregnant and postnatal women of exposed to or with COVID-19 and their babies:		
a) Use protocols to obtain necessary resources to screen, test and manage pregnant and postnatal women		
b) Receive additional resources		
c) Reallocate internal resources		
d) Be familiar with PPE regulations and safety, manage safety resources and have protocols in place		[F2; F3]
9. Receive national monitoring tool:		[E1]
a) Coordinate data collection method with rest of health facility or hospital		
b) Analyse data and identify problem areas		
c) Give feedback to the facility manager, medical manager or CEO		
d) Provide solutions and directives to health care workers if needed		
10. Longer-term actions:		
a) Ensure that all new staff receive appropriate orientation and training		
b) Participate in regular institutional self-assessment of readiness		
c) Ensure facility has staff wellness services available for assisting with HCW stress and to provide testing for COVID-19 as required		

3.11. Labour wards and maternity managers

Note: The tasks or actions required are collated from the interfaces where the tasks/actions is required and the levels of communication following the stages of change process. The PROGRESS can be marked like a dash board (D = Done, IP = In process, PA = Prioritise for action). The HYPERLINK takes you to the content (e.g. algorithm or poster for that particular task/action).

Messages should be consistent across all levels

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TASK / ACTION	PROGRESS	HYPERLINK
1. Explain to health care users (especially pregnant and postnatal women) and the community:		[A]
a) the danger of COVID-19 and how to mitigate risk		
b) the need for special COVID-19 hospitals, quarantine sites etc. and how this would affect CHC or hospital responsibilities		
d) the need for transport to various sites		
2. Take note of COVID-19 hospitals and quarantine sites that the antenatal care clinic will refer to		
3. Provide information when requested		
4. Transport plan:		[A2]
a) Take note of plan being developed and commit to participate in deliberations and the communication of the plan		
b) Take note of how transport will work in province, district and/or sub-district and prepare to implement		
c) List and display sites where transport will be available		
d) Interact with local public transport services if there is a need		
5. Inform pregnant and postnatal women		
a) of transport plan and sites for accessing care		
b) how to access transport to care sites		
c) how to access community messaging on COVID-19 relating to the perinatal period		[A]

TASK / ACTION	PROGRESS	HYPERLINK
6. Referral criteria and protocols		
a) Receive referral protocols		
b) Orientate all staff in the protocols and referral routes		
c) Display posters of referral routes and criteria		
d) Distribute list of sites where women and their newborns will be transferred to		
e) Communicate referral plan between EMS and sites in line with protocols		
7. Clinical guidelines and protocols for screening, testing and managing pregnant and postnatal women and their infants exposed or with COVID-19:		[B1; B2; B3; C1; F1; F5]
a) Obtain protocols		
b) Display protocols		
c) Orientate and train all staff members in the use of the protocols		
d) Implement these protocols		
8. Manage resources for clinical care and transfers pregnant and postnatal women of exposed to or with COVID-19 and their babies:		
a) Use protocols to obtain necessary resources to screen, test and manage pregnant and postnatal women		
b) Receive additional resources		
c) Reallocate internal resources		
d) Be familiar with PPE regulations and safety, manage safety resources and have protocols in place		[F2; F3]
9. Receive national monitoring tool:		[E1]
a) Coordinate data collection method with rest of health facility or hospital		
b) Analyse data and identify problem areas		
c) Give feedback to the facility manager, medical manager or CEO		
d) Provide solutions and directives to health care workers if needed		
10. Longer-term actions:		
a) Ensure that all new staff receive appropriate orientation and training		
b) Participate in regular institutional self-assessment of readiness		
c) Ensure facility has staff wellness service available for assisting with HCW stress and to provide testing for COVID-19 as required		

3.12. Postnatal care and maternity managers

Note: The tasks or actions required are collated from the interfaces where the tasks/actions is required and the levels of communication following the stages of change process. The PROGRESS can be marked like a dash board (D = Done, IP = In process, PA = Prioritise for action). The HYPERLINK takes you to the content (e.g. algorithm or poster for that particular task/action).

Messages should be consistent across all levels

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TASK / ACTION	PROGRESS	HYPERLINK
1. Explain to health care users (especially pregnant and postnatal) and the community:		[A]
a) the danger of COVID-19 and how to mitigate risk		
b) the need for special COVID-19 hospitals, quarantine sites etc. and how this would affect CHC or hospital responsibilities		
c) the need for transport to various sites		
2. Take note of COVID-19 hospitals and quarantine sites that the antenatal care clinic will refer to		
3. Provide information when requested		
4. Transport plan:		[A2]
a) Take note of plan being developed and commit to participate in deliberations and the communication of the plan		
b) Take note of how transport will work in province, district and/or sub-district and prepare to implement		
c) List and display sites where transport will be available		
d) Interact with local public transport services if there is a need		
5. Inform pregnant and postnatal women		
a) of transport plan and sites for accessing care		
b) how to access transport to care sites		
c) how to access community messaging on COVID-19 relating to the perinatal period		[A]

TASK / ACTION	PROGRESS	HYPERLINK
6. Referral criteria and protocols		
a) Receive referral protocols		
b) Orientate all staff in the protocols and referral routes		
c) Display posters of referral routes and criteria		
d) Distribute list of sites where women and their newborns will be transferred to		
e) Communicate referral plan between EMS and sites in line with protocols		
7. Clinical guidelines and protocols for screening, testing and managing pregnant and postnatal women and their infants exposed or with COVID-19:		[B1; B2; B3; C1; F1; F5]
a) Obtain protocols		
b) Display protocols		
c) Orientate and train all staff members in the use of the protocols		
d) Implement these protocols		
8. Manage resources for clinical care and transfers pregnant and postnatal women of exposed to or with COVID-19 and their babies:		
a) Use protocols to obtain necessary resources to screen, test and manage pregnant and postnatal women		
b) Receive additional resources		
c) Reallocate internal resources		
d) Be familiar with PPE regulations and safety, manage safety resources and have protocols in place		[F2; F3]
9. Receive national monitoring tool:		[E1]
a) Coordinate data collection method with rest of health facility or hospital		
b) Analyse data and identify problem areas		
c) Give feedback to the facility manager, medical manager or CEO		
d) Provide solutions and directives to health care workers if needed		
10. Longer-term actions:		
a) Ensure that all new staff receive appropriate orientation and training		
b) Participate in regular institutional self-assessment of readiness		
c) Ensure facility has staff wellness services available for assisting with HCW stress and to provide testing for COVID-19 as required		

3.13. Doctors, midwives and emergency medical services (EMS) personnel

Note: The tasks or actions required are collated from the interfaces where the tasks/actions is required and the levels of communication following the stages of change process. The PROGRESS can be marked like a dash board (D = Done, IP = In process, PA = Prioritise for action). The HYPERLINK takes you to the content (e.g. algorithm or poster for that particular task/action).

Messages should be consistent across all levels

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TASK / ACTION	PROGRESS	HYPERLINK
1. Familiarise themselves with the		
a) health messages given to patients and community		[A]
b) precautions against infection (PPE and dressing and undressing with PPE)		[F2; F3]
c) disposal of PPE		
d) protocols for managing pregnant and postnatal women and their babies antenatally, intrapartum, post-natally		[B1; B2; B3; C1; F1; F5]
e) referral criteria and routes [A2]		
2. Complete the relevant monitoring forms as required.		
3. Refer to the tasks and actions for the health system level or health facility level to which they are designated		

3.14. Hospital administrators

TASK / ACTION	PROGRESS	HYPERLINK
1. Familiarise themselves with the		
a) health messages given to patients and community		[A]
b) precautions against infection (PPE and dressing and undressing with PPE)		
c) disposal of PPE		[F2; F3]
d) protocols for managing pregnant and postnatal women and their babies antenatally, intrapartum, post-natally		
e) referral criteria and routes		[A2]
2. Complete the relevant monitoring forms as required.		
3. Refer to the tasks and actions for the health system level or health facility level to which they are designated		

3.15. Hospital cleaners

TASK / ACTION	PROGRESS	HYPERLINK
1. Familiarise themselves with the		
a) health messages given to patients and community		[A]
b) precautions against infection (PPE and dressing and undressing with PPE)		[F2; F3]
c) disposal of PPE		
d) protocols for managing pregnant and postnatal women and their babies antenatally, intrapartum, post-natally		
e) referral criteria and routes		[A2]
2. Complete the relevant monitoring forms as required.		
3. Refer to the tasks and actions for the health system level or health facility level to which they are designated		

Appendices

A. COVID-19 messages for pregnant and postnatal women

This appendix contains information on messages for physical health and messages for mental health. Also see the breastfeeding and skin-to-skin message in A3.

For the latest update of messages, please refer to https://pmhp.za.org/messages-for-mothers/

A1. Messages for physical health

Update 6 April 2020

For WhatsApp or brief info graphics

Developed by 'Messages for Mothers' group with expert review

Notes

- These messages are open source and will be distributed by organisations within the M4M coalition and other organisations with whom they are linked
- Can be included on the NDOH COVID19 WhatsApp service line on +27 60 012 3456, Facebook, Corona website, and through public service announcements or pre-recorded slots for radio
- Below is not a comprehensive list of possible messages and more will follow.
- Many messages will need to be updated as new information or policy is developed
- Single heading title and Q&A title options given
- The format for **Clinic visits** (Q&A Format: What it normal during pregnancy – and when should I to go to the clinic?) is in the form of a mini article and a WhatsApp message
- Sources: RCOG guidelines and WHO guidelines (referral to SA policy, UNICEF and CDC too)
- Affiliations of authors and reviewers at bottom of page. Initials of reviewers/authors after each message as per their input.
- Please note the batch of mental health messages available (in different languages and formats) at https://pmhp.za.org/messages-for-mothers/m4m-mental-health-resources/ and https://sidebyside.co.za/covid-19-resources/mental-health/

Table of contents

1. About

Q&A format: What's different for pregnant and postnatal women in the time of COVOD-19?

The symptoms and signs of COVID-19 are the same in pregnant women as the general public. Everyone should take care to avoid infection or infecting others. You help protect yourself by:

- **Wash hands** as often as possible with soap for 20 seconds (or use alcohol sanitiser)
- Try to **stay more than 2 meters away** from others, if you can and avoid crowded spaces.
- Avoid **touching your face.**
- Practice **respiratory hygiene**. This means cough or sneeze into your bent elbow covering your mouth and nose, or into a tissue which you must then throw straight away into a closed container and wash hands with soap for 20 seconds).
- **Open windows** when possible and keep household surfaces clean with 4 teaspoons bleach in 1 litre water. Keep bleach out of reach of children.

(SFawcus, SF, SH, NR, JN)

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2. Effect

Q&A format: Can the COVID-19 virus affect my pregnancy?

Pregnant women are often worried about how a virus affects their health and that of their unborn baby. There is no proof at the moment that the virus causing COVID-19 can go via the womb to infect the unborn baby. There is also no proof of increased chance of miscarriage or newborn abnormality. High fever from any cause can bring on labour early, but this can be prevented by medication to reduce fever like paracetamol.

(SFawcus, SF, SH, NR, JN)

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3. Risk

Q&A format: Are pregnant woman more at risk for COVID-19?

In general, pregnant women are more likely to catch seasonal "flu", and to have more severe symptoms from flu-like illnesses. Medical professionals recommend flu injections for pregnant women. But, it is not yet known if COVID-19 is worse in pregnant women. At this time, there is no vaccination for it. If you have any other illnesses such as TB, heart disease, HIV or diabetes you may be more at risk.

(SFawcus, SF, SH, NR, JN)

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4. Antenatal appointments

Q&A format: Should I still go to the clinic during pregnancy?

Pregnant women should continue attending their planned antenatal visits. When you arrive at the facility, you will be asked questions about COVID-19, have your temperature checked and asked to use hand sanitiser. Those women with symptoms (fever, dry cough, sore muscles, sore throat, difficulty breathing) will be cared for in a separate room and tested. If you have severe symptoms e.g. high fever or great difficulty breathing, you may be admitted or referred to a hospital or asked to isolate yourself at home while waiting for the COVID-19 test result.

(SFawcus, SF, SH, NR, JN)

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5. Symptoms

Q&A format: What must I do if I have symptoms of COVID-19?

Pregnant women with any COVID-19 symptoms (fever, dry cough, sore muscles, sore throat, difficulty breathing) need to be tested. Please phone the hotline (0800 029999) or your local antenatal clinic to find out where to go for testing. As soon as you arrive, tell a health worker that you have these symptoms. Don't wait in the queue.

(SFawcus, SF, SH, NR, JN)

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6. Treatment

Q&A format: How will I be treated if I get sick with COVID-19?

If you test positive for COVID-19

- In early pregnancy you will be managed at home (self-isolation) or in a place with other people who have or might have COVID-19.
- In later pregnancy (after 5 months) you will be managed at home (mild symptoms and not in labour), in a safe place with other people who have the infection, or in your maternity facility if in labour.
- If you have severe symptoms like high fevers and shortness of breath you will be admitted to a specialised hospital with a maternity unit, where you might need to be looked after in an intensive care unit.

Health care workers that look after you will wear protective clothing and keep you in an area separate from other patients. Don't worry about this; it is to protect them and other women from getting the coronavirus.

(SFawcus, SF, SH, NR, JN)

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7. Complications

Q&A format: What should I do if I don't feel well in pregnancy?

If you have COVID-19 symptoms and you have other pregnancy symptoms that worry you like bleeding, reduced movements of the baby, breaking of waters; you must attend your facility. Be sure to first tell the health care worker of your COVID-19 symptoms as soon as you arrive at the clinic. A cough must not prevent you from getting the necessary care for you and your baby. Don't wait in the queue.

(SFawcus, SF, SH, NR, JN)

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8. Labour

Q&A format: What happens when I go into labour?

- Women who may have or have COVID-19 can have normal labour and there is no need for a special type of delivery such as caesarean section.
- All women arriving at a facility in labour will be screened for COVID-19 symptoms.
- If you maybe have, or definitely have COVID-19, you will be looked after in a separated area and the health workers will wear personal protective clothing. You will be asked to wear a mask to prevent infection from spreading to other patients or health workers.
- If you do not have COVID-19, you will be looked after in the normal delivery area with other patients

Although birth companions are very supportive to women in labour, some facilities may not allow them to be with you during this time of the COVID19 pandemic. This is to prevent the virus spreading from people without symptoms to other patients, newborn babies or health care workers. You will need to ask your facility what their policy is. If you can, try to connect with your support person over the phone as much as possible, while you're in labour.

(SFawcus, SH)

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9. Clinic visits

Q&A Format: What it normal during pregnancy – and when should I to go to the clinic?

Mobi-article/Mini-article

Many mothers are worried about their pregnancies and COVID-19. Here is some information about what is normal for pregnancy, what could be due to anxiety or a cold and what could be symptoms of COVID-19.

- **Heart palpitations**: these are usually from a lot of stress or worry or could be due to a fever causing your heart to beat faster. If you do not have a fever, this is probably not COVID-19.
- **Shortness of breath**: in pregnancy, your womb grows bigger and can make you feel a little short of breath. Sometimes if your red blood levels are low, this can also make you breathless. But, if your breathing is very fast and you are struggling to breathe, this could be caused by an infection – and you need to get medical attention.
- **Blocked nose, stuffy, heavy feeling in the head**: these are signs of a 'cold' or hayfever and are not common with COVID-19.
- **Headaches:** in pregnancy, many people have headaches, but they do not need to go to a clinic if the headache gets better if they drink fluids and take simple painkillers (paracetamol). They should go to the clinic immediately, **and not wait in the queue**, if the headaches come with
    - swelling of the feet, lights flashing in front of the eyes, painful belly
    - high blood pressure
    - fever

Contact your maternity unit if

- you have any pregnancy bleeding
- you have pain in your belly
- the baby is not moving as much as usual

None of these is likely to be caused by COVID-19.

You need to go for testing for COVID-19 if you have a **dry cough**, **fever**, **headaches** and have **difficulty breathing**. Then, when you go to the clinic, **do not wait in the queue**, go straight away to the person who is organising the screening.

WhatsApp **When to go to the clinic**

You need to be tested for COVID-19 if you have a dry cough, fever, headache and difficulty breathing. Do not wait in the queue.

- If no fever, stress and worry can make you feel your heart beating
- Mild shortness of breath could be due to your pregnant belly getting bigger
- Blocked nose: probably a cold or hayfever
- If no fever, headaches could be caused by stress or high blood pressure. Go to the clinic for high blood pressure if not better after painkillers, and also have swelling
- If you have any pregnancy bleeding, pain in your belly or the baby is not moving as much as usual, contact your maternity unit. None of these is likely to be caused by COVID-19

(S Fawcus, P SP, SH, SF)

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10. Breastfeeding [A3]

Q&A format Can I breastfeed if I have, or may have COVID-19?

Breastfeeding is recommended for **all** mothers, including mothers who have, or may have COVID-19. So far, the COVID-19 virus has not been found in breastmilk.

- Always **wash your hands with soap for 20 seconds** before and after you breastfeed.
- Make sure you follow good **respiratory hygiene**: cough or sneeze into your bent elbow covering your mouth and nose, or into a tissue which you must then throw straight away into a closed container and wash hands with soap for 20 seconds.
- If you have COVID-19, you should wear a mask that covers your mouth and nose when breastfeeding. A homemade mask can be a cloth or scarf that is washed after each use. Do not touch the mask while the baby is feeding or when spending time with the baby.

(JN, MP, NRR, FN, SH, KMM)

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11. Newborn care

Q&A format: How can I protect my newborn baby from COVID-19?

- Breastfeed: with proper handwashing before. If you have COVID-19, breastfeed with a mask.
- **Hold your newborn baby** skin-to-skin on your chest (but keep them warm).
- Everyone in the house should **wash hands** often with soap for 20 seconds (or use alcohol-based hand sanitiser).
- Choose only two or three other people to help with the baby. Everyone who spends time with the baby should always **wash hands for 20 seconds before and after touching** the baby. They should also use a clean, homemade mask each time they are with the baby.
- They must not touch their face or the baby's face.
- No-one should kiss the baby's face.
- If possible, other people should be at least 1-2 meters away from the baby and the person caring for the baby.
- Keep **household surfaces** clean. Use 4 teaspoons of bleach in 1 litre of water. Keep bleach out of reach from children.

(JN, MP, NRR, FN, SH, KMM)

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12. Working parents

Q&A format: How can I protect my children if I am going out to work?

If you are working out of the home, try to protect your children and other family members from COViD-19.

- **Stay home** as much as possible

- At work
    - Try to **stay more than 2 meters away** from others
    - **Don't hug** or kiss or have ANY physical contact with anyone
    - **Avoid touching** your face
    - **Avoid groups** where you see them gathered
    - Try to **avoid surfaces** like doorknobs and switches that are touched by many people
    - **Wash hands** as often as possible with soap for 20 seconds (or use alcohol sanitiser)

- At home
    - If possible, **wash your hands and body** and **change into clean clothes** before you enter the home
    - Hand washing as above
    - **Wipe down** any items your brought home, straight away with sanitiser or use 4 teaspoons of bleach in 1 litre of water. Keep bleach out of reach from children.

(JN, MP, NRR, FN, SH, KMM)

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13. Child flu

Q&A format: My child has flu symptoms which started yesterday. What should I do?

Children tend to have a mild type of COVID-19 illness if they get the infection. But they can spread it easily to others. As we go into flu season, children can pick up viruses other than Corona at this time. The symptoms caused by these viruses may be very similar to COVID-19.

You should take the usual precautions to avoid COVID-19:

- **Wash hands** as often as possible with soap for 20 seconds (or use alcohol sanitiser)
- **Stay at home**
- Teach your child to **avoid touching his face.**
- Teach your child **respiratory hygiene**. This means cough or sneeze into his bent elbow covering mouth and nose, or into a tissue which he must then throw straight away into a closed container and wash hands with soap for 20 seconds.

If your child has fever, cough or difficulty breathing, seek medical care early. For advice on what to do and where to go, contact the free COVID-19 hotline (0800 029 999/0800 111 132).

(JN, MP, NRR, FN, SH, KMM)

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14. Transmission of COVID-19 by a child

Can children with COVID-19 spread the virus to other people?

Yes. Children can seem well or have mild COVID-19, but still spread the virus to other people. So, as far as possible, children should be kept apart from adults who have illnesses like asthma, TB and diabetes and other serious health problems. Also, children should be kept apart from adults over 60 years of age as much as possible because older adults with COVID-19 may get sicker than younger people.

(JN, SH)

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15. Extended family

Q&A format: How can I protect my baby from COVID-19 when I live with an extended family and some work out of the house?

If you are living with an extended family, you should take the same precautions to avoid COVID-19 infection as other people. You and your child can help protect yourselves by:

- **Wash hands** as often as possible with soap for 20 seconds (or use alcohol sanitiser)
- Try to **stay more than 2 meters away** from others, if you can and avoid crowded spaces.
- Avoid **touching your face.**
- Practice **respiratory hygiene**. This means cough or sneeze into your bent elbow covering your mouth and nose, or into a tissue which you must then throw straight away into a closed container and wash hands with soap for 20 seconds).
- **Do not allow family members to hold your baby unless** they have washed hands properly before and after and use a clean homemade mask, each time
- **Avoid kissing the baby on the mouth or face.**
- **Open windows** when possible and keep household surfaces clean with 4 teaspoons bleach in 1 litre of water. Keep bleach out of reach of children.

If you have fever, cough or difficulty breathing, seek medical care early. For advice on what to do and where to go, contact the free COVID-19 hotline (0800 029 999/0800 111 132).

(JN, MP, NRR, FN, SH, KMM)

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16. Immunisation

Q&A format: Should I still take my baby for immunisations?

Your baby should still be taken for immunisations as usual. You should take the same precautions for you and your baby to avoid COVID-19 infection as other people. You can help protect yourself and your baby by:

- **Wash hands** as often as possible with soap for 20 seconds (or use alcohol sanitiser)
- Keep about **two metres of space between yourself and others** and avoid crowded spaces.
- **Avoid touching your face.**
- **Practice respiratory hygiene**. This means cough or sneeze into your bent elbow covering your mouth and nose, or into a tissue which you must then throw straight away into a closed container and wash hands with soap for 20 seconds).

If you have fever, cough or difficulty breathing, seek medical care early. For advice on what to do and where to go, contact the free COVID-19 hotline (0800 029 999/0800 111 132).

If you can, **phone before going to your clinic**, to find out if special arrangements have been made for immunizations.

(JN, MP, NRR, FN, SH, KMM)

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17. Family planning

Q&A format: May I still go to the clinic for my family planning during the time of COVID-19 and during lockdown?

Yes. You will still be able to get family planning services from your local clinic. But try to find out if there are changes to the service. Be sure to continue with your family planning during this time to prevent unwanted pregnancies. Remember that condoms give you protection against pregnancy, HIV and other sexually transmitted infections. If you are planning a pregnancy, it is better to wait until the COVID-19 problem is over.

(SF, SH)

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18. Public transport

Q&A format: I am pregnant and use public transport to get to the clinic. Should I still go to the clinic?

If possible, walk to the clinic to avoid being close to other people. If you need to take a taxi, try to sit with space between you and others. You should take the same precautions to avoid COVID-19 infection as other people. You can help protect yourself by:

- **Wash hands** as often as possible with soap for 20 seconds (or use alcohol sanitiser).
- Try to **stay more than 2 meters away** from others and avoid crowded spaces.
- Avoid **touching your face.**
- Practice **respiratory hygiene**. This means cough or sneeze into your bent elbow covering your mouth and nose, or into a tissue which you must then throw straight away into a closed container and wash hands with soap for 20 seconds).

If you have fever, cough or difficulty breathing, seek medical care early. For advice on what to do and where to go, contact the free COVID-19 hotline (0800 029 999/0800 111 132).

Pregnant women and women who have recently delivered – including those affected by COVID-19 - should **attend their routine care** appointments.

If you can, **phone before going to your clinic**, to find out if special plans have been made for antenatal and postnatal visits.

(JN, MP, NRR, FN, SH, KMM)

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A2. Messages for mental health

https://pmhp.za.org/messages-for-mothers/m4m-mental-health-resources/

Update 3 April 2020

Notes

- These messages are open source and will be distributed by PMHP and other organisations of the Messages for Mothers (M4M) collective. They are hosted at https://pmhp.za.org/messages-for-mothers/m4m-mental-health-resources/
- Some of these messages are available as infographics mini articles, with audio-recorded podcasts
- These messages are being translated into Afrikaans, isiXhosa and isiZulu
- With hyperlinks, they can cross-reference each other, as appropriate
- Can be included on the NDOH COVID19 WhatsApp service line on +27 60 012 3456, Facebook, Corona website, and through public service announcements or pre-recorded slots for radio
- MomConnect can send a WhatsApp to mothers linking them to the M4M pages on www.pmhp.za.org for more
    - For MomConnect mothers on SMS only, it might be worth sending a message to say this information is available on the NDoH site in case they can manage to access this through a friend's WhatsApp.
    - Messaging to be adapted to SMS if funding is approved (160 characters)
- Below is not a comprehensive list of possible messages and more will follow

Table of contents

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1. Coping with stress as a mother during COVID-19

As a mother, you could be having a lot of stress and worries during COVID-19. Here are some tips for coping with stress during this time. You can do this!

1. Notice, name and accept your feelings. They are normal reactions to an abnormal situation.
2. Limit how often you check the news if it is feeling too much.
3. Get your facts from reliable sources only. There is lot of fake news.
4. Do simple things to take your mind off this situation.

5. Ask for support from family, friends or a counsellor.
6. If you can, helping others during this time can make you feel better.

Contacts (keep trying they may be busy)

- South African Depression and Anxiety Group (SADAG) www.sadag.org – has many helplines 0800 21 22 23 or 0800 456 789 or 0800 20 5026 and others
- Lifeline general 0861 322 322 and their AIDS Helpline 0800 012 322
- Childline 0800 055 555

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2. Coping with family violence during COVID-19

Being at home during COVID-19 can result in an increase in violence towards women and children. If this applies to you, here are some tips for coping:

- Have a **safety plan**. Keep your phone charged and with airtime. Put emergency numbers in your phone. Have an emergency bag ready. Tell your children the plan.
- You can ask the police for a **protection order**.
- **Self-care**. Get enough sleep, eat properly, exercise if you can. Do what helps you to take your mind off the stress.
- **Connect** with friends, family, a support group or a counsellor online or on the phone
- Remember - you deserve to be safe. It is your right.

Contacts (keep trying they may be busy)

- People Opposing Women Abuse (POWA) www.powa.co.za tel: 0800 029 999
- Lifeline's Domestic Violence line 0800 150 150
- Tears Foundation www.tears.co.za tell dial *134*7355# or 010 590 5920
- Rape Crisis 021 447 9762
- South African Depression and Anxiety Group (SADAG) www.sadag.org – has many helplines 0800 21 22 23 or 0800 456 789 or 0800 20 5026 and others

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3. Coping with depression, anxiety and addictions during COVID-19

In the time of COVID-19, people who are already living with depression, anxiety or an addiction may be feeling worse. This is understandable.

1. If you are on **medication**, don't change it without talking with your doctor
2. If you have a **counsellor**, make a plan to talk over the phone or online
3. If you don't have a counsellor, and are feeling bad, phone a **helpline** -see options below
4. Explore the **internet** for help online
5. Remember **alcohol or drugs** will make you feel worse afterwards
6. Get **support**. Connect friends and family online or on the phone every day.

7. **Look after yourself**. Don't judge yourself. You can get through this.

Contacts (keep trying they may be busy)

- South African Depression and Anxiety Group (SADAG) www.sadag.org – has many helplines 0800 21 22 23 or 0800 456 789 or 0800 20 5026 and others
- Lifeline general 0861 322 322 and their AIDS Helpline 0800 012 322
- SANCA for Alcohol and Drug problems WhatsApp line 076 535 1701
- Childline 0800 055 555

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4. How do you know if you are worrying too much?

Everyone is worried during this difficult time of COVID-19. This is a normal way of reacting to a very abnormal situation. But, for some people, the worry, stress and fear can become too much. How can you tell if you are worrying too much?

- You are extremely worried about getting COVID-19 (even though you are doing things to keep safe like staying inside, keeping distance from others and washing your hands often)
- You are unable to sleep because you can't stop worrying
- You read social media messages or listen to the news about COVID-19 all the time
- You can't relax or stop worrying
- You are always afraid that something terrible is going to happen
- You are irritable with others for no reason
- You are unable to cope with the usual things you need to do around the house like get dressed, cook or clean
- You feel tense in your neck, shoulders or back, or have an upset stomach due to constant worry

If you feel that you are too worried, please speak to someone.

Helplines (keep trying they may be busy)

- South African Depression and Anxiety Group (SADAG) www.sadag.org – has many helplines 0800 21 22 23 or 0800 456 789 or 0800 20 5026 and others
- Lifeline general 0861 322 322 and their AIDS Helpline 0800 012 322
- SANCA for Alcohol and Drug problems WhatsApp line 076 535 1701
- Childline 0800 055 555

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5. How do you know if you are depressed?

It is normal to be worried during this difficult time of COVID-19. Sometimes the worry or stress, or just not being able to see other people, can lead to depression. How will you know if you are depressed? Here are some things to look out for:

- You feel down, depressed or hopeless
- You are 'thinking too much'
- You have very negative thoughts that upset you
- You feel that you do not want to talk to other people even though you could phone or WhatsApp them
- You feel that you are do not want to do the usual things that you would do round the house, like get dressed, clean and cook
- You can't relax
- You have thoughts or even plans to harm yourself or commit suicide

If you have a few of these symptoms for over two weeks, please speak to someone.

Helplines (keep trying they may be busy)

- South African Depression and Anxiety Group (SADAG) www.sadag.org – has many helplines 0800 21 22 23 or 0800 456 789 or 0800 20 5026 and others
- Lifeline general 0861 322 322 and their AIDS Helpline 0800 012 322
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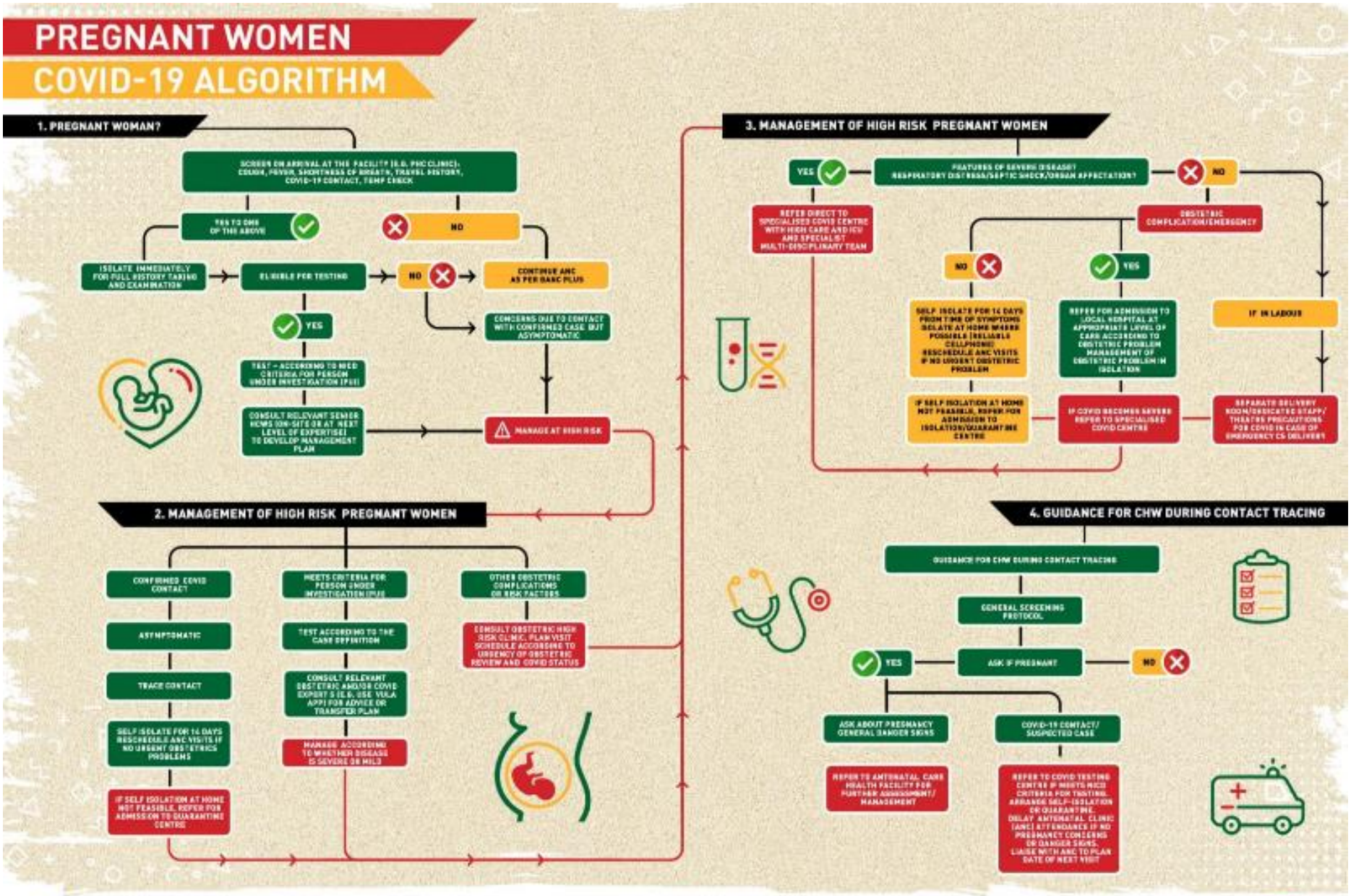
A3. WHO breastfeeding and skin-to-skin message

https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public

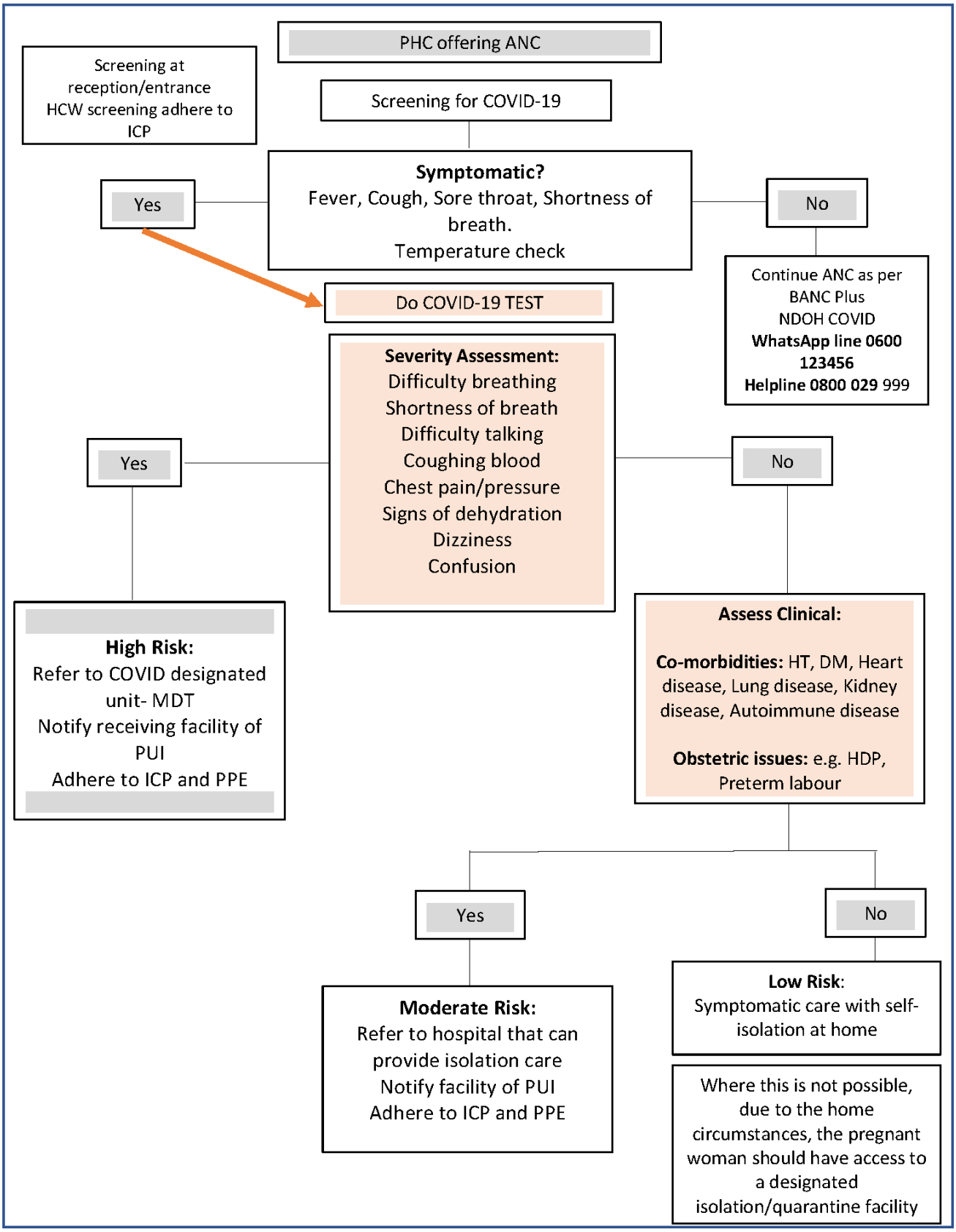
Updated 30 March 2020

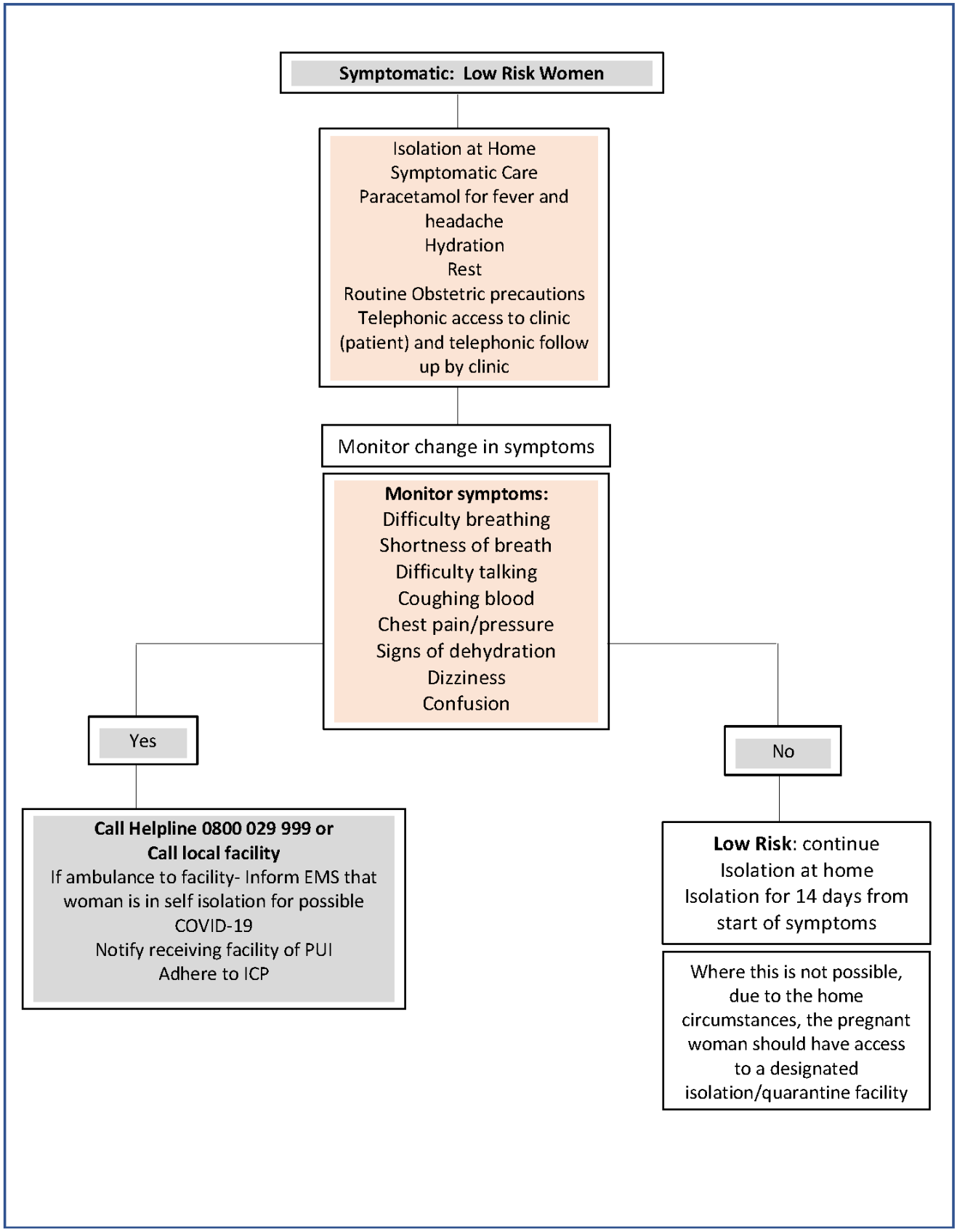
B. Managing pregnant women

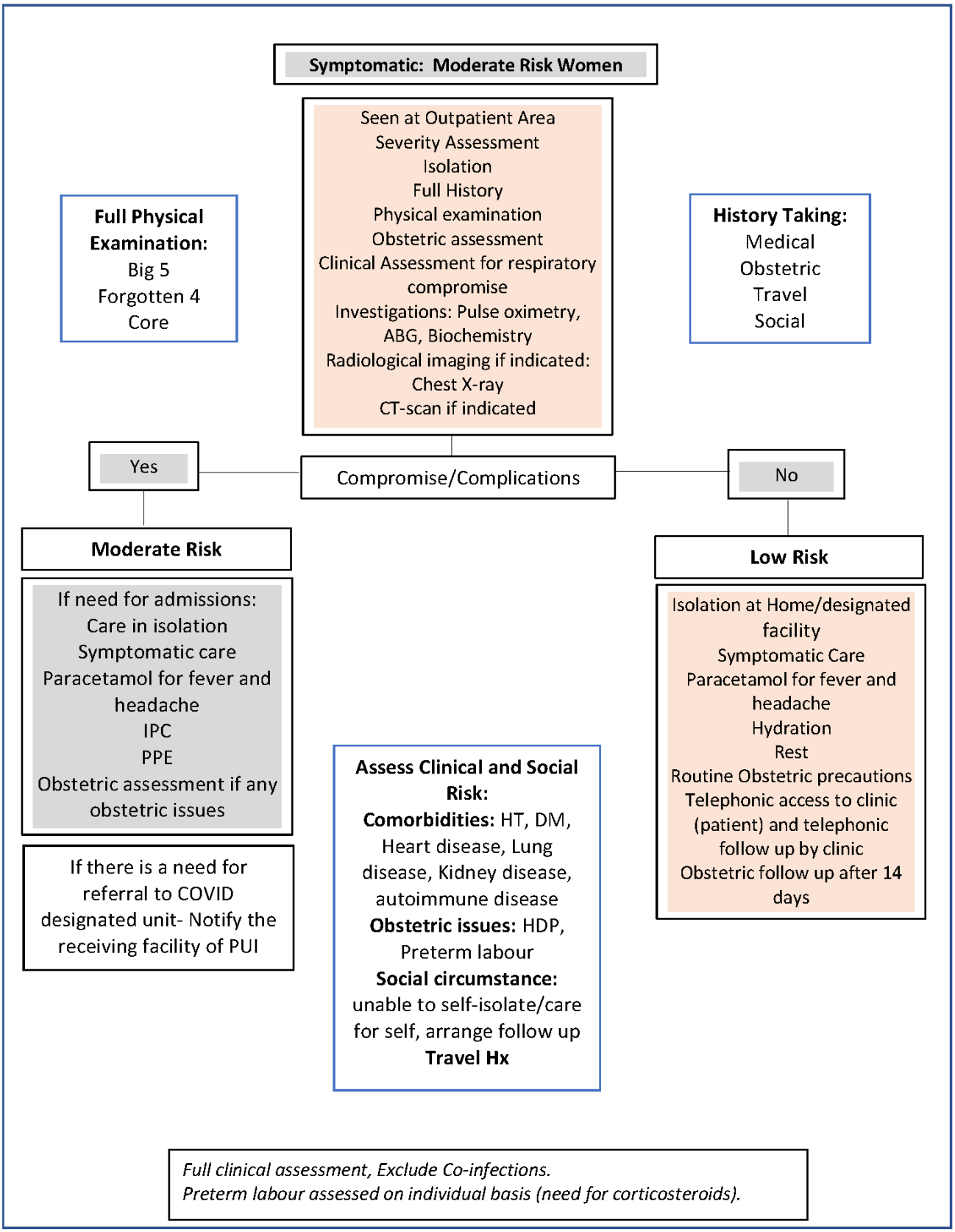
B1. Pregnant women COVID-19 algorithm (NDOH) (updated April 2020)

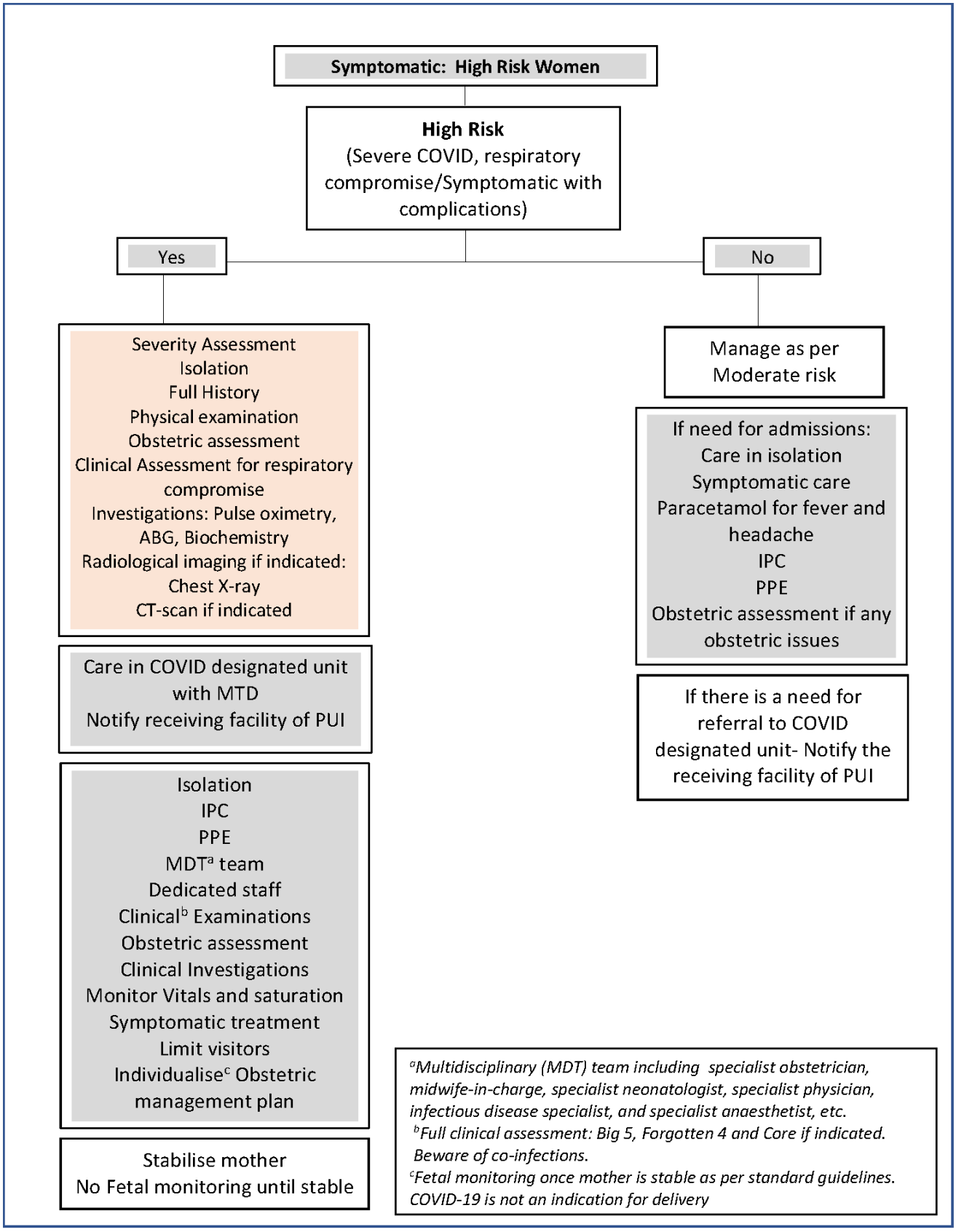

PREGNANT WOMEN
COVID-19 ALGORITHM
1. PREGNANT WOMAN?
SCREEN ON ARRIVAL AT THE FACILITY (E.G. PHC CLINIC): COUGH, FEVER, SHORTNESS OF BREATH, TRAVEL HISTORY, COVID-19 CONTACT, TEMP CHECK
YES TO ONE OF THE ABOVE
NO
ISOLATE IMMEDIATELY FOR FULL HISTORY TAKING AND EXAMINATION
ELIGIBLE FOR TESTING
NO
CONTINUE ANC AS PER DANC PLUS
YES
CONCERNS DUE TO CONTACT WITH CONFIRMED CASE BUT ASYMPTOMATIC
TEST – ACCORDING TO NICD CRITERIA FOR PERSON UNDER INVESTIGATION (PUI)
CONSULT RELEVANT SENIOR HCWS 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 EXPERT S (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
YES
SELF ISOLATE FOR 14 DAYS FROM TIME OF SYMPTOMS ISOLATE AT HOME WHERE POSSIBLE (RELIABLE CELLPHONE) RESCHEDULE ANC VISITS IF NO URGENT OBSTETRIC PROBLEM
REFER FOR ADMISSION TO LOCAL HOSPITAL AT APPROPRIATE LEVEL OF CARE ACCORDING TO OBSTETRIC PROBLEM MANAGEMENT OF OBSTETRIC PROBLEM IN ISOLATION
IF IN LABOUR
IF SELF ISOLATION AT HOME NOT FEASIBLE, REFER FOR ADMISSION TO ISOLATION/QUARANTINE CENTRE
IF COVID BECOMES SEVERE REFER TO SPECIALISED COVID CENTRE
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
REPUBLIC OF SOUTH AFRICA
NDP

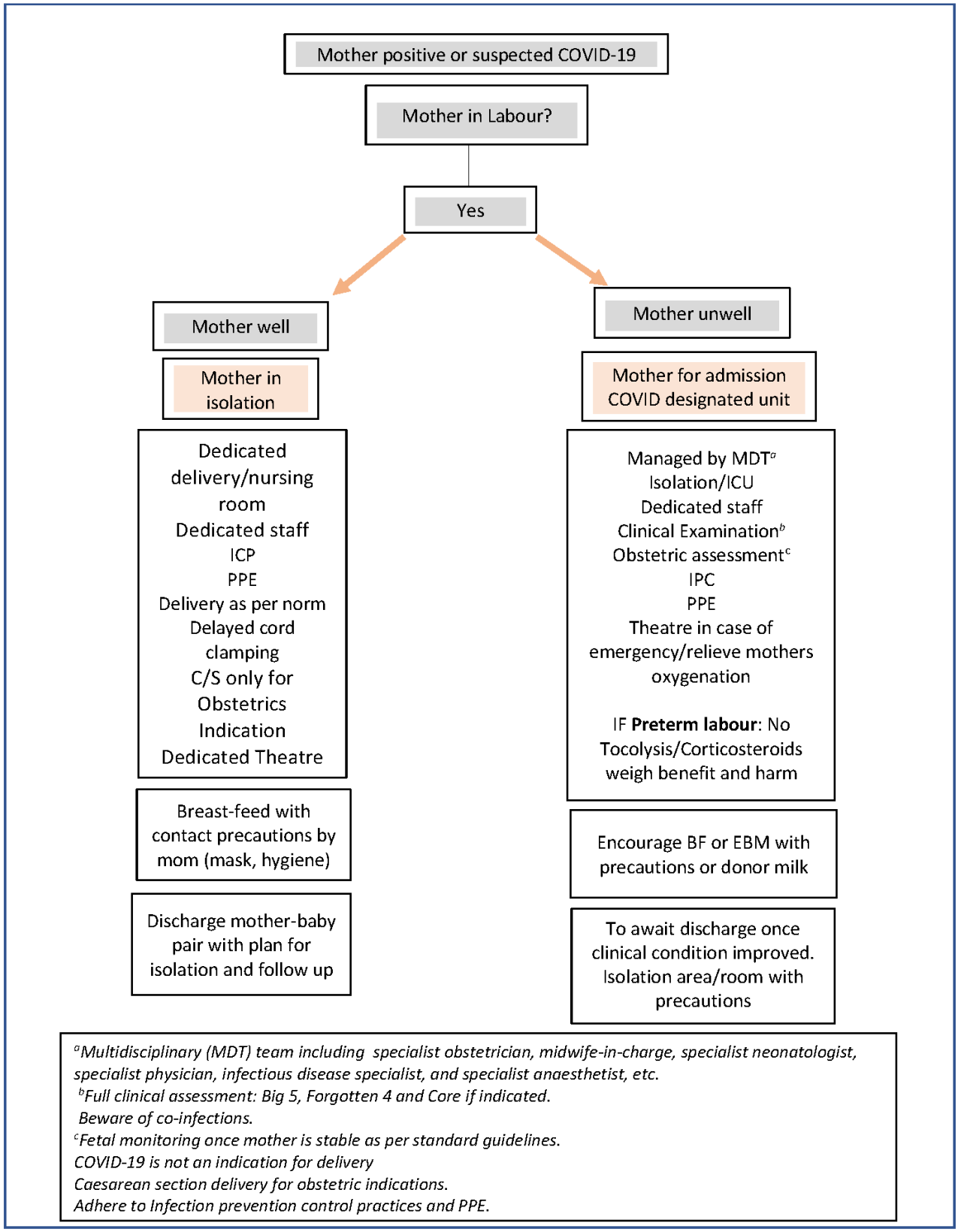
B2. Algorithms for pregnant women with COVID-19 (updated 8 April 2020)

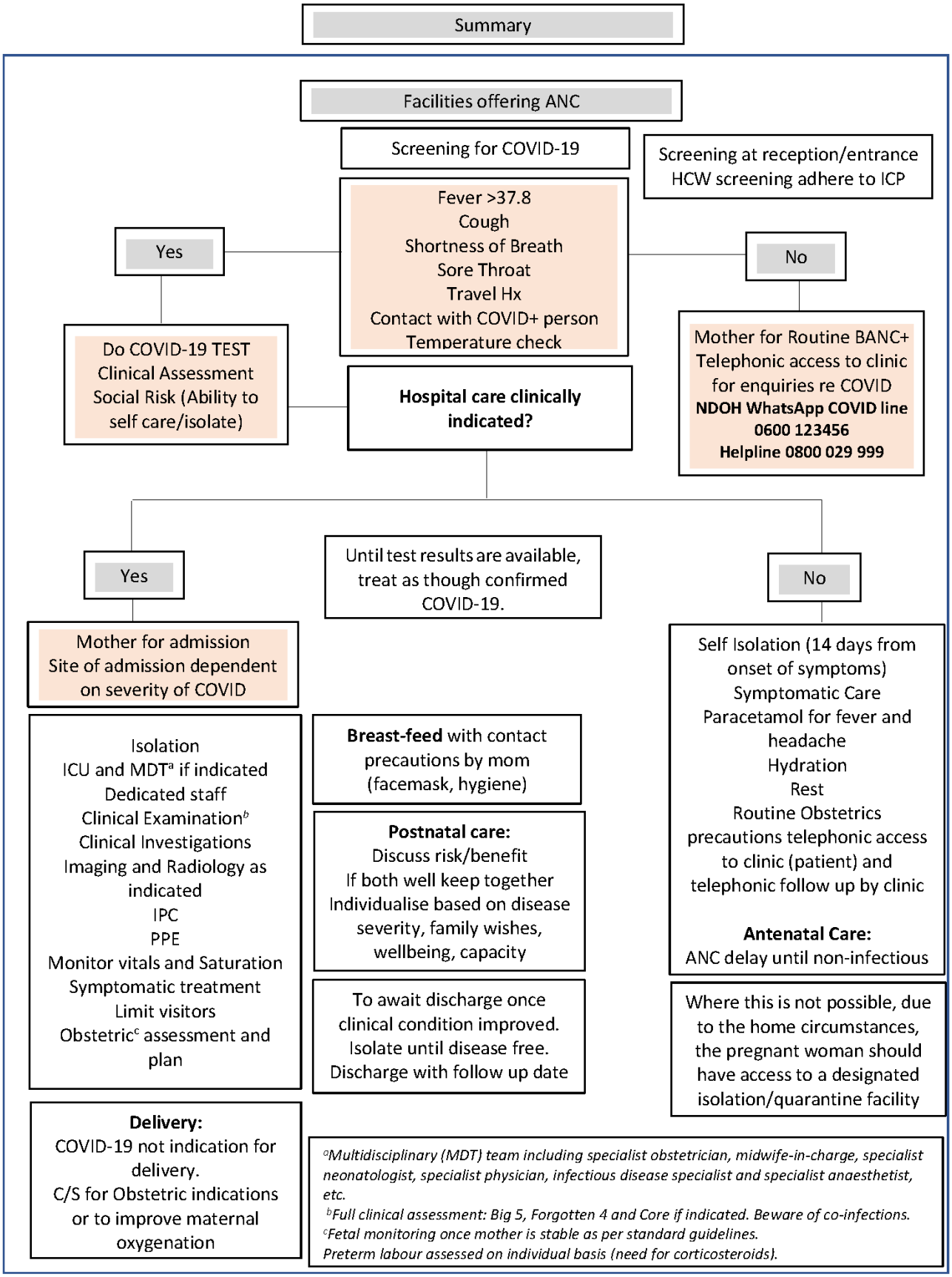



Symptomatic: Low Risk Women
Isolation at Home
Symptomatic Care
Paracetamol for fever and headache
Hydration
Rest
Routine Obstetric precautions
Telephonic access to clinic (patient) and telephonic follow up by clinic
Monitor change in symptoms
Monitor symptoms:
Difficulty breathing
Shortness of breath
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
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
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
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 8 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 8 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% with 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. However, pregnant women do not appear to be more susceptible to the consequences of COVID-19 than the general population. 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. There are no reported deaths in pregnant women yet.

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. (To date, no cases of vertical transmission)

Transmission

Most cases of COVID-19 globally have evidence of human-to-human transmission. Respiratory droplets and direct contact spread COVID-19. 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, fomite or faecal routes.

No vertical transmission has been documented. The virus has not 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, although the incidence is unknown.

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 it is unclear whether the preterm birth was iatrogenic, or whether some were spontaneous. Iatrogenic delivery was predominantly 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.
- 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.

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 is not routinely indicated for women with COVID-19, but should be performed for appropriate obstetric indications.
6. 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). WHO- 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.

7. In the case of an infected woman presenting with spontaneous preterm labour, tocolysis should not be used in an attempt to delay delivery in order to administer antenatal corticosteroids.

8. 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.

9. 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.

10. Newborns to mothers with suspected or confirmed COVID-19 should routinely be kept together with the mother for bonding and breastfeeding, with the mother applying necessary precautions for IPC (the mother should wear a mask and wash or sanitize her hands frequently). If possible, the mother/baby pair should continue to occupy the same isolation room used by the mother during labour. Otherwise, they may need to be transferred to an alternative isolation ward, but will still require appropriate postnatal/neonatal care.

11. 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).

12. 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.

13. 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.

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

15. 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.

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

17. 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.

18. For symptomatic relief or 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.

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 and social distancing.
2. Pregnant woman phones the health facility and reports that she has 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. • 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

Patient scenario	**Management advice**
	• 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 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 guidance currently recommends 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 • 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 to the facility.

Patient scenario	Management advice
	• The woman should be met at the maternity unit entrance by staff wearing appropriate PPE and provided with a surgical face mask. • 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 be kept to a minimum. • Remove non-essential items from a clinic/ultrasound room prior to consultation. • All clinical areas used 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 to 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 control. All women must be screened before sitting in the maternity waiting area. If woman shows symptoms suggestive of COVID-19 infection (cough or fever above 37.8 degrees) they should be tested. Until test results are available, they should be treated as though they have confirmed COVID-19, immediately isolated from other patients, and attended to by health workers using PPE. Pregnant women may attend for pregnancy 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 or in case of emergency investigate and treat as COVID-19 until proven otherwise. 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. Further care, in all cases, should continue as for a woman with confirmed COVID-19, until a negative test result is obtained.

Patient scenario	Management advice
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. 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 37.8 degrees.
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

Patient scenario	Management advice
	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 just attend her planned birthing facility. 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 is monitor 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. Not for fetal monitoring if the mother is unstable. • 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) • 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. If spontaneous preterm labour, tocolysis should not be used in an attempt to delay delivery in order to administer antenatal steroids.

Patient scenario	Management advice
9. 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. 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 or anaesthesia is contraindicated in the presence of corona viruses. When caesarean delivery or other operative procedure is advised, follow IPC guidance. (PPE may impact on the decision to delivery interval but it must be done. Women and their families should be told about this possible delay). An individualised decision should be made regarding shortening the length of the second stage of labour with instrumental delivery in a symptomatic woman who is becoming exhausted or has respiratory distress. Delayed cord clamping is still recommended following birth, provided there are no other contraindications.

Patient scenario	Management advice
10. Woman planned induction of labour	As for elective caesarean delivery, an individual assessment should be made regarding the urgency of planned induction of labour for women with mild symptoms and suspected or confirmed COVID-19. If induction of labour cannot safely be delayed, the general advice for services providing care to women admitted to hospital when affected by suspected/confirmed COVID-19 should be followed. Women should be admitted into an isolation room, in which they should ideally be cared for the entirety of their hospital stay.
11. Additional considerations for 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 following should be discussed: ***Key priorities for medical care of the woman:*** • 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. (Covid19 designated hospitals for severely ill women) • Concerns amongst the team regarding special considerations in pregnancy and newborns. • The priority for medical care should be to stabilise the woman's condition with standard supportive care therapies. ***Considerations for the pregnancy:*** • 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.

Patient scenario	Management advice
	• Do not monitor the fetal condition in a woman with severe COVID-19. The presence of the fetal heart can be checked intermittently in such cases. • 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. Individual assessment should consider the maternal condition, the fetal condition, the potential for improvement following elective delivery and the gestation of the pregnancy. The priority is stabilizing the mother's condition. **Preterms:** Women presenting with moderately severe COVID-19, it is not clear whether the clinical benefits of antenatal corticosteroids might outweigh the risks of potential harm to the mother. The balance of benefits and harms for the woman and the preterm newborn should be discussed. (informed decision, woman's clinical condition, woman's wishes, family wishes, available health care resources). (For critically ill women corticosteroids are contraindicated) If spontaneous preterm labour occurs, tocolysis should not be used in an attempt to delay delivery in order to administer antenatal corticosteroids.
12. General advice for obstetric theatre	All staff (including maternity, neonatal and theatre) should have been trained in the use of PPE. The number of staff in the operating theatre should be kept to a minimum, all of whom must wear appropriate PPE. Any elective surgery, including elective caesarean section, should be postponed in women with COVID-19 until the infectious period has passed (usually 14 days after the onset of symptoms). For pregnant women who are PUIs, the surgery should be postponed either until the test result comes back as negative or if, the test result is positive, until the infectious period has passed. In cases where elective caesarean delivery cannot safely be delayed (i.e. there is now an urgent or emergency need for caesarean section), the general advice for services providing care to women admitted when affected by suspected/confirmed COVID-19 should be followed.

Patient scenario	Management advice
13. 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. • The surgeon, surgical assistant, scrub nurse and midwife (receiving baby) must wear full PPE, including an N95 mask and goggles or visor. • 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). • 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. • Where spinal anaesthesia is used, the airway theatre trolley should be prepared as for a GA. Two sets of intubation PPE: N95 mask, goggles or visor and two pairs of non-sterile gloves should be available on the trolley. An alcohol based hand sanitizer should be available. In the event of a "stable" conversion to GA, the anaesthetist should don full PPE for intubation whilst the assistant monitors the patient. The anaesthetist should return in full PPE and the assistant should then don PPE. Before proceeding, ensure all staff in the operating theatre

Patient scenario	Management advice
	are wearing PPE. Induction of anaesthesia should be performed and surgery commence/ restart after the airway is secured. In patients at high risk for GA conversion, PPE should be donned before the initiation of spinal anaesthesia. • 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 empathic.

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.

c. 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.

d. For staff attending to pregnant woman 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.

Summary of key considerations

1. All health facilities must have a process of screening all outpatients for COVID-19 before or as they arrive at the facility. The facility must be able to provide surgical face masks for patients who screen positive, to be worn during all further interactions at the facility.

2. Pregnant women with confirmed COVID-19 infection should be managed at the appropriate level of care. All designated birthing sites should be able to identify potential COVID-19 cases, test for COVID-19, identify women with severe COVID-19 disease and be able to manage deliveries with mild COVID-19 disease.

3. Outpatient examination and all inpatient management of pregnant women with COVID-19 should be carried out in an appropriate isolation room. The number of visitors around this room should be limited to the necessary personnel.

4. Birthing sites must set up an isolation room(s) for safe labour and delivery and neonatal care.

5. Chest imaging and CT scan, when clinically indicated should be included in the work-up of pregnant women with suspected, probable or confirmed COVID-19 infection.

6. All medical staff involved in management of infected women should put on PPE as required.

7. A specialist multidisciplinary team (midwife, obstetrician, physician, anaesthetist, intensivist, virologist, neonatologist, etc. as available) should undertake management of COVID-19-infected pregnant women with severe disease at specialised COVID-19 management centres.
8. Timing and mode of delivery should be individualized, depending on both obstetric and medical factors
9. Safety of breastfeeding and the need for mother – baby separation: If either the mother or the baby is severely ill, separation may sometimes be necessary, with expressed breastmilk or donor breast milk feeding. Expressed breast milk must be handled and transported with appropriate IPC procedures. In general, for the baby whose mother has COVID-19, breastfeeding and rooming-in is recommended.

Healthcare professionals engaged in obstetric care including those who perform CT or ultrasound examinations should be trained in IPC measures related to COVID-19 and provided with appropriate PPE. This includes appropriate disinfection of equipment such as ultrasound probes, and CT scan equipment, according to manufacturer specifications.

Notes on clinical management

- 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 empathic.

- For pregnant women the same infection prevention and COVID-19 investigation/ diagnostic guidance applies, as for non-pregnant adults.

- For staff attending to pregnant woman with COVID-19 or PUIs, the same personal protective equipment (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 infection control 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.

- For symptomatic relief or 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.

- COVID-19 is not an indication for delivery, unless it is felt that delivery is required as part of maternal resuscitation to improve maternal oxygenation, or to restore haemodynamic stability.

- COVID-19 is not an indication for caesarean delivery. Women with COVID-19 should be allowed to deliver vaginally, unless there are clear obstetric indications for caesarean section.

- Shortening the second stage by assisted vaginal delivery can be considered if the woman is having respiratory distress.

- Do not monitor the fetal condition in a woman with severe COVID-19. The priority is stabilizing the mother's condition. The presence of the fetal heart can be checked intermittently in such cases.

- For asymptomatic women or those with mild disease, standard fetal monitoring guidelines apply, taking into consideration any obstetric risk factors

- 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

- 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.

- For suspected COVID-19 cases (including recent contacts of a confirmed COVID-19 case) and confirmed cases of COVID-19, intrapartum care, delivery and immediate post-natal care should be conducted in an appropriate isolation room. There should ideally be two dedicated midwives allocated to care for such a woman and her newborn (if this is not possible, then at least one midwife and a nurse), and 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 and nurses caring for the COVID-19 patient.

- Where preterm delivery is anticipated, there is a need for caution regarding the use of antenatal corticosteroids for fetal lung maturation in a critically ill patient, because steroids could potentially worsen the mother's clinical condition. Ideally the use of antenatal steroids should be considered in discussion with a multidisciplinary team (infectious disease specialists, maternal-fetal-medicine specialists and neonatologists). A general guide is that a course of steroids can be given where there is mild COVID-19, but should be avoided when there is severe COVID-19.

- In the case of woman with COVID-19 presenting with spontaneous preterm labour, tocolysis should not be used in an attempt to delay delivery in order to administer antenatal steroids.

- Although the virus has not been isolated from umbilical cord blood or amniotic fluid of pregnancies where the mother has COVID-19, products of conception from miscarriages or terminations of pregnancy and placentae of women with COVID-19 should nonetheless be treated as infectious tissues and be disposed of using appropriate infection control practices.

- The COVID-19 virus has not been isolated from cord blood. Delayed cord clamping is still recommended following birth. The baby can be cleaned and dried as normal, while the cord is still intact.

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 CS. 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.

- The surgeon, surgical assistant, scrub nurse and midwife (receiving baby) must wear full PPE, including an N95 mask and goggles or visor.

- 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).

- 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.

- Where spinal anaesthesia is used the airway theatre trolley should be prepared as for a GA. Two sets of intubation PPE: N95 mask, goggles or visor and two pairs of non-sterile gloves should be available on the trolley. An alcohol based hand sanitizer should be available. In the event of a "stable" conversion to GA, the anaesthetist should don full PPE for intubation whilst the assistant monitors the patient. The anaesthetist should return in full PPE and the assistant should then don PPE. Before proceeding, ensure all staff in the operating theatre are wearing PPE. Induction of anaesthesia should be performed and surgery commence/ restart after the airway is secured. In patients at high risk for GA conversion, PPE should be donned before the initiation of spinal anaesthesia.

- 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:

- i) 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 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. ii) 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.

- 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.

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

- Well newborns of mothers with suspected or confirmed COVID-19 should routinely be kept together with the mother for bonding and breastfeeding, with the mother applying necessary precautions for IPC (mother should wear a mask and wash or sanitize her hands frequently.)

- For PUIs, every attempt must be made to obtain a COVID-19 test result before discharge to clarify isolation requirements post-discharge. The postnatal visit schedule must be arranged before discharge. 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

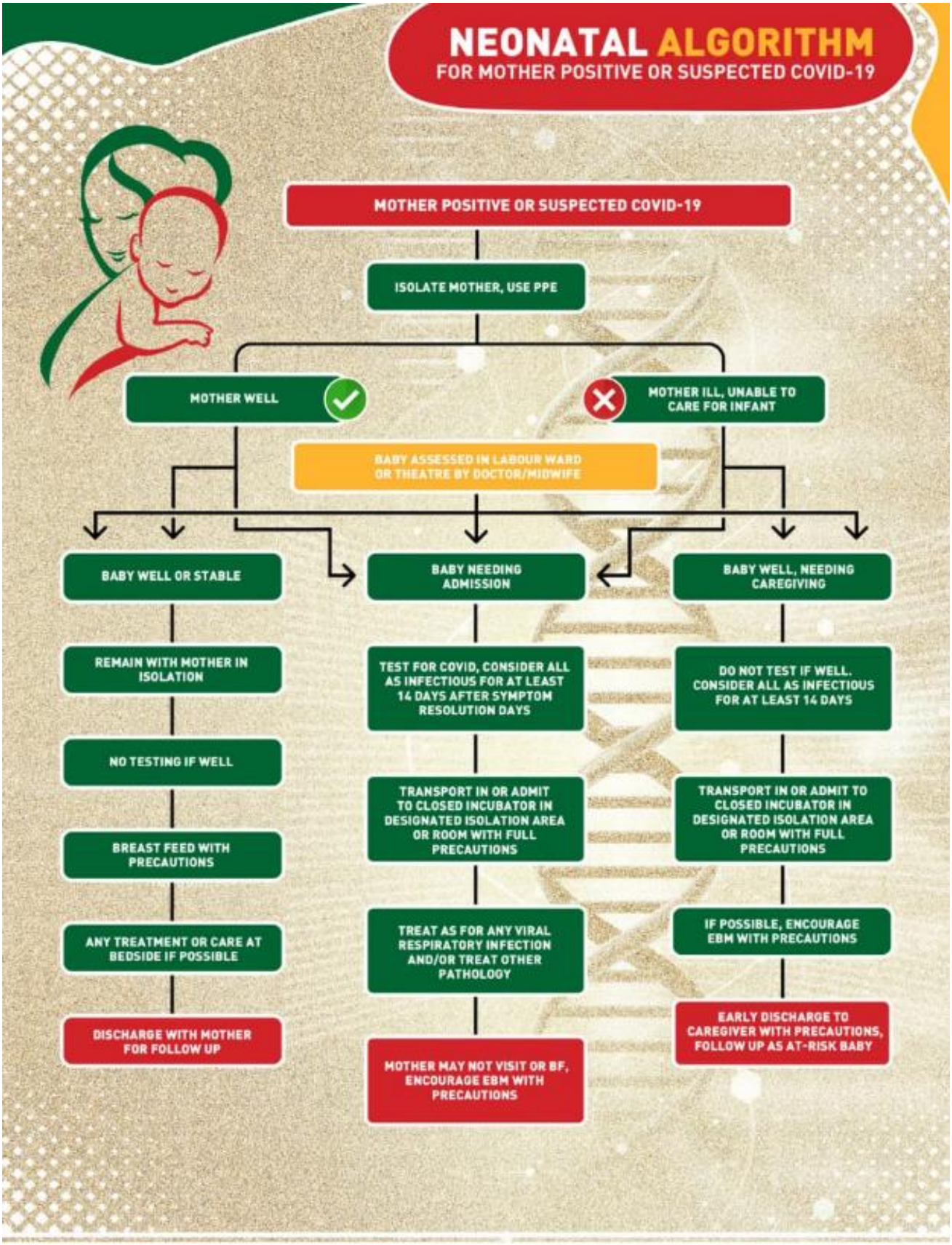
- Routine neonatal criteria for admission to the neonatal nursery/NICU will apply when the mother has COVID-19. Expressed breast milk will be important for the baby in this situation, if the mother is not be allowed to enter the neonatal nursery, due to infection control restrictions

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

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

C. Managing newborns

C1. Mother positive or potential COVID-19 – neonatal algorithm (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
NO TESTING IF WELL
BREAST FEED WITH PRECAUTIONS
ANY TREATMENT OR CARE AT BEDSIDE IF POSSIBLE
DISCHARGE WITH MOTHER FOR FOLLOW UP
TEST FOR COVID, CONSIDER ALL AS INFECTIOUS FOR AT LEAST 14 DAYS AFTER SYMPTOM RESOLUTION DAYS
TRANSPORT IN OR ADMIT TO CLOSED INCUBATOR IN DESIGNATED ISOLATION AREA OR ROOM WITH FULL PRECAUTIONS
TREAT AS FOR ANY VIRAL RESPIRATORY INFECTION AND/OR TREAT OTHER PATHOLOGY
MOTHER MAY NOT VISIT OR BF, ENCOURAGE EBM WITH PRECAUTIONS
DO NOT TEST IF WELL. CONSIDER ALL AS INFECTIOUS FOR AT LEAST 14 DAYS
TRANSPORT IN OR ADMIT TO CLOSED INCUBATOR IN DESIGNATED ISOLATION AREA OR ROOM WITH FULL PRECAUTIONS
IF POSSIBLE, ENCOURAGE EBM WITH PRECAUTIONS
EARLY DISCHARGE TO CAREGIVER WITH PRECAUTIONS, FOLLOW UP AS AT-RISK BABY
health
REPUBLIC OF SOUTH AFRICA
2030

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 8 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 8 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 during COVID 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:

- 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)

Emergency services that need to continue at the usual level of care during 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)

- All health facilities must have a process of screening all outpatients for COVID-19 before or as they arrive at the facility. The facility must be able to provide surgical face masks for patients who screen positive, to be worn during all further interactions at the facility.

- 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 any 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 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 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 outpatients on arrival (brief history and temperature check).
- 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.
- 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.

D2. Providing the essential maternal and child services during the COVID-19 period

Received March 2020

1. Background

Global emergencies situation often lead to interruptions in provision of basic services and institutions may have interruptions in the supply of commodities. As the globe is responding to the pandemic of COVID -19, it is critical that the essential services for pregnant mothers and babies are sustained in order to prevent to possible unintended consequences such as outbreaks, increased adverse maternal and child outcomes and increasing numbers of unintended pregnancies. Evidence suggest the contraception and ANC services are often in demand during crisis situation due to the potential increase in sexual abuse during this time. These services are often neglected as part of the response package.

As South Africa is preparing for the lockdown in the next day or so, it is imperative that contraceptive and immunization services are offered especially to the vulnerable population groups such as youth, teenage mothers and pregnant women. The proposed essential services are:

- Contraceptive services
- Immunization service
- Continued supply of ARV and TB treatment to women and children
- Ante natal care for high risk women
- Lactation support

While it is acknowledged that these services are not emergency as defined in the disaster plan, there are essential to minimise the devastating impact post crisis situation. The Department of Health propose the following intervention strategy:

2. Provision of minimum package of essential maternal and child services

2.1. Model for epicenter provinces (GP, KZN and WC)

2.1.1. Service will be provided through the pharmacy retail outlets that supports CCMDD program

Service	**Commodities required**	**Quantity**	**Additional cost**
Contraceptives	Oral pills, Injectable, condoms and Emergency contraceptives)		None
Immunization	Vaccines		None
Antenatal care for high risk women	Blood pressure monitoring		Fee for service in retail pharmacies (??)

2.1.2. Service will be provided in all the quarantine / Isolation sites across the three provinces.

Service	**Commodities required**	**Quantity**	**Additional cost**	**Quantity**	**Estimated cost**
Contraceptives	Oral pills, injectable, condoms and emergency contraceptives		Health post setting . Professional nurse . Cooler box . Examination couch . Portable	1 per site	
Immunization	Vaccines		Cooler boxes	2 per site 1 Big 1 Small	
Antenatal care for high risk women	Blood pressure monitoring		BP monitoring apparatus	1 per site	

2.1.3. Service will be provided with the contact tracing teams

Service	**Commodities required**	**Quantity**	**Additional cost**	**Quantity**	**Estimated cost**
Contraceptives	Oral pills, injectable, condoms and emergency contraceptives		. Cooler box . Examination couch . Portable	1 per team	
Immunization	Vaccines		Cooler boxes	2 per team 1 Big 1 Small	
Antenatal care for high risk women	Blood pressure monitoring		BP monitoring apparatus	1 per team	

2.2. Model for deep rural districts

The service here will be focusing on hard to reach areas where people may not have access to public transport to get to the nearest retail pharmacies or affordability is the challenge

2.2.1. Mobile units (fully equipped units that can provide the extended service such as an emergency care)

Service	**Commodities required**	**Quantity**	**Additional cost**	**Quantity**	**Estimated cost**
Contraceptives	Oral pills, injectable, condoms and emergency contraceptives		. Cooler box . Examination couch . Portable	1 per mobile unit	
Immunization	Vaccines		Cooler boxes	2 per team 1 Big 1 Small	
Antenatal care for high risk women	Blood pressure monitoring		BP monitoring apparatus	1 per team	
Mobile unit				1 per province	R70 000 per day

2.3. Model for townships and semi-rural districts

Theses service will focus mainly on information giving and conscientise people about the availability of service in the retail pharmacies within the local shopping malls and identify the potential high risk pregnant mother and children. These will require a small mobile unit and provide only screening service (BP monitoring for pregnant mothers, temperature monitoring for children) and refer to the retail. These points may not necessarily require the highly skilled personnel.

Service	**Commodities required**	**Quantity**	**Additional cost**	**Quantity**	**Estimated cost**
Contraceptives	Oral pills, injectable, condoms and emergency contraceptives		. Cooler box . Examination couch . Portable	1 per mobile unit	
Antenatal care for high risk women	Blood pressure monitoring		BP monitoring apparatus	1 per team	
Mobile unit				1 per district (targeting 27 districts)	R70 000 per day

E. Monitoring and evaluation

E1. COVID-19 in pregnancy – national data collection plan (under review)

Framework

Aim:

To monitor the outcome of pregnant women during the time of COVID-19

Method:

Two datasets will be created

1. The designated COVID-19 hospitals – gives the outcome of pregnant women and their babies from those sites
2. Set of sentinel sites that will give the picture of the outcome of mostly COVID-19 negative women and their babies, but will detect "collateral" damage.

Two data forms

1. A weekly data sheet that give the number of births and outcome of all the births at that site, plus the number of COVID-19 positive women managed at that site
2. A single page data sheet for each COVID-19 positive woman that delivered at that site. The number of forms of the COVID-19 should match the number of COVID-19 positive women counted in the weekly data sheet. These data sheets will not include the woman's name or other identifiers.

The forms will be put in Google form and be entered on-site on the Google form. The form will automatically go to a Google database, one for the weekly data and one for the COVID-19 positive pregnant woman.

Each site will have access to data for their site, but no other. The NDOH and the SAMRC/UP Unit for Maternal and Infant health Care Strategies will have access to the whole database and do the analysis. The SAMRC/UP Unit will manage the database.

The COVID-19 sites are:

DESIGNATED HOSPITALS FOR MANAGING 2019-nCoV CASES

Province	Designated Hospital	Designated Referral Hospital
Limpopo	Polokwane Hospital	
Mpumalanga	Rob Ferreira Hospital	
Gauteng	Charlotte Maxeke Hospital Steve Biko Hospital Thembisa Hospital	**Charlotte Maxeke Hospital**
KwaZulu-natal	Greys Hospital	
North West	Klerksdorp Hospital	
Free State	Pelonomi Hospital	
Northern cape	Kimberley Hospital	
Eastern Cape	Livingston Hospital	
Western Cape	Tygerberg Hospital	**Tygerberg Hospital**

The Sentinel sites will be chosen from the current PPIP sites that regularly submit data. All levels of care, geographical locals and rural, semi-rural and urban sites will be selected. However, each site will have to have access to the internet to ensure rapid data transfer.

Data analysis:

The data will give the number of pregnant women with COVID-19 that deliver and:

1. Maternal pregnancy complications
2. Maternal health system usage (normal, high care, ICU, ventilation)
3. Days in hospital
4. Outcome
5. Route of delivery
6. Relationship of complications to HIV status and ARV treatment
7. Perinatal outcome – Stillbirth, neonatal death, survivor
8. Birthweight
9. Gestational age
10. Neonatal complications (HIE, prematurity, infection)
11. Neonatal health system usage (stayed with mother, admitted nursery, high care, NICU, ventilation)
12. Days in nursery
13. Growth restriction
14. COVID-19 infected
15. Feeding method
16. Effect of HIV status on COVID-19 in pregnancy

Data from the sentinel sites will be compared with previous data from those sites to assess whether the COVID-19 negative women have an increased mortality. This will indicate whether there has been "collateral" damage.

Data security:

The data will not contain any patients' names. Only designated people will have access to the data.

Please complete this form for every confirmed COVID-19 pregnant woman who delivers at the time of the COVID-19 disease

HEALTH CARE FACILITY: _____

DATE SHEET COMPLETED BY: _____

Woman's details

Identifier: _____

Maternal age: ____ years OR Unknown

Parity: ____ OR Unknown

Antenatal care: *Please tick one*
- Yes
- No
- Unknown

Delivery information

Date of delivery: D D M M Y Y Y Y

Gestational age: ____ weeks OR Unknown

Delivered: *Please tick one*
- At this facility
- In transit
- At home
- At another facility
- Unknown

If GA known: *Please tick one*
- Certain
- Uncertain

GA based on: *Please tick one*
- Dates
- Ultrasound
- Clinical exam

Birth weight: ____ g OR Unknown

Number of fetuses: ____

Mode of delivery *Please tick one*
- Normal vertex delivery
- Vaginal breech delivery
- Assisted vaginal delivery
- Caesarean section before labou
- Caesarean section during labour

Condition at birth *Please tick one*
- Born alive
- Stillborn, alive on admission
- Fresh stillborn, dead on admission
- Stillborn, admission status unknow
- Macerated stillborn

Syphilis serology

Please tick one
- Positive
- Negative
- Not done
- Unknown

HIV serology

Please tick one
- Positive
- Negative
- Not done
- Unknown

Anti-retroviral drugs

Please tick one
- Prophylactic
- Long-term
- Intrapartum
- Type unknown
- No ART
- Unknown

Infant feeding

Please tick one
- Breastfeeding
- Formula
- Mixed feeds
- Donor milk
- Unknown

Maternal obstetric condition

Please tick all that apply
- Hypertension/pre-eclampsia/eclampsia
- Gestational diabetes
- Spontaneous preterm labour
- Premature rupture of membranes
- Antepartum haemorrhage
- Postpartum haemorrhage
- Puerperal sepsis
- Pneumonia/ARDS

Neonatal morbidity

Please tick all that apply
- Respiratory distress syndrome
- Meconium aspiration syndrome
- Hypoxic-ischaemic encephalopathy
- Necrotising enterocolitis
- Intracranial haemorrhage
- Congenital abnormality
- Neonatal sepis

Health systems usage: woman

Please tick all that apply
- Admitted to high-care unit
- Admitted to ICU
- Intubated & ventilated
- Death

Total duration of hospital admission: _____

OR Unknown

Health systems usage: baby

Please tick all that apply
- Admitted to high-care unit
- Admitted to ICU
- Intubated & ventilated
- Death

Total duration of nursery admission: _____

OR Unknown

DELIVERY DATA FOR ONE WEEK

Total number of deliveries: _____

Total number of confirmed COVID-19 deliveries: _____

HEALTH CARE FACILITY: _____

DATA PERIOD: (from Monday until Sunday)

FROM: D D M M Y Y Y Y UNTIL: D D M M Y Y Y Y

Deliveries during this week

	Total births	Stillborn	Neonatal deaths Early	Neonatal deaths Late	Alive on discharge
500 - 999g:					
1.000 - 1.499g:					
1.500 - 1.999g:					
2.000 - 2.499g:					
2.500g+					
Total:					

Delivery methods

Normal vaginal delivery: _____

Ventouse: _____

Forceps: _____

Vaginal breech: _____

Caesarean section: _____

Other (destructive etc.): _____

Maternal age

Younger than 18 years: _____

18-19 years: _____

35y and older: _____

HIV serology

Positive: _____

Negative: _____

Not done: _____

Multiple pregnancies

Pregnancies _____

Neonates: _____

Antenatal care

Local clini _____

Elsewhere _____

None: _____

Born before arrival

Total: _____

Morbidity markers

Antepartum haemorrhage: _____

Portpartum haemorrhage: _____

Severe pre-eclampsia: _____

Eclampsia: _____

Induction of labour: _____

Prolonged rupture of membranes _____

Ruptured uterus: _____

Sepsis: _____

Obstructed/prolonged labour: _____

Retained placenta: _____

Manual removal of the placenta: _____

Bag/mask neonatal resuscitation: _____

Parity

Primiparae: _____

Multiparae: _____

Grand multiparae: _____

Syphylis serology

Positive: _____

Negative: _____

Not done: _____

Antiretroviral therapy

HIV positive mother

Prophylactic ART: _____

Long-term ART: _____

Intrapartum ART only: _____

ART type unknown: _____

Received no ART: _____

Neonates of HIV positive moth

Received drugs: _____

Identification

Data sheet completed by:

F. Miscellaneous examples

F1. Example of a COVID-19 Hospital Algorithm SOP (updated 6 April 2020)

ALGORITHM SARS COVID – PREGANCY PROTOCOL **Steve Biko/Tshwane North Cluster**

SBAH/Kalafong hospital/DGMA hospital referral area

A. SCREEN ALL PREGNANT WOMEN FOR SARS COVID 2

ASK THE FOLLOWING QUESTIONS:

- Have you travelled to an affected country in the last 14 days?
- Have you had contact with anyone who has travelled to an affected country in the last 14 days?
- Do you have a close contact with a confirmed case of COVID 19 – confirmed positive lab test?
  - contact with the infected person within < 1 metre for > 15 mins
  - living together
  - direct contact with body fluids
- Have you worked in or attended a health care facility where patients with COVID 19 were being treated?
- Is the patient presenting with severe pneumonia of unknown aetiology?

NB: Pregnant patients MAY or MAY NOT display symptoms with the above history.

- Symptoms include: cough, difficulty breathing, sore throat or fever.
- RECORD the temperature

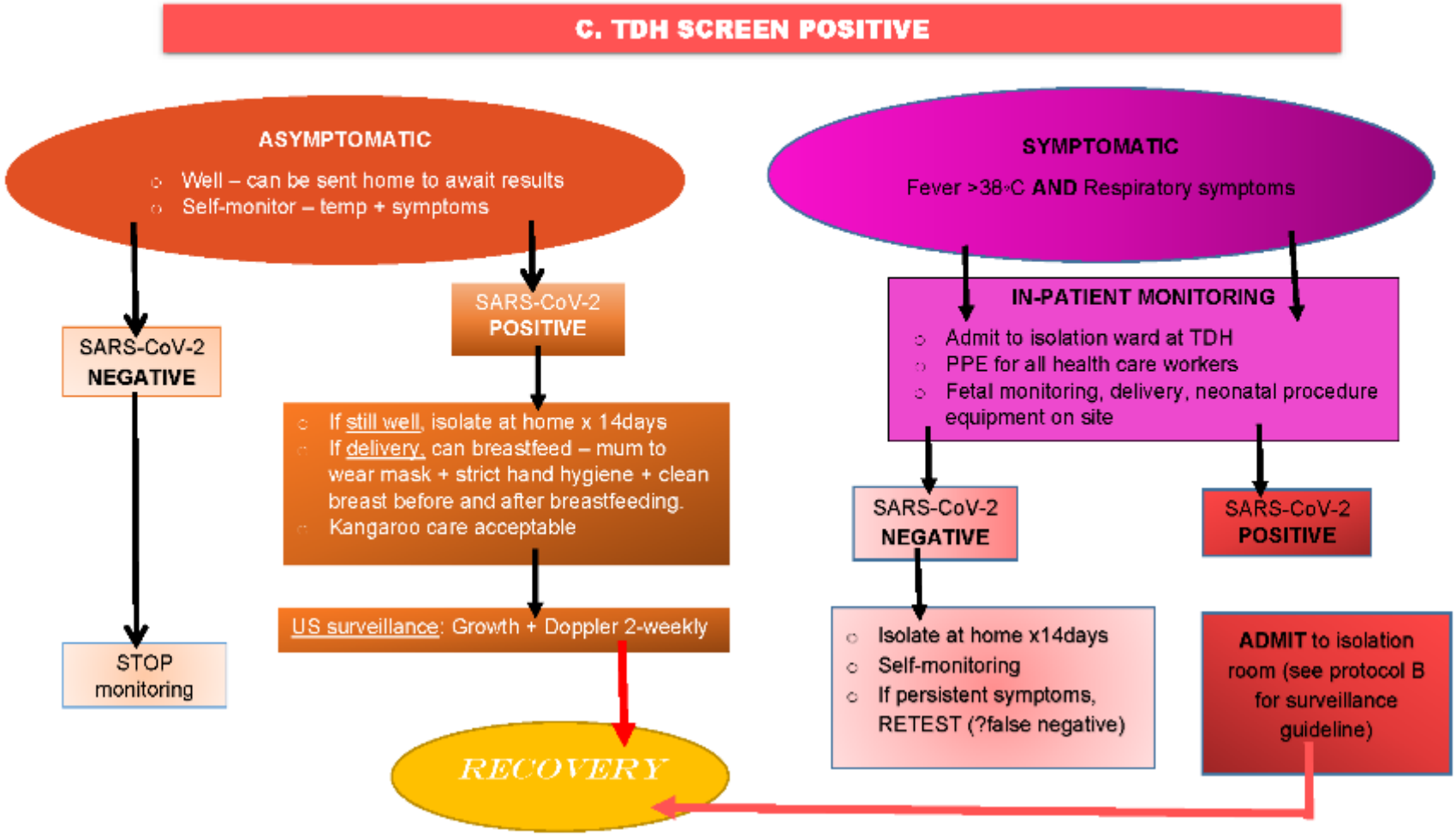
If the patient answers positive for any of the above questions, refer to the COVID screening area at TDH.

The patient must wear a surgical face mask and be isolated immediately

Health care workers should keep 1 metre distance from patient unit PPE available.

ALGORITHM SARS COVID – PREGANCY PROTOCOL **Steve Biko/Tshwane North Cluster**

SBAH/Kalafong hospital/DGMA hospital referral area

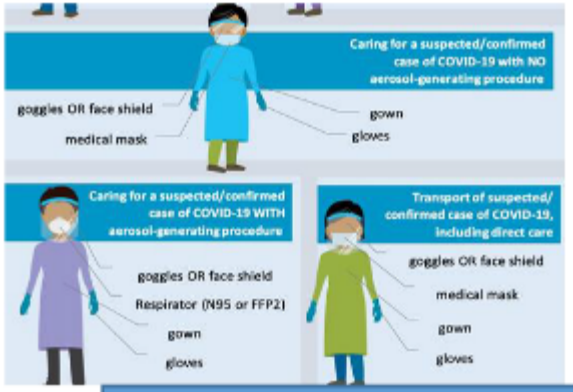


ALGORITHM SARS COVID – PREGANCY PROTOCOL **Steve Biko/Tshwane North Cluster**

SBAH/Kalafong hospital/DGMA hospital referral area

B. All pregnant patients with *suspected/confirmed Covid infections* to be referred to TDH
Report to the screening area in Casualty/Tents at TDH

- Patient to wear surgical mask, disinfect hands
- Transfer to isolation cubicle
- Staff to adhere to Infection Prevention and Control + Personal Protective Equipment
- Conduct full history and clinical examination
- TEST: deep nasopharyngeal and pharyngeal swabs



SURVEILLANCE in Isolation Cubicle

MATERNAL	FETAL
• Temp, pulse, BP, RR 6hrly • Adhere to modified Early Warning Signs • CXR with shielding • High res CT respiratory symptoms • Consider VTE prophylaxis	• Document FHR daily • ±Corticosteroids for FLM dependant on maternal condition

Consult physician ward 8 if

- RR > 25bpm
- O2 sats < 94%
- Pulse > 120 bpm
- Temp < 36 or > 39

Admit Covid - ICU

- ARDS
- Septic shock
- Multi-organ failure

DELIVERY, in isolation room

NVD; CS for Obstetric indication only

<26 weeks:

- Consider TOP for severe maternal disease

>26 weeks:

- Delayed cord clamping; clean neonate
- Baby to remain with mother if both well
- Breastfeeding, hand hygiene, mother to wear face mask
- Babies requiring admission to be managed according to neonatal protocol
- If mother unwell consider discharging neonate to caregiver/ await discharge in closed incubator in isolation area

F2. Example of a PPE plan (Western Cape)

Western Cape Government
BETTER TOGETHER.

GUIDELINES FOR PPE USE DURING THE CORONAVIRUS DISEASE 2019 (COVID-19)
WESTERN CAPE GOVERNMENT: HEALTH 25 MARCH 2020

Prepared by: Marc Mendelson, Angela Dramowski, Shaheen Mehtar, James Nuttall, Inneke Laenen, Bhavna Patel, Jantjie Taljard and Gavin Reagon

PURPOSE AND SCOPE OF DOCUMENT

This document provides recommendations for the use of personal protective equipment (PPE) for specific situations, to protect our staff, patients and visitors against exposure to the coronavirus (SARS-CoV-2). Each situation staff may be placed in has a different risk of exposure, so the recommendations are designed to ensure that the most appropriate and effective PPE is used in each situation. The guidelines apply to all clinical staff (such as nursing assistants, nurses, doctors, occupational therapists, physiotherapists, dentists, oral hygienists, radiographers), non-clinical staff (such as administrative staff, cleaners, porters, catering staff and security), ambulance staff and community health workers who may come into contact with suspected or confirmed COVID-19 cases.

CORONAVIRUS TRANSMISSION

The SARS-CoV-2 virus (coronavirus) is spread by respiratory droplets and contact with contaminated surfaces . The virus can be transmitted from infected people by cough and sneeze droplets, which land on surfaces and hands. Further transmission can occur via physical contact such as shaking hands, or touching contaminated surfaces.

GENERAL MEASURES TO PROTECT AGAINST INFECTION

These general measures to prevent infection should always be followed. PPE is then used in addition, when required.

- Transmission can be greatly reduced by an increased frequency of hand hygiene using the "WHO 5 Moments for Hand Hygiene".
- Cough and sneeze into a flexed elbow, or into a tissue (then place it in a bin and wash your hands).
- Wash hands with soap and water for 20 seconds, or use alcohol-based hand sanitiser after patient contact and after contact with frequently touched surfaces (e.g. keyboards, screens, phones, door handles, work surfaces).
- Avoid touching your eyes, nose and mouth with unwashed hands
- Avoid handshakes or physical contact – greet people in other ways
- Keep a safe distance from other people (at least 1 metre) whenever possible (social-distancing).
- Frequently touched surfaces and equipment in clinical areas should be cleaned and disinfected twice daily.
- Remove your work clothes at the workplace and place in a plastic bag. Clean with warm wash at home. Or else remove your work clothes immediately when you get home and place them in a washing basket. Wash your hands after removal of clothes.

1

RECOMMENDATIONS FOR PPE USE DURING CONTACT WITH AND CARE OF COVID-19 CASES

The table below provides detailed recommendations about when and which PPE is required in various healthcare situations.

- **PPE is based on risk assessment of each situation and is ONLY NEEDED if you are in direct contact with or caring for a confirmed or suspected COVID-19 patient.**
- Supervisors should monitor that staff are wearing the appropriate PPE for a particular situation, to keep everyone safe.
- **Do not use PPE (e.g. N95 respirators) when you don't need to. PPE stocks will then be preserved to ensure the safety of everyone.**

INPATIENT SERVICES (HOSPITAL WARDS, ICU, OVERNIGHT/HOLDING WARDS, STEP-DOWN FACILITIES)

Setting	Target Personnel or Patients	Activity	Type of PPE or Procedure
Isolation cubicles, rooms, or wards where COVID-19 patients are being cared for.	**Patients with COVID-19**	Any **rect care to COVID-19 patients**	**Surgical Mask**
	Clinical staff	**Providing di**	**Surgical Mask**
			Apron Non-sterile Gloves Eye protection (goggles or visor)
	Clinical staff	**Aerosol-generating procedures*** performed on COVID-19 patients (such as **nasopharyngeal and oropharyngeal swabbing** for testing for coronavirus infections) **N95 respirators**** are only worn when performing aerosol producing procedures	**N95 Respirator** Apron or gown Non-sterile Gloves Eye protection (goggles or visor)
	Body of deceased	**Death of COVID-19 patient**	Wrap body with sheets as per usual

2

Setting	Target Personnel or Patients	Activity	Type of PPE or Procedure
	Cleaners	Entering the cubicle or room or ward of **COVID-19 patients**	**Surgical mask** Apron Long rubber utility cleaning gloves (ideally up to elbow) that can be washed Eye protection (goggles or visor) Closed work shoes
	Porters and nurses	Transport of **COVID-19 patients**	**Surgical Mask** Non-sterile Gloves
	Catering staff	Providing meals **inside COVID-19 ward**	**Surgical Mask** Non-sterile Gloves
	Administrative personnel	Administrative staff supporting **COVID-19 ward services**, who are not usually in direct contact with patients, but would enter the isolation ward.	**Surgical mask** Non-sterile Gloves Maintain spatial distance of at least 1 metre, where possible
	Security personnel	Any	**Surgical mask**
	Laundry workers	Laundering of **COVID-19 patient** linen	**Linen to be bagged separate from other linen** **Surgical mask** Apron Long rubber utility cleaning gloves (ideally up to elbow) that can be washed Eye protection (goggles or visor) Closed work shoes

3

Setting	Target Personnel or Patients	Activity	Type of PPE or Procedure
All types of wards where Non-COVID-19 Patients (i.e. patients who do NOT have COVID-19) are being cared for	**Patients without COVID-19**	Any	**No PPE required**
	Clinical staff	**Aerosol-generating procedures*** performed on **Non-COVID-19 patients***	**Surgical mask** Apron Non-sterile Gloves Eye protection (goggles or visor)
	All staff	**Any other activity** besides Aerosol-generating procedures performed for **Non-COVID-19 patients**	**No PPE required**
	Visitors	Visiting **patients without COVID-19**	**No PPE required**
Other areas of the hospital where COVID-19 patients transit (e.g. corridors) but are not directly attended to.	**All staff**	Any activity that does **not involve contact with COVID-19 patients**	**No PPE required**

* Aerosol-generating procedures are: collection of nasopharyngeal and oropharyngeal swabs for SARS-COV-2 testing, tracheal aspirate, bronchoalveolar lavage, manual bag-mask ventilation, non-invasive CPAP ventilation, tracheal intubation, open suctioning, tracheotomy, bronchoscopy, endoscopy, ENT procedures, dental procedures, maxillo-facial procedures and cardiopulmonary resuscitation.

**N95 respirator must still be used for all other Non-COVID-19 indications (e.g. when attend to a patient with confirmed or suspected TB)

4

SERVICES AT PHC FACILITIES, OUTPATIENTS, EMERGENCY UNITS AND TEMPORARAY FACILITIES

Setting	Target Personnel or Patients	Activity	Type of PPE or Procedure
Triage at Clinics, CHC, OPD. Emergency Units and temporary facilities entrances	**Clinical staff**	**Triage: Preliminary screening of patients (via questions on symptoms** and contact with COVID-19 cases) as they enter unit.	Maintain spatial distance of at least 1 metre **Surgical mask**
	Patients and escorts who screen positive	While **waiting for testing**	**Move patient to isolation room** Provide **Surgical mask**
	Patients and escorts who screen negative but have respiratory symptoms	While waiting for **consultation**	Maintain spatial distance of at least 1 metre. Provide **Surgical mask**
	Patients and escorts who screen negative but *without* respiratory symptoms	While waiting for **consultation**	**No PPE required**
Administrative areas	**All staff** including reception, clerical and clinical staff	Administrative tasks that **do not involve contact with COVID-19 patients**	**No PPE required**
Clinic, CHC, OPD, Emergency Unit and Temporary facility Consultation rooms	**Clinical staff**	Physical examination of **suspected COVID-19 patients**	**Surgical Mask** Eye protection (goggles or visor) Apron Non-sterile Gloves
	Clinical staff	**Aerosol-generating procedures** performed on suspected COVID-19 patients (such as **nasopharyngeal and oropharyngeal swabbing** for **testing** for coronavirus infections) **Note that N95 respirators** are only worn when performing aerosol-generating procedures	**N95 Respirator** Apron or gown Non-sterile Gloves Eye protection (goggles or visor)

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Setting	Target Personnel or Patients	Activity	Type of PPE or Procedure
	Clinical staff	Physical examination of patients **without** respiratory symptoms.	**No PPE required**
	Cleaners	Cleaning the **vacated** room and areas used by a COVID-19 patient	**Surgical mask** Apron Eye protection (goggles or visor) Long rubber utility cleaning gloves (ideally up to elbow) that can be washed Closed work shoes
	Body of deceased	**Death of COVID-19 patient**	Wrap body with sheets as per usual
Entrance to COVID-19 Area	**Security personnel.**	Any	**Surgical mask**

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COVID-19 PATIENTS CARED FOR AT HOME (OR IN HOSTELS)

Setting	Target Personnel or Patients	Activity	Type of PPE or Procedure
Private home or hostel	**Patient with COVID-19**	**When in contact with others**	**Surgical mask.**
	Caregiver (family members and other caregivers)	**Direct contact with COVID-19 patients.**	**Surgical mask** Apron. Non-sterile gloves. Eye protection (goggles or visor)
	Contact tracers and **Medical response teams**	**Direct contact with COVID-19 and suspected COVID-19 patients**	**Surgical mask** (ideally with visor) Apron. Non-sterile gloves.
	Body of deceased	**Death of COVID-19 patient**	Wrap body with sheets

EMERGENCY MEDICAL SERVICES (EMS)

Setting	Target Personnel or Patients	Activity	Type of PPE or Procedure
Ambulance/transfer vehicle	**Clinical staff**	Care for and transport of **suspected COVID-19 patients** to a referral health care facility	**Surgical mask** A40 suit (apron not practical when worn outside, especially if windy) Non-sterile Gloves Eye protection (goggles or visor)
	Clinical staff	**Intubation and suctioning** of suspected COVID-19 patients	**N95 Respirator** A40 suit (apron not practical)

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Setting	Target Personnel or Patients	Activity	Type of PPE or Procedure
			Non-sterile Gloves Eye protection (goggles or visor)
	Suspected COVID-19 patient	While being **transported**	**Surgical mask**
	Cleaners	**Cleaning the vehicle** after transport of suspected COVID-19 patients to the referral facility	**Surgical mask** Apron Eye protection (goggles or visor) Long rubber utility cleaning gloves (ideally up to elbow) Closed work shoes

COMMUNITY HEALTH WORKER (CHW) SERVICES

Setting	Activity	CHW PPE	People/Patient PPE
Field: Outdoor points (bus or taxi rank) and **Indoor points** (mall)	**Distributing** educational materials	Maintain at least 1m distance from people. **No PPE required**	Maintain at least 1m distance from people. **No PPE required**
Field: In communities but **outside homes**	**Distributing** educational materials	Maintain at least 1m distance from people. **No PPE required**	Maintain at least 1m distance from people. **No PPE required**
	Distributing chronic medication and general supplies	Maintain at least 1m distance from people. **No PPE required**	Maintain at least 1m distance from people. **No PPE required**

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Setting	Activity	CHW PPE	People/Patient PPE
Inside homes	**Assisting** patient who **has COVID-19** with or without any other diseases (CVA, chronic ulcer, septic wound, etc.) except for TB	**Surgical mask (single use;** ideally with visor) Gloves (single use) Apron (single use) Alcohol-based hand sanitiser (use before and after remove and discard gloves, apron and mask) Infectious waste disposal plastic bag	**Surgical mask**
	Assisting **TB patient** who **does NOT have COVID-19**	**N95 Respirator (single use)** Alcohol-based hand sanitiser Infectious waste plastic bag	**No PPE required**
	Assisting **TB patient** who **DOES have COVID-19**	**N95 Respirator (single use)** Gloves (single use) Apron (single use) Alcohol-based hand sanitiser Infectious waste plastic bag	**Surgical mask**
	Assisting patient *with* **respiratory symptoms**	**Surgical mask (single use)** Gloves (single use) Alcohol-based hand sanitiser Infectious waste plastic bag	Provide **surgical mask** to patient
	Assisting patient without **respiratory symptoms**	Maintain 1m distance from patient.	**No PPE required**

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FORENSIC PATHOLOGY AND MORTUARY SERVICES

Setting	Target Personnel or Patients	Activity	Type of PPE or Procedure
Private home, hostel or hospital	**Caregivers, hospital staff, mortuary staff** transporting and preparing the body and **Forensic Pathology staff** transporting the body	**Direct contact with deceased COVID-19 and suspected COVID-19 patients**	**Surgical Mask** Apron or gown Non-sterile Gloves Eye protection (goggles or visor)
	Body of Deceased COVID-19 patients	**Deceased body being removed**	**Usual procedures for removing body**
FPS vehicle used to transport deceased	**Cleaner**	**Cleaning of vehicle**	**Surgical mask** Apron Eye protection (goggles or visor) Long rubber utility cleaning gloves (ideally up to elbow) that can be washed Closed work shoes
Mortuary	**Forensic pathology staff**	**Conducting autopsy (if required)**	**N95 Respirator** Gown Apron Eye protection (goggles or visor) Double gloves Cut-proof synthetic mesh gloves Closed work shoes

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The tables above cover all the common scenarios in which PPE should be used. However, should a scenario arise which is not addressed above, then use the generic PPE principles below to decide on the appropriate PPE to use.

TYPE OF PPE	CLINICAL STAFF (nurses, doctors, EMS) Providing direct care to COVID-19 patients or patients with respiratory symptoms	NON-CLINICAL STAFF (admin staff, catering staff) coming into distant contact with COVID-19 patients and contaminated surfaces	NON-CLINICAL STAFF (cleaners) coming into distant contact with COVID-19 patients and contaminated surfaces	PATIENTS with RESPIRATORY symptoms	PATIENTS without RESPIRATORY symptoms
Gloves	Non-sterile gloves. Change between patients	Non-sterile gloves. Change when leaving COVID-19 area	Reusable long rubber utility cleaning gloves (ideally up to elbow) Change after completed cleaning contaminated area	None	None
Face cover type	**Surgical Mask** for general care of COVID-19 patients **N95 respirator** for aerosol generating procedures on COVID-19 suspects/cases	**Surgical mask** when within <1m of a patient with respiratory symptoms (one per shift, if integrity maintained)	**Surgical mask** when within <1m of a patient with respiratory symptoms	**Surgical mask** worn when in contact with others	None
Aprons	Change between patients	Change when leaving COVID-19 area	After each work session (in absence of clinical contact)	None	None
Face shields, or visors, or goggles, or other eye covers	Wash clean, disinfect and reuse	None	Wash clean, disinfect and reuse	None	None

11

GUIDELINES FOR USE OF A N95 RESPIRATOR FOR COVID-19

FOR AER0SOL GENERATING-PROCEDURES ONLY

- Seal tests should be performed each time a N95 respirator is used (i.e. when it is first put on)

Perform the seal test with every use to ensure the respirator fits properly around the face and nose

Negative seal check
Cone-shape: cup hands over respirator lightly. Breathe in sharply. No air should leak in around the face. to- Duck-bill + V-flex: Breathe in sharply. The respirator should collapse inwards

Positive seal check
Cone-shape: Cup hands over respirator. Blow out. A build-up of air should be felt with no air leaks.
Duck-bill + V-flex: Breathe out forcefully; the respirator should expand on the exhale.

How to wear a N-95 respirator:

- The N95 respirators should ideally be used once only and should be discarded once safely removed. However, as there is a global shortage of N95 respirators, reuse is strongly encouraged and is preferable to having no respirator.
- If HCWs are performing aerosol-generating procedures (e.g. sample collection) on several COVID-19 patients sequentially, they may use the same N95 respirator and eye protection for the session; **they must however change apron and gloves between patients.**
- As the outside surface of the N95 respirator will become heavily contaminated with the virus during aerosol-producing procedures, HCWs should take great care not to touch the outside surface and must perform careful hand hygiene after removing it.
- For reuse, carefully remove the N95 respirator using a clean paper towel and store the respirator in a clean paper bag. The paper bag must be labelled with the staff member's name. Do not crush or crumple. It can be reused for up to 1 week.
- Do NOT attempt to disinfect the N95 respirator as that destroys its integrity.
- Note that obviously damaged and visibly contaminated respirators cannot be reused.

12

GUIDELINES FOR SURGICAL MASK USE FOR COVID-19

- At any time if surgical masks are touched by unwashed hands, get wet, are soiled, or are removed from the face, they will become contaminated and will no longer provide effective protection. They should then be discarded.
- Masks that are not wet, were not touched by unwashed hands and were not removed from the face, can be worn for up to 8 hours.
- COVID-19 patients when inside a dedicated COVID-19 ward, where staff are wearing PPE, do not need to wear masks.
- COVID-19 patients when outside a dedicated COVID-19 ward must always wear a surgical mask. The mask can be used for up to 8 hours.

FOR HOW LONG CAN PPE BE USED?

TYPE OF PPE	CLINICAL HCW	NON-CLINICAL HCW	SYMPTOMATIC PATIENTS
Gloves	Change after each clinical contact	End of work session	N/A
Surgical Face Masks	Mask can be used up to the end of a shift if it remains dry and has not been removed from the face.	Mask can be used up to the end of a shift if it remains dry and has not been removed from the face.	When in contact with others
N95 respirator	As long as integrity is maintained and it is safely stored, it can be reused for up to 1 week.	N/A	N/A
Aprons	Change after each clinical contact	After each work session (in absence of clinical contact)	N/A
Face shields/ visors	Clean and disinfect before reuse	N/A	N/A
Goggles	Clean and disinfect before reuse	Cleaners may use same googles for each work session. Clean and disinfect before reuse	N/A

VIDEO DEMONSTRATION OF DONNING AND DOFFING OF PPE

A demonstration video for safely putting on and taking off PPE (donning and doffing of PPE) is available at:

https://player.vimeo.com/external/400607941.hd.mp4?s=af075e8c9647a23114424834c1e73f866a73e5f7&profile_id=174

13

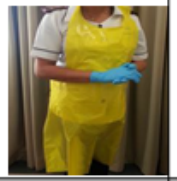
INSTRUCTIONS FOR PUTTING ON AND TAKING OFF PPE (DONNING AND DOFFING PPE)

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (DONNING)

Wash your hands before putting on the PPE. PPE should be put on in an order that minimises contamination. The apron, mask, goggles and gloves must be put on in that order. See guidance on each below.

Apron

- ***Wash hands***
- Slip it over the head and tie the stings behind the back

Mask or N95 Respirator

- Secure each tie or elastic at the middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator by blowing into it (air should not leak out)

Goggles or Visor

- Place over face and eyes
- Adjust band to fit comfortably

Gloves

- Hold the edge of the glove as you pull it over your hand
- Extend to cover wrist
- Once gloved, do not touch other surfaces

SEQUENCE FOR TAKING OFF PERSONAL PROTECTIVE EQUIPMENT (DOFFING)

Wash your hands before taking off the PPE. PPE should be removed in an order that minimises contamination. The gloves, apron, goggles/visor, and mask must be removed in that order.* **Wash your hands after taking off the PPE.** Discard PPE in infectious waste container. See guidance below.

Gloves

- ***Wash hands***
- Securely grasp the outside of glove with the opposite gloved hand; peel off; discard as infectious waste
- Slide the fingers of the un-gloved hand under the remaining glove at the wrist; peel off; discard as infectious waste

Apron or Gown* (See Note)

- ***Wash hands***
- Unfasten or break apron/gown ties
- Pull the apron away from the neck and shoulders, touching the inside of the apron only and bring it forward and over the head
- Turn the apron inside out, fold or roll into a bundle and discard as infectious waste

Goggles or Visor* (See Note)

- Remove goggles/visor from the back by lifting head band or ear pieces
- Place in designated receptacle for disinfecting

Mask or N95 Respirator

- Untie or break bottom ties, followed by top ties or elastic.
- Remove by handling the ties only and discard as infectious waste.
- ***Wash hands***

*Note. When it is practically difficult to remove the apron/gown before the visor/goggles, then the visor/goggles may be removed before the apron/gown.

Dispose of all PPE in an infectious waste container.

WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITISER AFTER REMOVING GLOVES AND AFTER REMOVING ALL PPE

14

F3. Poster: Putting on and taking off PPE for COVID-19 (Western Cape)

Western Cape Government
BETTER TOGETHER.

Quick reference guide on how to put on and take off PPE for COVID-19

SELECT the correct PPE for the type of care provided or procedure performed

Direct care of patients with COVID-19 (Non-aerosol generating)	Aerosol-generating procedure on patients with COVID-19
✓ non-sterile gloves ✓ **apron** ✓ eye shield or goggles ✓ **surgical mask**	✓ non-sterile gloves ✓ **gown / apron** ✓ eye shield or goggles ✓ **N95 respirator**
DONNING ORDER FOR PUTTING ON PPE	**DOFFING ORDER FOR TAKING OFF PPE**
hand hygiene (soap or alcohol handrub) 	**hand hygiene (soap or alcohol handrub)** 
put on apron or gown 	**remove gloves** 
put on surgical mask or N95 respirator 	**remove gown / apron** 
put on eye cover 	**remove eye cover** 
put on non-sterile gloves 	**remove N95 respirator** 
	hand hygiene (soap or alcohol handrub) 
PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE	

26 March 2020

F4. Minimum staffing (draft) (Priorities in Perinatal Care Conference, March 2020)

Deliveries from labour ward per month (all vaginal deliveries and emergency CS; excludes elective CS)	Average deliveries per shift from labour ward	Minimum number of midwives needed in labour ward per shift	Minimum number of midwives needed for all shifts per month	Allowance for vacation leave and study leave etc	Minimum total number of midwives needed for labour ward component
≤120*	Up to 2	2	2x4 = 8	2	10
121-180	Between 2 and 3	3	3x4 = 12	2	14
181-240	Between 3 and 4	4	4x4 = 16	3	19
241-300	Between 4 and 5	5	5x4 = 20	3	23
301-360	Between 5 and 6	6	6x4 = 24	4	28
361-420	Between 6 and 7	7	7x4 = 28	4	32
421-480	Between 7 and 8	8	8x4 = 32	5	37
481-540	Between 8 and 9	9	9x4 = 36	5	41
541-600	Between 9 and 10	10	10x4 = 40	6	46

F5. Example of a poster for potential or confirmed COVID-19 delivery

IF A PREGNANT MOTHER HAS SUSPECTED or CONFIRMED COVID-19 on the postnatal wards

- Try not to separate the mother and her well baby (mother to wear a surgical mask and be issued with personal container of 50ml alcohol handrub from UIPC)
- Mother and baby must be placed in single room isolation in postnatal ward
- Instruct mothers not to use shared areas e.g. kitchen or enter other clinical cubicles and wards
- Continue breastfeeding if possible

IF A PREGNANT MOTHER HAS SUSPECTED or CONFIRMED COVID-19 AND her baby requires admission to neonatal unit

- Transport baby in an incubator to ward G1
- Admit the baby to the ward in a closed incubator
- If the baby requires oxygen support (CPAP), administer oxygen inside of the incubator
- Inform the neonatal consultant on duty for the further action plan
- Wear the correct PPE (see below), until baby is known to be CoVID-19 negative
- Develop a plan to obtain EBM from the mom, while she is unable to breastfeed
- COVID-19 + moms can only come back in to ward 14 days after their diagnosis (positive COVID-19 test)

PPE for use with a suspected/confirmed COVID-19 infected/exposed baby in an incubator:

✓ non-sterile gloves
(then discard in red bin and perform hand hygiene)

PPE for use with a suspected/confirmed COVID-19 infected/exposed baby at delivery / when not in an incubator:

✓ non-sterile gloves
✓ eye shield or goggles
✓ surgical mask
✓ plastic apron

(then discard in red bin and perform hand hygiene)